EFFECTS OF CREDIT RISKS ON THE FINANCIAL PERFORMANCE OF SUGAR FIRMS IN KENYA

BY

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DECLARATOIN

This Research Project is my original work and has not been presented to any other University for Academic Award.

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This Research Project has been submitted for Examination with my approval as the University Supervisor.

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DEDICATION

This work is dedicated to my family, wife Nancy Koroto, daughter Dina, and my sons John and Moses for their moral support, encouragement and understanding. Thanks to the Almighty God for his blessings without which it would have been impossible to accomplish this project.

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ABSTRACT

The overall objective of this study was to establish the effects of credit risk on the financial performance of sugar firms in Kenya. This was achieved by looking at the effect of credit risk exposure rate, default rate, and recovery rate on the return on equity of sugar firms in Kenya. This is led by the fact that sugar industry in Kenya is faced with financial challenges and many sugar firms are struggling with operational cost to make profit. The study covered all the eight registered sugar firms in Kenya by the Kenya Sugar Board as at December 2013. Cross-sectional survey design was used to collect the data from the field. The researcher carried out a census survey where all the registered sugar firms by the Kenya sugar board as at the time of the study were studied. Descriptive statistics and inferential analysis of the data were done using measures of central tendency and Pearson correlation analysis. This study induced and actualized better understanding of credit risk effect on sugar firms' performance. Secondary data collected from the sugar firms annual reports for the period 2009 to 2013 was used in this study. The data collected from the annual report was analyzed using the multiple regression analysis. The regression out put was obtained using statistical package for social sciences. In the model, the dependent variable return on equity was used as an indicator of financial performance while the independent variables credit risk exposure rate, default rate, and recovery rate were used as credit risk indicators. The findings of the study showed that there is a significant relationship between financial performance and credit risk. The dependent and the independent variables in the study indicated a relationship with credit risk exposure rate and default rate showing a negative relationship with the return on equity while recovery rate showing a positive relationship with return on equity. The regression results shows that exposure rate have a higher significant effect on return on equity than the default rate. The regression results is significant since both the independent variables (ER, DR, and RR) can reliably predict the independent variable return on equity. The study concludes that credit risk exposure rate, default rate and recovery rate have a significant relationship with the return on equity of sugar firms in Kenya. The recommendation from the findings of the study suggests that all sugar firms in Kenya should implement credit risk measurement system such as credit ranking and credit scoring to customers to avoid incurring more cost on customers who have proved to be not credit worthy. All sugar firms should define the credit risk profile of their clients to ensure that necessary measures are taken before credit facilities are granted. The study suggests that more independent variables to be added in the regression model to help improve the results of the study.

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LIST OF ABREVIATONS AND ACRONYMS

CAMEL – Capital adequacy, Asset quality, Management quality, Earnings, Liquidity,

C.E.O – Chief Executive Officer

COD – Cash On Delivery

COMESA - Common Market for Eastern and Southern Africa

DR – Default Rate

ER – Exposure Rate

GDP – Gross Domestic Product

KACC – Kenya Anticorruption Commission

KSB – Kenya Sugar Board

KSI – Kenya Sugar Industry

OHRP – Office of Human Research Protections

ROE – Return On Equity

SUCAM – Sugar Campaign for Change

TI – Transparency International

WTO – World Trade Organization

CHARPTER ONE: INTRODUCTION

1.1 Background of the study

Most business organizations are subjected to a number of risks such as credit risk, operational risk, foreign exchange rate risk and liquidity risk among others. Credit risk has always been of primary concern in most firms as indicated by Keyness (1930) and Hicks (1939). The major sources of credit risk include default risk from customers who do not pay on time leading to bad debts and high credit risk exposure (KSB, 2010). Various studies done indicate that high risk investments leads to high returns (Sharpe, 1964), while other studies done indicates a negative correlation between risk and return (Bowman 1980). Default rate, bad debts and cost per loan asset are the major indicators of credit risk as suggested by Kadubo and Musyoki (2011), the study reveals that these indicators have an inverse impact on financial performance.

Agency theory proposed by Ross and Barry (1973) and later developed by Jensen and Mecklings (1976) demonstrates the fundamental conflicts of interest between managers and owners of a firm. Myers (1996) suggests that agency problems are most severe for firms in financial distress and firms with high growth opportunities. The conflict between debt holders and mangers on one hand and managers and firm owners is revealed when more risky investment with higher returns benefits the firm owners to the detriment of the debt holders who are entitled to a fixed return (Myers, 1996). Debt covenant theory as motivated by the theoretical work of Chan and Kanatas (1985) on collateral requirement

provide an opportunity for lenders to screen their clients before issuing debt. Reisel (2004) reveals that covenants that restrict financing activities can substantially reduce the cost of debt. Smith and Warner (1979) argue that the presence of debt covenants in debt agreements is motivated by the ability to mitigate incentive conflicts between managers and creditors. Various studies done on debt covenant indicates different results, Goyal (2003) indicates a negative relationship between restrictive covenants and financial performance of a firm while Bradley (2004) indicates that high growth firms are more likely to include restrictive covenants in private debt contracts. Lenders should use debt covenant violations as early warning signals that allow them to review and renegotiate debt agreements (Dichev and Skinner, 2002). Small and lower rated firms are induced to borrow short term to signal private information about credit quality (Flannery, 1986). Trade off theory of capital structure states that there is an advantage of financing with debt which has tax benefits and a disadvantage which is the cost of financial distress, this include bankruptcy cost of debt and non bankruptcy cost. Taxes are large and they are sure while bankruptcy is rare and has low dead weight costs. Miller (1977) stated that if trade off theory were true then firms ought to have much higher debt levels than in reality.

The sugar industry plays a significant role in the Kenya's economy, contributing about 15 percent to the country's agricultural Gross Domestic Product (GDP) (KSI 2009). The sector consists of more than 250000 smallholder farmers, who supply over 92 percent of the sugarcane processed by sugar firms, while the rest is supplied by factory owned sugar plantation (KSB 2010). An estimated 25 percent of the Kenyan population depends on

directly or indirectly on the sugar industry for their livelihood. The sugar industry provide revenue to the government inform of taxes, CESS and sugar development levy (KACC, 2010). The development of the sugar industry started with the private investment at Miwani (1922), Ramisi sugar factory (1927), Muhoroni (1966), Chemelil (1968), Mumias (1973), Nzoia (1978), South Nyanza (1979), West Kenya (1981), Soin (2006), and Kibos (2007). In recent years, Kenya's sugar industry has faced several key challenges, including trade liberalization under the COMESA and World Trade Organization (WTO) protocols, high cost of production compared to other sugar producing industries in the region, the dilapidated state of some factories, poor governance and management, insufficient funding and inadequate research and extension services (KSI, 2010). KACC (2010) report indicates that the challenges facing the sugar industry in Kenya include low productivity, un-competitiveness, poor governance, corruption, and weak policy and legal framework. These challenges have led to the development of a new national strategy for the industry, which focuses on industry privatization, improved access to credit, and sector research and diversification. Despite government investment in sugar production, the country still has not reached self sufficiency in sugar production, as several mills continue to operate inefficiently and below capacity. More research needs to be done in order to understand the various challenges affecting our sugar industry.

1.1.1 Credit Risk

Credit risk can be defined as risk of loss due to a party in an agreement not meeting its contractual financial obligation in a timely manner. Following the financial crisis in 2007, banks, insurers, and capital markets firms realized that the conventional methods of managing their credit risk may not be sufficient. These institutions are now looking at more adaptive approaches to manage credit risk (World Bank Report, 2010).

It is widely accepted that most people are risk averse and that risk and return are related. Common belief is that the higher the risk the higher the return. Sharp (1964) in his study found that one of the major tenets of portfolio analysis is that risk and return are positively correlated, but some studies however point out that managers may not necessarily believe that risk and return are positively related. In his study, Bowman (1980) found that there may be a negative correlation between accounting measures of risk and return. The main cause of liquidity problems in a firm is the problem of credit risk and high default rate by the customers. Jan (2006) study on liquidity and Credit Risk of a firm found that there is a positive correlation between the illiquidity and default components of yield spreads as well as support for downward sloping term structures of liquidity spreads. Banks now ensure that they have large amount of capital against any form of credit risks so that they can be in a position to adequately tackle any risks which will be incurred (Bank for International Settlement, 1999).

Financial institutions have always used information on borrower characteristics such as character (reputation), capital (leverage), capacity (volatility of earnings), and collateral to reach a largely subjective judgment as to whether or not to grant credit (Altman, 1998).

Most lenders employ credit scorecards to rank potential and existing customers according to risk, and then apply necessary strategies. With products such as unsecured personal loans or mortgages, lenders charge a higher price for higher risk customers and lower price for lower risk customers and with revolving products such as credit cards and overdrafts, risk is controlled through the setting of credit limits. Some products may also require collateral or covenant before a firm grants a credit (Edelman, 2002). Malik (2010) seek to exploit the obvious parallels between behavioral scores and the ratings ascribed to corporate bonds to build consumer-lending equivalents. The study incorporates both consumer-specific ratings and macroeconomic factors in the framework of Cox Proportional Hazard models. The results show that default intensities of consumers are significantly influenced by macro factors. Malik (2010) argues that models for credit risk can be used as the basis for simulation approaches to estimate the credit risk of portfolios of consumer loans. Borowski and Elmer (1988) compare the bankruptcy predictions of an expert system to several credit scoring models and find that the expert system correctly anticipated over 60 percent of the failures before bankruptcy, whereas the credit scoring models had prediction rates of 48 percent to 30 percent. Hansen and Messier (1988) also shows that their expert system outperformed credit scoring models and the human experts in forecasting business failures.

1.1.2 Financial Performance

Measuring performance is a fundamental part of every organization, whether it is run by a private sector or a government sector. A performance measurement system (PMS) highlights whether the organization is on track to achieve its desired goals. A PMS

develops key performance indicators (KPIs), or metrics, depending on the nature and activities (Hoque, 2005). Financial performance refers to the act of performing financial activity. It is the process of measuring the results of a firm's policies and operations in monetary terms. It is used to measure firm's overall financial health over a given period of time and can also be used to compare similar firms across the same industry or to compare industries or sectors in aggregation (Metcalf and Titard, 1976).

The importance of financial performance is that it helps in financial decision making. Grady (1991) suggests that performance measures should be implemented as a means of articulating strategy and monitoring business results. The analysis of financial performance reflects the financial position of the company, the level of the competitiveness in the same sector, and a thorough knowledge about the cost and profit centres within the firm. Managers, investors, and creditors can then apply this accounting information provided by financial analysis in their strategic planning and investment decisions (Mohamadi, 2012). There is a relationship between employee satisfaction and the financial performance of a firm. Employees and customers are highly motivated when dealing with a firm that shows a positive financial performance (Wiley, 1991).

Financial performance measures are split into the following categories, Profitability, Liquidity / working capital, Gearing and Investor ratios. Ahmed (2012) suggests that proper indicator to measuring shareholders value are return on equity (ROE) and return on shares (ROS). Other authors such as Fathi and Fooladi (2006) and Felix and Kliden

(2008) suggests that the best indicators for financial performance are ROE and ROA. Knight (1998) argues that performance measurement systems were designed to measure accountability to confirm that people met their budget and followed orders. According to Stewart (1991), Economic Value Added (EVA) is a financial performance measure that most accurately reflects company's true profit. This is because EVA is calculated after deducting the cost of equity capital and debt from the operating profits. Return On Equity (ROE) is a frequently used variable in judging top management performance, and for making executive compensation decisions (Pandya and Rao, 1998).

1.1.3 Credit Risk and Financial Performance

Several studies have been done on credit risk and performance. This is because the effect of credit risk has been a major concern for investors as credit risk may lead to bankruptcy. The ability to avoid or reduce expected bankruptcy costs and thereby increase performance has been suggested as a reason for mergers and consolidations (Arbel, 1977).

Previous studies have indicated that credit risk factors are negatively related to profitability. Agyei (2012) argues that banks in Ghana enjoy high profitability in spite of high credit risk. The study states that bank size, bank growth and bank debt capital influence bank profitability positively and significantly. Interest rate level is the basis of cost of capital and when the interest rate is high, the firm must generate higher rate of return in order to survive. If the cost of capital is higher than the rate of return, the firm would run into financial insolvency or bankruptcy. This indicates that there is a positive

relationship between default rate and real interest rates (Fridson et al., 1997). Myrna (2013) a study on the relationship between bank credit risk and financial performance and the contribution of risky lending to lower bank profitability and liquidity, shows that there is a negative relationship between credit risk and financial performance.

Various measures have been used to show the relationship between credit risk and financial performance. In most of the completed studies about credit risk and financial performance, most of the researchers have used linear regression analysis. Kargi (2011) investigated the effects of credit risk on profitability of banks in Nigeria. The model used in the study is linear regression analysis and the results being a positive relationship. Felix and Claudine (2008) argue that credit risk indicators have a negative effect on the return on assets and return on equity.

1.1.4 Sugar Firms in Kenya

Sugar farming in Kenya dates back to 1922 when the first factory was established at Miwani. There after the following sugar firms were established, Ramisi sugar factory (1927), Muhoroni (1966), Chemelil (1968), Mumias (1973), Nzoia (1978), South Nyanza (1979), West Kenya (1981), Soin (2006), and Kibos (2007). Miwani sugar factory collapsed in the year 1989 (KSB, 2010).

The sugar industry in Kenya is regulated by the Ministry of Agriculture through the Kenya Sugar Board (KSB). Between the year 1989 and 2001, the sugar industry in Kenya suffered from what was perceived as the biggest financial crisis. The cause was attributed to managerial inefficiency, unregulated importation of sugar as a result of liberalization.

During that period, all sugar firms were owned by the government. Despite the challenges facing the sugar industry, Soin (2006) and Kibos (2007) which are private sugar firms were registered and operating in Kenya (KACC, 2010).

Growth of the sugar industry in Kenya is very important to the economic development of the country as this will ensure increased income and employment to the rural population especially small scale producers. Great effort has been made to promote the growth of the sugar industry through the systematic process of tariff reduction, removal of price controls, and imposition of duties on sugar imports. Despite all this effort, many sugar firms are still struggling with operation cost and losses for many decades (KACC, 2010). It is argued that sugar industry has largely grown under a protected environment with a view of making it stronger, but the prolonged protection has hampered technological up gradation and integration with the rest of the world. According to a study done by Transparency international (TI) and sugar campaign for change (SUCAM) (2009) reveals that the sugar firms in Kenya are indebted to farmers and Kenya sugar board. This implies that the sugar firms have been exposed to severe cash flows and liquidity problems. When prolonged, cash problems can force the owing entity into bankruptcy or forced liquidation. It is compounded by the fact that banks and other financial institutions refuse to lend to those in serious distress. Ramana (2013) in his study stated that when a firm is under financial distress, the situation frequently and sharply reduces its market value, suppliers of goods and services usually insists on cash on delivery (COD) terms and large customers may cancel their orders in anticipation of not getting deliveries on time.

1.2 Research Problem

The common belief for investors is that higher risk investments are associated with higher returns (Sharpe, 1964). Economist theory argues that the opportunity cost for risky investment is return. The adverse selection theory of credit markets which originates with the paper of Stiglitz and Weiss (1981) rests on two main assumptions which states that lenders cannot distinguish between borrowers of different degrees of risk, and that loan contracts are subject to limited liability. Debt covenant theory as motivated by theoretical work of Chan and Kanatas (1985) on collateral requirement and more recently by Gerleanu and Zwiebel (2005) on contract design and the allocation of control rights explains that covenants can serve as a signaling device to lenders. Dichev and Skinner (2002) argues that lenders use debt covenant violations as early warning signals that allow them to review and renegotiate debt agreements. Watts and Zimmerman (1986) states that debt covenants are intended to restrict managers from engaging in investment and financing decisions that reduce the value of debt holder claims. Ferrando and mulier (2012) argues that firms that are vulnerable to financial market imperfections and therefore more likely to be financially constrained rely more on the trade credit channel to manage growth. Dunn (2009) in his study found that the accounts receivables (debtors) are one of the largest assets of a business enterprise comprising approximately 15% to 20% of the total assets of a manufacturing firm. Leland (1998) argues that valuation of corporate debt with credit risk has proven to be very difficult.

Sugar industry in Kenya faces various types of challenges, these challenges have led to the poor performance of sugar firms in Kenya (KACC, 2010). Some of these challenges include the importation of cheap sugar from the COMESA region and the illegal imports where some importers are given preferential treatment by politicians and senior officers in the ministry of agriculture and finance (KACC 2010). World Bank Report (2013) says that Kenya sugar industry remains under regional and global threat. The industry is also highly inefficient and only survives due to high tariff and non tariff protection. Obange (2011) carried out a study on market (supply and demand) factors causing high pricing, which influences performance of the locally manufactured sugar. The study concludes that price related factors significantly contribute to poor performance of local sugar firms under the prevailing imperfect market conditions in Kenya. Wayande (2001) in his study indicated that firms in the sugar industry continue to register minimal growth partly due to improper management decision made under uncertain investment environment. The cost of producing sugar in Kenya is more than the average cost in the world (World Bank Report, 2013).

Every business organization strives for good returns. Finance managers of a firm will always strive to manage cost so that shareholders can have better returns. Therefore knowing the effects of credit risk on the financial performance is important for every finance manager of a firm. The research done show mixed results concerning the relationship between credit risk and financial performance. Trade off between risk and return is that higher return comes with higher risk (Sharpe, 1964), but some studies found that there may be a negative correlation between accounting measures of risk and the financial return of the firm (Bowman, 1980). In order to increase the financial

performance of a firm, finance managers need to know the contribution of credit risk to the returns of the firm, this leads to the following research question: Does credit risk affect the financial performance of sugar firms in Kenya?

1.3 Objective of the Study

To establish the relationship between credit risk and financial performance of sugar firms in Kenya.

1.4 Value of the Study

The study and its findings is useful to the policy makers and regulators in making informed decision and formulating policies that will contribute to the bottom line of the sugar firms and indirectly help to prevent systemic risk. The study may also assist scholars in finding areas for further research in risk management and will help in giving more information to facilitate research on techniques for effective management of financial risks.

The general theory of risk in finance is that the higher the risk, the higher the returns. Several studies that have been done indicate a negative relationship between risk and return. The study and its findings may help in adding value to the previous studies.

This study is also directed at those whose responsibility are trading or marketing products involving credit risks. Those whose key business responsibility are the measurement and control of financial risks, risks associated with financial contracts such

as loans, leases, or supply agreements through understanding credit risk and performance of firms. Sugar firms which are involved in trade credit with both the suppliers and other customers who buy sugar on credit may find this study useful to them.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

This chapter contains theoretical and empirical review. The theoretical reviews include the agency theory, debt covenants theory and trade off theory of capital structure. The study also focuses on the empirical works that have been done within the same area of the study.

2.2 Theoretical Review

Theoretical review covered in this chapter include: agency theory, debt covenants theory and trade off theory of capital structure.

2.2.1 Agency Theory

Ross and Barry (1973) were the first to propose that the agency theory can be created. Ross (1973) identified the agency problem as generic in society, not merely as a problem in the theory of the firm. Jensen and Mecklings (1976) model on agency costs and ownership structure holds a central role in the agency theory literature. The theory demonstrates the fundamental conflicts of interest between managers and owners of a firm. Eisenhardt (1989) states that agency theory is concerned with analyzing and resolving problems that occur in the relationship between principals and their agents. One important agency issue is the conflict between the interests of shareholders and debt holders. Myers and Brealey (1977), and Myers (1996) suggest that the agency problems are most severe for firms in financial distress and firms with high growth opportunities.

More riskier but higher return strategy benefits the shareholders to the detriment of the debt holders this is because a more risky strategy increases the risk of default on debt, but debt holders, being entitled to a fixed return, will not benefit from higher returns. Agency theory asserts that shareholders must monitor and control managers to protect their residual claims from the excesses of self interested managers (Barsel, 2013). Managers should always act in the best interest of shareholders.

2.2.2 Debt Covenant Theory

The idea that covenants can serve as a signaling device is motivated by the theoretical work of Chan and Kanatas (1985) on collateral requirement and more recently by Gerleanu and Zwiebel (2005) on contract design and the allocation of control rights. Dichev and Skinner (2002) argue that lenders use debt covenant violations as early warning signals that allow them to review and renegotiate debt agreements. Previous research provides evidence that the verification of financial statements performed by independent auditors serves as a mechanism for improving the credibility of accounting information and mitigating borrowing costs. Kim (2011) and Minnis (2011) document that voluntary external audits are associated with lower costs of debt using samples of private firms not subject to mandatory audit.

Reisel (2004) did a study to examine the price effect of restrictive covenants using a large dataset of public bonds issued between 1989 and 2001. He found that covenants that restrict financing activities can substantially reduce the cost of debt. When the cost of debt is reduced in a firm, the issue of credit risk may thus be reduced, hence the

improvement in the performance of firms. Financial contracting theory argues that a critical aspect of debt is the control obtained by lenders after a payment default. A covenant breach can allow the lender to convert its debt to equity, demand full payback of the loan, initiate bankruptcy measures or adjust the level of interest payments. Smith and Warner (1979) argued that the presence of debt covenants in debt agreements is motivated by the ability to mitigate incentive conflicts between managers and creditors. Creditors consider debt covenants as safety nets that allow them to reassess their lending's when a risk situation has changed. Goyal (2003) and Bradley (2004) differed on the relationship between restrictive covenants and growth of a firm. Goyal (2003) states that there is a negative relationship between restrictive covenants and banks growth while Bradley (2004) results indicates that high growth firms are more likely to include restrictive covenants in private debt contracts.

2.2.3 Trade off theory of capital structure

This theory refers to the idea that a company chooses how much debt finance and how much equity finance to use by balancing the costs and benefits. An important purpose of this theory is to explain the fact that corporations usually are financed partly with debt and partly with equity. The theory states that there is an advantage to financing with debt which has tax benefits and there is a cost of financing with debt which are the cost of financial distress, this include bankruptcy cost of debt and the non bankruptcy costs such as suppliers demanding for better terms of payments, bondholders and stock holders infighting. Miller (1977) in his study on debt and taxes stated that taxes are large and they are sure while bankruptcy is rare and has low dead weight costs. Miller stated that if trade

off theory were true then firms ought to have much higher debt levels than in reality. Sugar firms in Kenya are involved in both farming and purchase of sugar cane. They are engaged in purchasing because of the few acres available for farming. Cane farmers in Kenya are not paid on time because of the high debts that accrue as a result of the sugar firms not doing well in terms of sales and high cost of production leading to losses for the firms (KACC, 2010).

2.3 Credit Risk factors that determine the Financial Performance

Credit risk consist of default risk and credit exposure which results from the accounts receivable from customers, long term contracts with customers and long term contracts with suppliers. Lenders and investors are exposed to default risk in all forms of credit extensions. Standard measurement tools to gauge default risk include FICO scores for consumer credit, and credit ratings for corporate and government debt issues. Pykhtin and Zhu (2006) define credit exposure as the total amount of credit extended to a borrower by a lender. The magnitude of credit exposure indicates the extent to which the lender is exposed to the risk of loss in the event of the borrower's default.

In the event of credit risk, firms can minimize the credit exposure through purchasing credit default swaps or other types of financial instruments. Credit exposure can also be reduced by using various mechanisms such as use of credit rating agency, netting arrangements, credit enhancements, and early termination agreements. Goyal (2003) shows that there is a negative relationship between restrictive covenants and the performance of a firm while Bradley (2004) states that firms with high restrictive

covenants in private debt contracts performs better than those which do not use restrictive covenants. Reisel (2004) found that covenants that restrict financing activities can substantially reduce the cost of debt and that when the cost of debt is reduced in a firm, the issue of credit risk may thus be reduced, hence the improvement in the financial performance of a firm.

Firms will seek to have greater credit exposure to its clients with the highest credit rating, and less exposure to clients with a lower credit rating. If a client encounters unexpected financial problems, the firm should seek to reduce its credit exposure in order to mitigate the risk of loss arising from a potential default.

2.4 Empirical Literature Review

Petersen and Rajan (2001) stated that firms may be financed by their suppliers rather than by financial institutions. They focused on small firms whose access to capital market may be limited and found that firms use more trade credit when credit from financial institutions is unavailable. Suppliers lend to constrained firms because they have a comparative advantage in getting information about buyers, they can liquidate assets more efficiently and they have an implicit equity stake in the firms. Firms with better access to credit offer more trade credit. Sugar firms just like any other firm's trade on credit where farmers supply sugar cane to these firms and receive payment later.

Kadubo and Musyoki (2011) carried out a study whose objective was to assess various parameters pertinent to credit risk management as it affects banks' financial performance. The parameters covered in the study were; default rate, bad debts costs and cost per loan asset. They used financial reports of 10 banks to analyze profit ability ratio for seven years (2000-2006) comparing the profitability ratio to default rate, cost of debt collection and cost per loan asset. The study revealed that all these parameters have an inverse impact on banks' financial performance, however the default rate is the most predictor of bank financial performance vis-à-vis the other indicators of credit risk management. The recommendation from the study is to advice banks to design and formulate strategies that will not only minimize the exposure of the banks to credit risk but will enhance profitability and competitiveness of the banks.

Obange, Onyango and Siringi (2011) did a study to investigate market (supply and demand) factors causing high pricing, which influence the performance of the locally manufactured sugar. Empirical results reveal that consumption of sugar in Kenya varies from an average rate of about 2.2% whereas sales of sugar registered an average of 2.1%. From this analysis the study unveils a market deficit of locally produced sugar that falls below market demand. The study concludes that price related factors significantly contribute to poor performance of local sugar manufacturing firms under the prevailing imperfect market conditions in Kenya. The study recommends that diversifications are crucial for sugar subsector if the sugar firms have to maximize revenues and become more competitive both at local and regional markets.

Ogilo (2012) conducted study on the impact of credit risk management on financial performance of commercial banks in Kenya. The objective of the study was to analyze the impact of credit risk management on the performance of commercial banks in Kenya and to establish if there exists a relationship between credit risk management determinants and the performance of commercial banks in Kenya. The study found that there is a strong impact between the CAMEL components on the financial performance of commercial banks. The study also established that capital adequacy, asset quality, management efficiency, and liquidity had weak relationship with financial performance (ROE) whereas earnings had a strong relationship with financial performance. The study concluded that CAMEL model can be used as a proxy for credit risk management.

Lwiki, Mugenda, Ojera, and Wachira (2013) examined the impact of inventory management practices on the financial performance of sugar manufacturing firms in Kenya, by analyzing the extent to which lean inventory system, strategic supplier partnership and technology are being applied in sugar firms. Their research survey was conducted in all the eight operating sugar manufacturing firms from the period 2002-2007. They collected primary data using structured and semi structured questionnaires administered to key informants in the Sugar firms. Secondary data was obtained from annual financial performance statements available in the year Book sugar statistics. They used descriptive statistics to test the impact of inventory management practices and Correlation analysis to determine the nature and magnitude of the relationship among inventory management variables. Their results indicate that there exists a positive correlation between inventory management and Return on Sales and Return on Equity.

Keasey, Pindado, and Rodrigues (2014) carried out a study on the determinants of the costs of financial distress in Small and Medium sized Enterprises (SMEs) in Europe. The study reveal that the ex ante financial distress costs suffered by a firm depend not only on the likelihood of financial distress but also on the variables that influence the amount of time and costs incurred during the insolvency process. They stated that financial costs are lower where the capacity to use tangible assets as collateral and short term debt is greater when they are higher the greater the use of long term secured debt.

Kungu (2014) argues that there is a positive relationship between profitability and credit policy. The study looked at the elements that constitute the credit policy; credit terms, collection efforts, credit period and credit standards. He used a descriptive research design to collect the data from the field. The findings from the study revealed that the way credit policy is designed impacts on the profitability of manufacturing firms. The researcher recommended that the finance managers of manufacturing firms regularly review the credit policy of their firms to ensure that they are ideal and result in increased profitability.

2.4 Summary of Literature Review

From the studies conducted in the literature review above, its evidence that credit risk is a problem in the financial management of firms. Several firms are increasingly using derivatives and other financial products to control risks. The literature sited indicates that several firms are increasingly using credit risk management mechanism to control credit risk. Most of the recommendation by the researchers indicates that there is a relationship between credit risk and the performance of a firm. The research work on debt covenant

theory does not clearly state on whether to have restrictive or liberal debt covenants as different researchers show contradicting results. Studies done as stated in the empirical review above show that there is a relationship between credit risk and performance of firms.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

This chapter explained the research design that was used in this study, it defines the research population and sample size the study is based on. The instruments used for measuring data validity and reliability are also discussed together with how the data was collected and analyzed.

3.2 Research Design

In this study Cross-sectional survey design was used. This is because cross sectional survey can be used to describe odd ratios, absolute risks, and relative risk among prevalence risk ratio. They may also support inferences of cause and effect (Kohlmann, 2008). This study entails the relationship between credit risk and financial performance of sugar firms in Kenya which can be determined better by this type of design.

3.3 Population of the study

The research conducted was a census survey of all the eight (8) sugar firms which are registered by the Kenya Sugar Board. This is because Kenya has only eight sugar firms registered by the sugar board and were in operation within the period of the study (KSB, 2010).

3.4 Data Collection

This study used secondary data which was obtained from the financial records for the periods 2009 to 2013 of the eight sugar firms which are registered by the Kenya Sugar

Board. The study variables included the independent variables which consisted of default credit risk, credit risk exposure rate and recovery rate, and the dependent variable which is return on equity (ROE). Credit risk measurement consisted of credit risk exposure, default probability, and recovery rate.

3.4.1 Data Validity and Reliability

Oer (2011) defines validity as the extent to which a measurement does what is supposed to do. Any research can be affected by different kinds of factors which, while extraneous to the concerns of the research, can invalidate the findings (seliger and shohamy, 1989). Findings can be said to be invalid because they may have been affected by factors other than those thought to have caused them, or because the interpretation of the data by the researcher is not clearly supportable.

Reliability refers to the consistence, stability, or dependability of the data. Bock and Krippendorff (2007) defines reliability as the extent to which data can be trusted to represent genuine rather than spurious phenomena. It is the extent to which the researcher can rely on the source of the data and therefore the data itself. Reliable data is dependable, trustworthy, unfailing, sure, authentic, genuine, and reputable. Consistency is the main measure of reliability. (Jary and Jary 1995).

3.5 Data Analysis

Ader (2008) defines data analysis as a process within which several phases can be distinguished. A process of inspecting, cleaning, transforming, and modeling data with the goal of discovering useful information, suggesting conclusions, and supporting decision making.

The researcher conducted data analysis using descriptive and inferential statistics. Mean, and standard deviation was used in descriptive statistics and inferential statistics involved Pearson's coefficient of correlation.

The Model

Linear regression analysis model was used in the study. The regression analysis has one dependent variable and two independent variables and the linear regression equation is;

$$\mathbf{Y = a + b_1X_1 + b_2X_2 + b_3X_3}$$

Where;

Y – The dependent variable (ROE)

$\mathbf{X_1}$ – the independent variable (credit risk exposure rate)

$\mathbf{X_2}$ – the independent variable (default credit risk)

$\mathbf{X_3}$ – the independent variable (recovery rate)

a- represents the constant (intercept), and

$\mathbf{b_1}$, $\mathbf{b_2}$ **and** $\mathbf{b_3}$ **-** represents the slope of the regression lines

3.5.1 Operationalization of the variables

The dependent variable in the regression linear equation is Return on Equity which was used to represent performance and was measured by finding the average annual net

income of the sugar firms and dividing it with the average shareholders equity as shown below:

$$\text{Return on Equity} = \frac{\text{Average Net Income}}{\text{Average Shareholder's Equity}}$$

The independent variables in the regression linear equation which are credit risk exposure rate, default credit risk, and recovery rate was measured as follows:

Credit risk exposure rate was calculated by finding the average credit advanced to the customers divided by average net sales of the sugar firms as shown below;

$$\text{Credit risk exposure rate} = \frac{\text{Average credit advanced}}{\text{Average Net Sales}}$$

Default rate was calculated by finding the average total impaired receivables of the sugar firms and then dividing it with the total receivables of the firm as shown below;

$$\text{Default rate} = \frac{\text{Average impaired receivables}}{\text{Average Total receivables}}$$

Recovery rate was calculated by finding the average of the total amount recovered after default then dividing it with the total bad debts of the firm as shown below;

$$\text{Recovery rate} = \frac{\text{total amount recovered after default}}{\text{Average Total bad debts}}$$

Once the data was gathered, the method of inference used to make judgment based on the data was conducted. Tests of significance are used to support or reject claims based on sample data (Valerie, 1992). The model was tested by using the t-test, this is because the data collected had a sample less than 20.

CHAPTER FOUR: DATA ANALYSIS, RESULTS AND DISCUSSIONS

4.1 Introduction

This chapter presents the analysis of data collected and discusses the findings in regard with the objective of the study. Full data was obtained from the eight (8) sugar firms which are registered by the Kenya sugar board and were in full operation between the periods of 2009 to 2013.

4.2 The relationship between credit risk and the financial performance of sugar firms in 2009 to 2013

This part explains the descriptive and inferential statistics that was obtained from the study. The descriptive statistics shows the mean and standard deviation of the dependent variable (return on equity) and the independent variables (exposure rate, default rate, and recovery rate).

Measurement of correlation between the variables are also illustrated and discussed together with the summary model showing the regression coefficients and the relationship between the variables.

Table 4.1: Descriptive statistics table for research variables

	MEAN	STD. DEVIATION	N
RETURN ON EQUITY	8.77	8.041	8
EXPOSURE RATE	17.93	1.708	8
DEFAULT RATE	28.84	5.180	8
RECOVERY RATE	12.29	11.92	8

Source: Research Findings

Table 4.1 above shows the dependent variable return on equity against the independent variables exposure rate, default rate and recovery rate.

Return on equity represents the eight sugar firms with a mean of 8.77 and standard deviation of 8.04, while credit risk exposure rate has a mean of 17.93 and a standard deviation of 1.708, default rate has a mean of 28.84 and a standard deviation of 5.180, and recovery rate has a mean of 12.29 and a standard deviation of 11.92.

4.2.2 Measurement of Correlation between Variables

Table 4.2: Correlations Matrix

Pearson's correlations		Return on equity	Exposure rate	Default rate	Recovery rate
	Return on equity	1.000	-0.500*	-0.299**	0.457*
	Exposure rate	-0.500*	1.000	0.081	-0.112
	Default rate	-0.299**	0.081	1.000	-0.655
	Recovery rate	0.457*	-0.112	-0.655	1.000
Sig (1-tailed)	Return on equity	-	0.043	0.001	0.015
	Exposure rate	0.043	-	0.000	0.041
	Default rate	0.001	0.000	-	0.003
	Recovery rate	0.015	0.041	0.003	-
	N	8	8	8	8

*. Correlation is significant at the 0.05 level (1-tailed)

**. Correlation is significant at the 0.01 level (1-tailed)

Source: Research Findings

The findings from research as shown in the table above demonstrates a negative relationship between the dependent variable return on equity and the independent variables credit risk exposure rate and default rate, and a positive relationship between return on equity and recovery rate.

The Pearson's correlation coefficient between return on equity and credit risk exposure rate is - 0.500, this means that the two variables move in opposite direction. This implies that an increase in credit risk exposure decreases the returns on equity of sugar firms. Return on equity and default rate shows Pearson's correlation coefficient of -0.299 which implies that an increase in default rate decreases return on equity. From the two independent variables, exposure rate affects return on equity more than default rate. Recovery rate affects return on equity positively with a Pearson's correlation coefficient of 0.457, this implies that an increase in recovery rate after default leads to an increase in return on equity.

Table 4.3 Model summary table 2009 to 2013

R	R Square	Adjusted R square	Std. Error of Estimate	Change statistics			
				F change	Df1	Df2	Sig. F change
0.465[a]	0.216	0.104	3.158	10.417	3	28	0.000

a. Predictors: (Constant), ER, DR, RR

Source: Research Findings

Model summary table above (table 4.3) shows the coefficient correlation of 0.465 (P=0.000) which indicates that the points lie moderately close to the line of best fit in the scatter diagram. The model shows that the three credit risk indicators which are Credit risk Exposure Rate (ER), Default Rate (DR) and Recovery Rate (RR) have a significant relationship (R=0.465, P=0.000) with performance. It also shows they can predict up to 10.4 percent of the variance in performance. Model summary table above (table 4.3) shows the coefficient correlation of 0.465 (P=0.000) which indicates that the points lie moderately close to the line of best fit in the scatter diagram. The model also shows that the three credit risk indicators which are Credit risk Exposure Rate (ER), Default Rate (DR) and Recovery Rate (RR) have a significant relationship (R=0.465, P=0.000) with performance. It also shows that they can predict up to 21.6 percent of the variance in performance. This means that 21.6 percent of Return on Equity can be predicted by ER,

DR and RR. The data collected considered a period of five years (2009 -2013) within which most of the sugar firms in Kenya started experiencing financial problems in terms of profitability and high cost of operation.

Table 4.4 ANOVA Summary table 2009 to 2013

	Sum of squares	df	Mean square	F	P
Regression	1847.682	3	615.894	10.417	0.000[a]
Residual	1655.456	28	59.123		
Total	3503.138	21			

a. Predictors: (Constant), ER, DR, RR

Source: Research Findings

The table above (table 4.4) shows the analysis of variance test of the fitness of the model. With an F statistics of 10.417 and P= 0.000, shows that the regression as a whole is significant. The result in the table means that ER, DR, and RR reliably predicts ROE. The F-value linked with the P-value proves that there is a significant relationship between the profitability (ROE) and credit risk factors (ER, DR, and RR).

Table 4.5 Summary of Regression Results year 2009 to 2013

model	Unstandardized coefficients		Standardized coefficients		
	B	Std. Error	Beta	t	Sig.
constant	18.043	12.225	-	1.476	0.278
Exposure rate	-1.881	0.860	-0.106	-3.152	0.014
Default rate	-0.099	2.638	-0.193	-5.935	0.000
Recovery rate	0.247	5.823	0.677	0.692	0.500

Dependent variable: return on equity

Independent variables: exposure rate, default rate, and recovery rate.

Source: Research Findings

The theoretical model regression equation: $Y= a + b_1X_1 + b_2X_2 + b_3X_3$

The established regression equation is:

ROE = 18.043 – 1.881*Exposure Rate – 0.099*Default Rate + 0.247*Recovery Rate

Table 4.5 above presents the regression results for the profitability of the eight sugar firms under the study. The result shows that credit risk exposure rate (ER) affects the return on equity (ROE) negatively. The beta coefficient of ER is -1.881 which means that

one unit increase in ER decreases ROE by 1.881 units holding other two variables (default rate and recovery rate) constant. Exposure rate has the most significant and negative relationship with the profitability of sugar firms as compared with the other credit risk indicators. Default rate has a negative beta coefficient of – 0.099. This indicates that one unit increase in Default rate will decrease return on equity (ROE) by 0.099 units with the other indicators (exposure rate and recovery rate) remaining constant. Recovery rate has a positive relationship with return on equity; the beta coefficient of recovery rate is 0.247. This indicates that one unit increase in the recovery rate increases the return on equity by 0.247 units with the other indicators (exposure rate and default rate) remaining constant. The result of the analysis shows that credit risk exposure rate and default rate affect the return on equity negatively, with the exposure rate having a higher significant effect. The result also shows that recovery rate has a positive effect on the return on equity.

4.3 Interpretation of Results

Table 4.2 above shows the correlation matrix of credit risk indicators (exposure rate, default risk and recovery rate) to financial performance indicator (return on equity). Table 4.2 shows that credit risk exposure rate has r = -0.500 at p=0.043. This implies that credit risk exposure rate has an average relationship with the financial performance. The relationship being negative indicates that credit risk and financial performance move in opposite direction. Default rate in table 4.2 shows that r=-0.299 at p=0.001, this indicates that default rate has a weak relationship with the financial performance. The relationship

being negative indicates that default rate and financial performance move in opposite direction. Recovery rate on the other hand shows that r=0.457 at p=0.015, this indicates that recovery rate has an average relationship with the financial performance. The relationship being positive means that recovery rate and financial performance move in the same direction.

Table 4.3 shows a model summary from the year 2009 to 2013 with a correlation coefficient of 0.465 (P=0.000). The credit risk factors indicate an average relationship (R=0.465, P=0.000) with the financial performance. It also shows that the independent variables which are exposure rate, default rate and recovery rate can predict 21.6 percent of the dependent variable return on equity.

Table 4.4 shows the analysis of variance, the table shows that the sum of squares due to regression (1847.682) explained by the three variables is more than the sum of the squares due to residuals (1655.456). This implies that the relationship of the variables according to the degree of freedom of the variables is accurate. The result in the table means that exposure rate, default rate, and recovery rate reliably predicts return on equity. The F-value linked with the P-value proves that there is a significant relationship between the profitability measured in terms of return on equity and credit risk factors which are credit risk exposure rate, default rate and recovery rate.

Table 4.5 is a summary table of regression analysis in the period of 2009 to 2013. The results shows that if credit risk exposure rate, default rate and recovery rate are held constant then the financial performance of sugar firms will be 18.043. Credit risk exposure rate and default rate have negative coefficients of -1.881 and -0.099 respectively. Recovery rate have a positive correlation of 0.247. The established linear regression equation is: Return on Equity = 18.043 – 1.881*Exposure Rate – 0.099*Default Rate + 0.247*Recovery Rate.

CHAPTER FIVE: SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter presents the summary of the main findings of the study, the conclusions and also provides recommendations for policy as well recommendations for further research.

5.2 Summary of Findings

The objective of the study was to establish the effect of credit risk (credit risk exposure rate, default rate, and recovery rate) on the financial performance (return on equity) of sugar firms in Kenya. The study was able to find the relationship between credit risk factors and the financial performance indicator of sugar firms in Kenya. The regression analysis shows that credit risk exposure rate and default rate have a negative effect on the profitability of sugar firms while recovery rate has a positive effect.

5.2.1 Effects of Credit Risk Exposure Rate on the Financial Performance of Sugar Firms in Kenya

The effect of credit risk exposure rate on the financial performance of sugar firms as shown in correlation matrix table 4.2 indicates r=-0.500 at P=0.043 under one tail significance level. The result implies that credit risk exposure rate has an average effect on financial performance of sugar firms in Kenya. The negative effect indicates that

credit risk exposure rate and financial performance (return on equity) move in opposite direction.

5.2.2 Effects of Default Rate on the Financial Performance of Sugar Firms in Kenya

The effect of default rate on the financial performance of sugar firms as shown in correlation matrix table 4.2 indicates r = -0.299 at P = 0.001 under one tail significance level. The result implies that default rate has a weak effect on financial performance of sugar firms in Kenya. The negative effect indicates that default rate and financial performance (return on equity) move in opposite direction.

5.2.3 Effects of Recovery Rate on the Financial Performance of Sugar Firms in Kenya

The effect of recovery rate on the financial performance of sugar firms as shown in correlation matrix table 4.2 indicates r = 0.457 at P = 0.015 under one tail significance level. The result implies that recovery rate has an average effect on the financial performance of sugar firms in Kenya. The positive effect indicates that recovery rate and financial performance (return on equity) move in the same direction.

5.3 Conclusion

The overall objective of the study was to establish the effect of credit risk (credit risk exposure rate, default rate, and recovery rate) on the financial performance (return on equity) of sugar firms in Kenya. This was achieved by looking at the relationship of

credit risk indicators (credit risk exposure rate, default rate, and recovery rate) against the financial performance indicator (return on equity). The study established that credit risk indicators (credit risk exposure rate, default rate, and recovery rate) have an average effect (r=0.465, p=0.000) on the financial performance of sugar firms in Kenya. the credit risk indicators used in the study can predict return on equity by 21.6 percent. The study concludes that credit risk exposure rate, default rate, and recovery rate have a significant effect on the financial performance of sugar firms in Kenya, thus credit risk affect the financial performance of sugar firms.

5.4 Limitations of the study

Like most empirical done by various scholars, this research work had limitations. The researcher had a challenge in obtaining information from the sugar firms which are not listed with Nairobi securities exchange. There is only one listed sugar firm (Mumias sugar co. LTD) with the Nairobi securities exchange. Those sugar firms which are not listed in the stock market did not want their financial statement to be made public thus the researcher worked on generalization of the financial results of these sugar firms by finding the average values of their financial statements.

Sugar firms examined in this study had a difference in terms of experience as those which are privately owned showing some good profits and those which are owned by the government showing negative profits with huge debts to farmers. This research work may therefore be influenced.

The researcher also faced financial constraints as most of the sugar firms are delocalized. The researcher had to spend a lot in terms of transport in order to get financial report from this sugar firms.

5.5 Recommendations

Sugar firms in Kenya through Kenya Sugar Board extend credit to farmers in the form of seeds, fertilizers, and other farm inputs. All sugar firms should have established credit policies that clearly outline the terms and conditions that must be adhered to before any credit facilities are offered. These guidelines need to be updated in every annual meeting to ensure that they are in line with the current affairs. The firms should also put in place stringent internal credit control measures for them to able to recover all the debts from their accounts receivables. This is because the empirical work shows a positive correlation between recovery rate and the financial performance. These firms need to implement credit risk measurement system such as credit ranking and credit scoring to customers to avoid incurring more cost on customers who have proved to be not credit worthy.

The lending guidelines of the sugar firms need to be approved by the Managing Director and Board of Directors and endorsed by the Kenya Sugar Board. Every sugar firm needs to carry out a thorough credit and risk assessment prior to the granting of loans to farmers and selling the products of sugar on credit to customers. All sugar firms should define the

credit risk profile of their clients to ensure that necessary measures are taken before credit facilities are granted. This empirical work shows that high exposure rate leads to high default rate, sugar firms should try to keep their exposure rate low by ensuring that there is a certain percentage that can be granted as credit so as to limit the effect of credit risk.

The study suggests that more independent variables to be added in the regression model to help improve the results of the study. This study used return on equity as an indicator of profitability, the study recommends use of another profitability indicator such as return on assets, and this will help in understanding the variation between the different indicators in measuring profitability of sugar firms.

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APPENDIX 1

LIST OF SUGAR FIRMS REGISTERED BY KENYA SUGAR BOARD AS AT 31ST DECEMBER 2013

S/No	Name of the Sugar Company	Year
1.	Muhoroni Sugar Company	1966
2.	Chemelil Sugar Company	1968
3.	Mumias Sugar Company	1973
4.	Nzoia Sugar Company	1978
5.	South Nyanza Sugar Company	1979
6.	West Kenya Sugar Company	1981
7.	Soin Sugar Factory	2006
8.	Kibos Sugar & Allied Industries	2007

APPENDIX 2

UNIVERSITY OF NAIROBI
MOMBASA CAMPUS

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Tel: 020 8095398
Mombasa, Kenya

DATE: 04th SEPTEMBER, 2014

TO WHOM IT MAY CONCERN

The bearer of this letter, **Martin Odhiambo Ondiek** of Registration Number **D61/80874/2012** is a Master of Business Administration (MBA) student of the University of Nairobi, Mombasa Campus.

He is required to submit as part of his coursework assessment a research project report. We would like the student to do his project on ***Effects of Credit Risk on Financial Performance of Sugar Firms in Kenya.*** We would, therefore, appreciate if you assist him by allowing him to collect data within your organization for the research.

The results of the report will be used solely for academic purposes and a copy of the same will be availed to the interviewed organization on request.

Thank you.

UNIVERSITY OF NAIROBI ASSISTANT CO-ORDINATOR 04 SEP 2014

Joseph Aranga
Assistant Coordinator, School of Business-Mombasa Campus

APPENDIX 3

SUMMARY OF DATA COLLECTION FORM

DATA COLLECTED FROM THE FINANCIAL REPORT OF SUGAR FIRMS IN KENYA (2009-2013)

TABLE 1: RETURN ON EQUITY

YEAR/VARIABLES	AVERAGE NET INCOME	AVERAGE SHAREHOLDERS EQUITY	RETURN ON EQUITY
	KSH. 000	KSH. 000	RATES
2009	897582	6592928	13.61
2010	904108	7182278	12.59
2011	1185856	9110479	13.02
2012	1172150	9856452	11.89
2013	-647664	8896443	-7.28
AVERAGE VALUES	467976	8327716	10.21

TABLE 2: CREDIT RISK EXPOSURE RATE

YEAR/VARIABLES	AVERAGE CREDIT ADVANCED	AVERAGE NET SALES	EXPOSURE RATE
	KSH. 000	KSH. 000	RATES
2009	2117280	11723469	18.06
2010	2062046	13571086	15.19
2011	2476672	14504871	17.07
2012	3166321	15759725	20.09
2013	2853278	14841542	19.22
AVERAGE VALUES	2535119	14080138	14.12

TABLE 3: DEFAULT RATE

YEAR/VARIABLES	AVERAGE IMPAIRED RECEIVABLES	AVERAGE RECEIVABLES	DEFAULT RATE
	KSH. 000	KSH. 000	RATES
2009	498066	2117280	23.52
2010	803174	2853278	28.15
2011	788740	2476672	31.85
2012	746226	3166321	23.57
2013	765462	2062046	37.12
AVERAGE VALUES	720333	2535119	28.84

TABLE 4: RECOVERY RATE

YEAR/VARIABLES	AVERAGE AMOUNT RECOVERED	AVERAGE BAD DEBTS	RECOVERY RATE
	KSH. 000	KSH. 000	RATES
2009	20920	498066	4.20
2010	267386	765452	34.93
2011	108470	788740	13.75
2012	39158	746226	5.25
2013	27047	811970	3.33
AVERAGE VALUES	92596	722090	12.29