INFLUENCE OF CREDIT INFORMATION SHARING ON THE PERFORMANCE OF COMMERCIAL BANKS OPERATING IN KISII COUNTY, KENYA

[1*] **Erick Osoro Otete**

Msc Finance, Jomo Kenyatta University of Agriculture and Technology
erickosoro1988@gmail.com

[2**] **Dr. Willy Muturi**

Senior Lecturer, Department of Economics, Accounting and Finance
Jomo Kenyatta University of Agriculture and Technology
mmuturi2001@yahoo.com

[3***] **Dr. Vitalis Abuga Mogwambo**

Jaramogi Oginga Odinga University of Science and Technology
mogwambov@yahoo.com

Abstract

Kenyan banking sector has been riddled with many cases of loan defaults and collapse of some banks. As a result, Credit reference bureaus were established in 2010, to facilitate credit information sharing among commercial banks in Kenya. The purpose of this study was to assess the influence of credit information sharing on the performance of commercial banks. The research used the primary data collected using questionnaires and secondary data obtained from bank records and CBK reports. The findings revealed that the overall volume of lending in the banks has increased due to information sharing. The study also established that the influence of customer credit reports on performance measured by ROA and ROE is also statistically not significant meaning that the influence may be by chance or other factors and not customer credit reports only. The rate of defaulting by customers has been minimized with the use of credit reports and Customer Credit reports from CRBs help in pricing of loans in the institutions which has improved our overall profitability.

Keywords: Credit reports, credit information sharing, Lending volume

I. INTRODUCTION

Sharing of credit information can influence the contribution to the development of the financial system which is an important determinant of economic growth (Doblas-Madrid & Minetti, 2009). The introduction of Credit scores cards have immense benefits to both lenders and borrowers. Borrowers are able to negotiate with lenders on better terms. Houston, Lin, Lin, and Ma, (2010) show that information sharing mechanisms reduce adverse selection by improving the pool of borrowers and the knowledge of applicants' characteristics therefore improving bank efficiency in the allocation of credit. Based on some case studies, Olweny and Shiphos (2011) points out that credit information sharing plays a key role in improving the efficiency of financial institutions by reducing loan processing costs as well as time required to process loan applications. Ma, and Song, (2012) show that information sharing institutions help in curtailing imprudent behavior of borrowers and are also valuable in addressing moral hazard problems. The sharing of credit information helps reduce interest rates and even eliminates the information advantage of larger size banks therefore enhancing credit market competition.

Most institutions in the Kenyan banking sector were faced with huge NPLs portfolios before the Start of CIS mechanisms. This invariably led to the collapse of some banks (Degryse & Ongena, 2010). There were several Serial defaulters, who borrowed from various commercial banks with no intention of repaying the loans. Hence most of these defaulters took advantage of the information asymmetry environment that prevailed due to lack of a CIS mechanism. According to statistics the incidence of bad loans was worrying and put to question the credit models and quality of information employed by credit analysts. Net loans were at the level of KShs. 315 billion as at December 31, 2009 and accounted for 51% of total net assets of Kenya's banking sector. At the same date the proportion of non-performing loans to total loans in Kenya was a high of 30%. As at 31st December 2009 NPLs amounted to Shs.94 billion (Schoenmaker, 2012). Comparing, the ratio of non-performing loans to total loans in Kenya of 33% to similar African economies at the end of 2008, central banks of those countries (by then) reported that, this ratio was much lower in Zimbabwe (24%), Nigeria (11%), and South Africa (3%) (Central Bank of Kenya Supervision Annual Reports, 2008). It's on this background that the Banking Credit Reference Bureau Regulations (2008) that govern licensing, operation and supervision of CRBs by the CBK were gazetted and operationalised in 2009 (Van Donge, 2012). In Kenya Commercial banks are licensed and regulated pursuant to the provisions of the Banking Act (Cap 488 Laws of Kenya) and the Regulations and Prudential Guidelines issued by CBK. Currently there are there are 43 licensed commercial banks (CBK, 2013).

The concept of Credit information sharing is relatively new in Kenya (Ioannidou & Penas, 2010). Commercial banks can improve their bank of knowledge about new customers through credit reference bureaus. Credit reference bureaus are information bankers that collect, file and distribute the information voluntarily supplied by their clients. Therefore the Central Bank of Kenya has licensed two Credit Reference Bureaus namely. Credit Reference Bureau Africa Limited and Metropol Credit Reference Bureau Limited (Haubrich, 2003). Their main objectives is to gather

information on the payment history and accounts of borrowers and distribute two major types of data i.e. information about defaults on payments, delays, delinquencies, bankruptcies etc. That is, information with a negative connotation on the payment history and the financial behaviour. The second information is about the financial standing and payments, which do not indicate a default or a late payment (Rambo, 2013). Hence CIS financial institutions have limited scope on information about their clients that is to be shared but the Central Bank of Kenya has widened the assessment with core mandate of lending institutions in a move that could leave out thousands of potential borrowers with poor credit scores cards by exposing them to higher interest rates or denying them credit (Kusa & Okoth, 2013). From the registration of the first credit bureau in 2010, the level of information sharing has increased dramatically. The level of support for information sharing amongst commercial banks and the level of interest amongst SACCOs and MFI's in participating in information sharing is a notable achievement (Ndung'u & Ngugi, 2000).

II. STUDY OBJECTIVES

Based on the study's main objective, the specific objectives were to:

   i.   Find out the influence of lending volume on the performance of commercial banks;

   ii.   Establish the extent to which cost of credit information sharing influences the performance of commercial banks;

   iii.   Find out the extent to which the customers' credit reports influences the performance of commercial banks and

   iv.   Find out the extent to which regulations on lending influences the performance of commercial banks

III. RESEARCH METHODOLOGY

This study adopted the descriptive survey design. The target population of this study was all 20 commercial banks operating in Kisii County. The research adopted census sampling technique of all the 20 commercial banks operating in Kisii County. The research used the primary data collected using questionnaires and secondary data obtained from bank records and CBK reports. Inferential and descriptive statistics were used to analyze the data and the results were interpreted and presented using percentages, frequency distribution and graphical expressions. Regression analysis was used to establish the extent to which credit information sharing influences the performance of commercial banks operating in Kisii County.

IV. FINDINGS

Use of Credit Information Sharing in Appraising Loan Applicants

The study found that majority of the respondents as shown by 81% believed that their bank uses credit information sharing in appraising loan applicants whereas 19% of the respondents were of the opinion that their bank does not use credit information sharing in appraising loan applicants

due to group lending. This is an indication that commercial banks in Kenya use CRB information sharing in appraising loan applicants and thus the respondents could give reliable information on the influence of credit information sharing on the financial performance of commercial banks in Kenya.

Descriptive Analysis of the Study Variables

This section presents the frequencies and descriptive statistics of the findings of the four specific objectives of the study. The questionnaire responses were based on a likert scale which was coded with numerical values for ease of data analysis. The values assigned to the likert were 1=strongly disagree, 2=disagree, 3=neutral, 4=agree and 5=strongly agree.

Lending Volume and Performance of Commercial Banks

The first objective of the study was to find out the influence of lending volume on the performance of commercial banks operating in Kisii County. The objective was assessed by use of 5 statements which were on the questionnaire where the respondents indicated their degree of agreement with the statements. Table 1 below presents the findings obtained.

Table 1: Lending Volume and Performance of Commercial Banks

Statement	SD	D	MA	A	SA	Mean	Std Dev.
The overall volume of lending has increased due to information sharing.	2	4	11	24	31	4.08	0.672
More SMEs and individuals have been able to access loans due to credit information sharing.	2	4	13	35	18	3.88	0.759
Conditions of lending have been relaxed since the inception of credit information sharing mechanisms.	0	2	18	41	11	3.85	0.815
The institution strictly observes conditions of lending and relies on customer credit reports in approving the loans.	2	2	6	39	23	4.10	0.617
The institution's overall profitability has improved due to increase in volumes of lending as a result of credit information sharing.	4	4	8	33	23	3.93	0.702
Average						3.97	0.774

The results on table 1 below indicate that the respondents agreed that their institutions strictly observe conditions of lending and rely on customer credit reports in approving the loans (mean 4.10; standard deviation 0.617); The overall volume of lending has increased due to information sharing (Mean 4.08; standard deviation 0.672); their institutions overall profitability had improved due to increase in volumes of lending as a result of credit information sharing (Mean 3.93; Standard deviation 0.702); more SMEs and individuals have been able to access loans due to credit information sharing (Mean 3.88; standard deviation 0.759) and that conditions of lending have been relaxed since the inception of credit information sharing mechanisms (Mean 3.85; standard deviation 0.815). The influence of lending volume had a grand mean of 3.97.

These findings are in agreement with Houston et al., (2010) who found that credit information sharing is associated with higher lending, measured by private credit to GNP ratio, and lower defaults. This concurs with Jappelli and Pagano (2002) findings that bank lending is about twice as large in countries where credit information is shared, irrespective of the type of information exchanged.

Cost of Information Sharing and Performance of Commercial Banks

The second objective of the study was to establish the extent to which cost of credit information sharing influences the performance of commercial banks operating in Kisii County. The objective was assessed by use of 5 statements which were on the questionnaire where the respondents indicated their degree of agreement with the statements. Table 2 below presents the findings obtained.

Table 2: Cost of Information Sharing and Performance of Banks

Statement	SD	D	MA	A	SA	Mean	Std Dev.
Information search costs have reduced due to credit information sharing.	2	4	11	30	25	4.00	0.815
Fewer staff are involved in debt collection and approval since the advent of credit information sharing.	4	4	6	39	19	3.90	1.022
The institution rarely takes defaulting clients to court since credit information sharing was introduced in Kenya.	2	4	13	35	18	3.88	1.080
The overall costs of debt approval and collection have reduced due to the use of credit information sharing.	4	6	9	30	23	3.86	0.633
The institution's overall profitability has improved due to reduction of debt	4	9	9	28	22	3.76	0.772

approval and collection costs as a result of credit information sharing.

Statement						Mean	Std Dev
Average						**3.88**	**0.8644**

The results indicate that the respondents agreed that information search costs have reduced due to credit information sharing (Mean 4.00; SD 0.815); Fewer staff are involved in debt collection and approval since the advent of credit information sharing (Mean 3.90; 1.022); The institutions rarely take defaulting clients to court since credit information sharing was introduced in Kenya (Mean 3.88; SD 1.080); The overall costs of debt approval and collection have reduced due to the use of credit information sharing (Mean 3.86; SD 0.633) and that the institutions overall profitability had improved due to reduction of debt approval and collection costs as a result of credit information sharing (Mean 3.76; SD 0.772). Cost of Credit Information Sharing had an overall influence with mean of 3.88.

These findings are in agreement with Jappelli and Pagano, (2006) who found that CIS among commercial banks will reduce operating costs. CIS also assists commercial banks to reduce the staff cost by reducing the number of staff involved in loan approval and collection (Waweru & Kalani, 2009).

Customer Credit Reports and Performance of Commercial Banks

The third objective of the study was to find out the extent to which the customers' credit reports influence the performance of commercial banks operating in Kisii County. The objective was assessed by use of 5 statements which were on the questionnaire where the respondents indicated their degree of agreement with the statements. Table 3 below presents the findings obtained.

Table 3: Customer Credit Reports and Performance of Banks

Statement	SD	D	MA	A	SA	Mean	Std Dev
The institution utilizes credit reports from credit reference bureaus in appraising the customer credit.	4	6	15	28	19	3.72	0.672
Credit reports add value with regard to quality of customers being granted credit.	0	4	13	40	15	3.36	0.773
The institution informs customers when the bank is seeking credit reports regarding their past loan servicing.	4	9	17	24	18	3.60	1.002
Customer Credit reports from CRBs help in pricing of loans in our	2	0	15	33	22	4.01	0.768

institution which has improved our overall profitability.							
The rate of defaulting by customers has been minimized with the use of credit reports.	0	2	13	44	14	4.01	0.836
Average						**3.74**	**0.8041**

The results above indicate that the respondents agreed that Customer Credit reports from CRBs help in pricing of loans in our institution which has improved our overall profitability (Mean 4.01; SD 0.768); the rate of defaulting by customers has been minimized with the use of credit reports (Mean 4.01; SD 0.836); the institutions utilize credit reports from credit reference bureaus in appraising the customer credit (Mean 3.72; 0.672); the institution informs customers when the bank is seeking credit reports regarding their past loan servicing (Mean 3.60; SD 1.002) and that Credit reports add value with regard to quality of customers being granted credit (Mean 3.36; SD 0.773). Customer Credit Reports had an overall influence of mean 3.74.

These findings concur with Pagano and Jappelli (2006), who found that customer credit reports improves the pool of borrowers, decreases defaults and reduces interest rates. It can also lead to an expansion of lending.

Regulations on Lending and the Performance of Commercial Banks

The fourth objective of the study was to find out the extent to which regulations on lending influence the performance of commercial banks operating in Kisii County. The objective was assessed by use of 5 statements which were on the questionnaire where the respondents indicated their degree of agreement with the statements. Table 4 below presents the findings obtained.

Table 4: Regulations on Lending and Performance of Banks

Statement	SD	D	MA	A	SA	Mean	Std Dev.
The institution observes the limit set out by CBK for total loans given out at any time.	0	4	15	39	14	3.88	.617
There are few or no loan defaulters due to the institution's efficient lending policy which incorporates credit information sharing.	0	4	11	52	5	3.80	.768
The institution's lending policy is periodically reviewed to reflect the	2	6	22	29	13	3.63	.702

prevailing conditions on credit information sharing.							
There are systematic written down steps in the handling of defaulting customers as stipulated by the credit information sharing mechanism in Kenya.	6	4	24	24	14	3.50	.672
Nonperforming loans portfolio in my institution has reduced due to credit information sharing thus improving our overall profitability.	0	0	11	41	20	4.13	.772
Average						**3.79**	**0.759**

The results above indicate that the respondents agreed that nonperforming loans portfolio in their institutions has reduced due to credit information sharing thus improving our overall profitability (Mean 4.13; SD 0.772); the institutions observe the limit set out by CBK for total loans given out at anytime (Mean 3.88; SD 0.617); There are few or no loan defaulters due to the institution's efficient lending policy which incorporates credit information sharing (Mean 3.80; SD 0.768); the institutions lending policies are periodically reviewed to reflect the prevailing conditions on credit information sharing (Mean 3.63; SD 0.702) and that there are systematic written down steps in the handling of defaulting customers as stipulated by the credit information sharing mechanism in Kenya (Mean 3.50; SD 0.672). Regulations on lending had an overall influence of mean 3.79.

Kusa and Okoth, (2013) noted that when loans become non-performing, banks liquidity and its earnings are adversely affected. The findings concur with those of Jappelli and Pagano, (2006) who found that the overall default decreases marginally with credit bureau introduction.

Commercial Banks Performance

In this study bank performance represents the financial performance improvement. Bank performance also can be seen in comparison with the related industry as a benchmark. Table 5 shows four item questions that represent bank performance. The responses were tabulated in table and analyzed using mean and standard deviation on a likert scale ranging from 1-5. In the likert scale where 5 represented strongly agree and 1 represented strongly disagree. The questions concern managers' judgment on return on equity and its benchmarks and return on assets and its benchmarks.

Table 5: Performance of Commercial Banks Operating in Kisii County

Statement	SD	D	MA	A	SA	Mean	Std Dev
The bank has had good improvement on return on equity in the years following adoption of credit information sharing mechanism.	0	0	11	30	31	4.28	0.773

The bank had good improvement on return on asset in the years following adoption of credit information sharing mechanism.	0	0	11	41	20	4.13	0.785
The bank has better return on equity than industry average (Benchmark).	0	4	20	38	10	3.74	0.633
The bank has better return on asset than industry average (Benchmark).	4	4	6	39	19	3.91	0.633
Average						**4.015**	**0.706**

It can be revealed that 84.7% of the respondents agreed that the bank had good improvement of return on equity in the years following adoption of credit information sharing. Similarly, 84.7% noted that the bank had good improvement of return on assets in the years following adoption of credit information sharing. As concerns the industry, 66.7% of the respondents indicated that the bank had better return on equity than industry average while 80.6% agreed that the bank had better return on assets than industry average. Hence, the researcher deduced that the banks had better performance on both return on equity and assets in the industry since the adoption of credit information sharing mechanism.

Figure 1 below shows the trend in ROA and ROE of commercial banks from before and after credit information sharing from the secondary data obtained for the study:
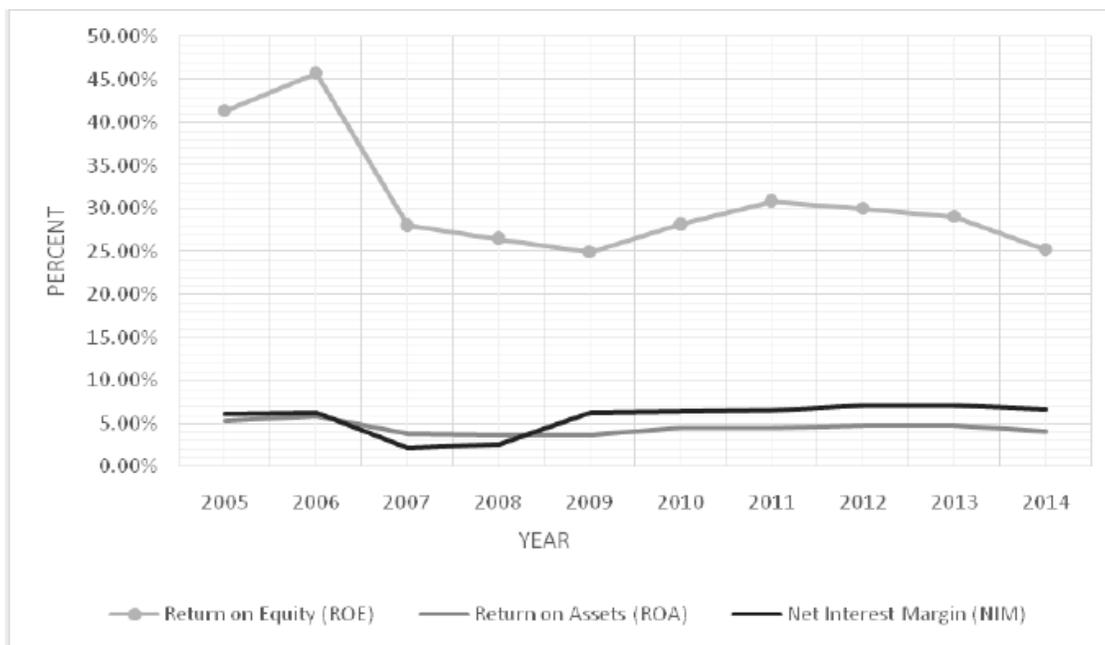

Figure 1: Trend of ROA, ROE and NIM of Commercial Banks Before and After Credit Information Sharing

The NIM of all other years with the exception of 2007 and 2008 were above 6%. Banks were least profitable in this period which was during and immediately after the global financial crisis. In addition, profit before tax dropped from 42,600 million shillings in 2006 to 35,091 million shillings in 2007 and increased to 47,633 in 2008.This was occasioned by ROE decreasing at an increasing rate between 2006 and 2007 and decreasing at a decreasing rate between 2007 and 2008. ROA on the other hand also decreased progressively from 2006 to 2009.Also noted was that banks were more profitable after the licensing of the CRBs. The net interest margin was erratic between 2005 and 2009 but increased steadily from 2010 to 2014. From 2005 to 2009, the return on equity averaged at 33.31% higher than average of 28.65% attained between 2010 and 2014 after the licensing of CRBs. However, the return on assets for both periods were close averaging at 4.44% from 2005 to 2009 and 4.45% from 2010 to 2014. The ROE from 2010 to 2014 was lower compared to that of 2005 to 2006 owing to shareholders' funds increased at a higher rate the profit generated than banks. Nonetheless, the increasing NIM for the period between 2010 and 2013 showed that banks had better loan portfolios after the licensing of the CRBs compared to the period without credit information sharing.

Regression Analysis

The dependent variable of the proposed model was performance of banks and the independent variables of the study were Lending Volume; Cost of Information sharing, Customer Credit Reports and Regulations on lending. The model is presented algebraically as follows;

$$ROA_{it} = \beta_0 + \beta_1 X_{1it} + \beta_2 X_{2it} + \beta_3 X_{3it} + \beta_4 X_{4it} + \varepsilon$$

$$ROE_{it} = \beta_0 + \beta_1 X_{1it} + \beta_2 X_{2it} + \beta_3 X_{3it} + \beta_4 X_{4it} + \varepsilon$$

The variables of the study were: Performance of commercial bank expressed by ROA and ROE, X_1= Lending Volume, X_2 = Cost of Information sharing, X_3 = Customer Credit Reports, X_4= Regulations on lending and ε= Error term (the residual error of the regression.

The linear regression analysis models the relationship between the dependent variable which is performance and independent variable which is influence of credit information sharing. Coefficient of determination explains the extent to which changes in the dependent variable (performance represented by proxy indicator ROE and ROA) that is explained by all the four independent variables (credit information sharing effects represented by proxy indicator of: lending volume, cost of credit information sharing, customer credit reports and regulations on lending). ANOVA Test and Adjusted R square were computed as the preliminary test for multiple linear regression model adopted in the study. These were used to show the significance of the regression model adopted in the study.

Table 6**: Model Summary with ROE**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate

| 1 | 0.872 [a] | 0. 7604 | 0.794 | 0.42747 |

a. Predictors: (Constant), Lending Volume, Cost of Information Sharing, Customer Credit Reports, Regulations on Lending for Commercial banks

Model summary in table 6 shows the output for model fitness and value of adjusted R squared was 0.794. This shows that the variables (lending volume, cost of credit information sharing, customer credit reports and regulations on lending) tested had a variation of 79.4% on the ROE of commercial banks in Kisii County Kenya at 95% confidence interval. The four independent variables that were studied, explain only 79.4% of the effect of credit information sharing on performance of banks in Kenya as represented by the adjusted R^2. This therefore means that other factors not studied in this research contribute 20.6% of the effects of credit information sharing on performance of commercial banks. Therefore, further research should be conducted to investigate the other factors (20.6%) that affect performance of banks. R is the correlation coefficient which shows the relationship between the study variables. The findings show that there was a strong positive relationship between the study variables as shown by R which is the correlation coefficient of 0.872.

Table 7: Analysis of Variance - ANOVA[a] with ROE

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
	Regression	2.818	4	0.705	1.443	.077[b]
1	Residual	333.598	210	1.589		
	Total	336.416	214			

a. Dependent Variable: Return on Equity for Commercial banks

b. Predictors: (Constant), Lending Volume, Cost of Information Sharing, Customer Credit Reports, Regulations on Lending, for Commercial banks

In addition, the ANOVA test shown in table 7 was used to test the significance of the model and to test the existence of variable variations within the model. The results of the ANOVA test show a P-value of 0.777 is more than the set level of significance of 0.05 for a normally distributed data. The results further revealed that the model had an F-ratio of 0.443 which was not significant at 1% level of significance. This result indicates that the overall regression model is statistically not significant and is useful for prediction purposes at 10% significance level. This further indicates that the independent variables used (lending volume, cost of credit information sharing, customer

credit reports and regulations on lending) are statistically significant in predicting profitability of commercial banks.

Table 8: Regression Coefficients with ROE

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
	Constant	28.52	3.486		8.182	0.000
	Lending Volume	0.15	0.017	0.064	0.901	0.369
1	Cost of Information Sharing	0.18	0.123	0.010	0.149	0.882
	Customer Credit Reports	0.11	0.079	0.010	0.142	0.887
	Regulations on Lending	0.034	.044	0.054	0.770	0.442

a. Dependent Variable: Return on Equity for Commercial banks

The regression result presented in Table 8 indicates all the four independent variables had positive coefficients. The coefficients are used to answer the following regression model which relates the predictors (independent) and dependent variables. As per the SPSS generated Table 8, the established regression equation which was

$ROE_{it} = \beta 0 + \beta_1 X_{1it} + \beta_2 X_{2it} + \beta_3 X_{3it} + \beta_4 X_{4it} + \varepsilon$ became:

ROE= 28.520 + 0.15*Lending Volume + 0.18* Cost of Credit Information Sharing + 0.11*Customer Credit Report + 0.034*Regulations on Lending

Table 8 depicts the regression coefficients for the ROE. It shows that holding (lending volume, cost of credit information sharing, customer credit reports and regulations on lending) constant performance will be 28.520. The findings presented also shows that taking other independent variables at zero, a unit to increase in lending volume will lead to 0.15 increase in banks' financial performance, cost of information sharing will lead to 0.18 increase in banks' financial performance; Customer Credit Reports will lead to 0.11 increase in bank financial performance while Regulations on lending will lead to 0.034 increase in banks' financial performance. At 5% level of significance and 95% level of confidence All coefficient values for variables (lending volume, cost of credit information sharing, customer credit reports and regulations on lending with P= 0.369, 0.882, 0.887   and 0.442 level of significance respectively) were not significant because P value (Sig value) were greater than 0.0025 testing at 95% level with 2 tailed thus these values are more than critical values of 5%.

Table 9: Model Summary with ROA

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate

1	0.872[a]	0. 7604	0.794	0.42747

a. Predictors: (Constant), Lending Volume, Cost of Information Sharing, Customer Credit Reports, Regulations on Lending for Commercial banks

Model summary in Table 9 shows the output for model fitness and value of adjusted R squared was 0.794. This shows that the variables (lending volume, cost of credit information sharing, customer credit reports and regulations on lending) tested had a variation of 79.4% on the profitability of commercial banks in Kenya at 95% confidence interval. R is the correlation coefficient which shows the relationship between the study variables, from the findings shown in the table 9 there was a strong positive relationship between the study variables as shown by 0.872. The four independent variables that were studied, explain only 79.4% of the effect of credit information sharing on performance of banks in Kenya as represented by the adjusted R^2. This therefore means that other factors not studied in this research contribute 20.6% of effects of credit information sharing uptake on performance of commercial banks. Therefore, further research should be conducted to investigate the other factors (20.6%) that affect financial performance of banks.

Table 10: Analysis of Variance – ANOVA[b] with ROA

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
	Regression	0.687	4	0.172	0.940	.442[b]
1	Residual	38.373	210	0.183		
	Total	39.060	214			

a. Dependent Variable: Return on Assets for Commercial banks

b. Predictors: (Constant), Lending Volume, Cost of Information Sharing, Customer Credit Reports, Regulations on Lending, for Commercial banks

From the ANOVA statistics in table above, the processed data, which is the population parameters, had a P-value of 0.0442 which was more than the set level of significance of 0.05 for normally distributed data. The results further revealed that the model had an F-ratio of 0.940 which was not significant at 1% level of significance. This result indicates that the overall regression model is statistically not significant and is useful for prediction purposes at 10% significance level. This further indicates that the independent variables used (lending volume, cost of credit information sharing, customer credit reports and regulations on lending) are not statistically significantly in predicting financial performance (ROA) of commercial banks in Kenya.

Table 11: Regression Coefficients with ROA

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
	Constant	3.429	1.182		2.901	.004
	Lending Volume	0.050	0.006	0.066	0.935	0.351
1	Cost of Information Sharing	0.004	0.042	0.007	0.103	0.918
	Customer Credit Reports	0.009	0.027	0.023	0.333	0.739
	Regulations on Lending	0.022	0.015	0.103	1.467	0.144

a. Dependent Variable: Return on Assets for Commercial banks

The regression result presented in table 11 indicates all the four independent variables had positive coefficient. The coefficients are used to answer the following regression model which relates the predictors (independent) and dependent variables:

$$ROA_{it} = \beta0 + \beta_1 X_{1it} + \beta_2 X_{2it} + \beta_3 X_{3it} + \beta_4 X_{4it} + \varepsilon$$

Which became:

ROA = 3.429 + 0.05*Lending Volume + 0.004*Cost of Credit Information Sharing +0.009*Customer Credit Reports + 0.022* Regulations on Lending.

The regression equation above has established that taking independent variables to be constant financial performance will be 3.429. The findings presented also shows that taking other independent variables at zero, a unit increase in lending volume will lead to 0.05 increase in bank financial performance; a unit increase in cost of credit information sharing will lead to 0.004 increase in bank financial performance; a unit increase in customer credit reports will led to 0.009 increase in banks' financial performance and finally a unit increase in regulations on lending will lead to 0.022 increase in bank financial performance. At 5% level of significance and 95% level of lending volume had a 0.351 level of significance. Cost of credit information sharing had a 0.918 level of significance while customer credit reports had a 0.739 level of significance and regulations on lending had a 0.144 level of significance. All coefficient values were not significant because P value (Sig value) were greater than 0.0025 testing at 95% level with 2 tailed thus these values are more than critical values of 5%. The coefficient explains insignificant influence of independent variable to performance of banks.

IV. SUMMARY OF FINDINGS

Lending Volume Information and Bank Performance

The first objective of the study was to find out the influence of lending volume on the performance of commercial banks operating in Kisii County. The findings revealed that lending volume have a positive influence on the performance of commercial banks in Kisii County with a mean of 3.97. This finding is supported by the coefficient of determination which shows that the variations in bank ROE and ROA are explained by lending volume. The influence of lending volume on performance measured by ROA and ROE is also statistically not significant meaning that the influence may be by chance or other factors and not lending volume only. The overall volume of lending in the banks has increased due to information sharing which has improved the institutions overall profitability. More SMEs and individuals have been able to access loans due to credit information sharing in commercial banks in Kisii County.

Cost of Information Sharing and Performance of Commercial Banks

The second objective of the study was to establish the extent to which cost of credit information sharing influences the performance of commercial banks operating in Kisii County. The findings revealed that cost of information sharing has a positive influence on the performance of commercial banks in Kisii County with a mean of 3.88. This finding is supported by the coefficient of determination which shows that the variations in bank ROE and ROA are explained by cost of information sharing. The influence of cost of information sharing on performance measured by ROA and ROE is also statistically not significant meaning that the influence may be by chance or other factors and not cost of information sharing only. Information search costs have reduced and fewer staff are involved in debt collection and approval since the advent of credit information sharing.

Customer Credit Reports and Performance of Commercial Banks

The third objective of the study was to find out the extent to which the customers' credit reports influence the performance of commercial banks operating in Kisii County. The findings revealed that customer credit reports have a positive influence on the performance of commercial banks in Kisii County with a mean of 3.74. This finding is supported by the coefficient of determination which shows that the variations in bank ROE and ROA are explained by customer credit reports. The influence of customer credit reports on performance measured by ROA and ROE is also statistically not significant meaning that the influence may be by chance or other factors and not customer credit reports only. The rate of defaulting by customers has been minimized with the use of credit reports and Customer Credit reports from CRBs help in pricing of loans in the institutions which has improved our overall profitability.

Regulations on Lending and Performance of Commercial Banks

The fourth objective of the study was to establish the extent to which cost of credit information sharing influences the performance of commercial banks operating in Kisii County. The findings

revealed that regulations on lending have a positive influence on the performance of commercial banks in Kisii County with a mean of 3.79. This finding is supported by the coefficient of determination which shows that the variations in bank ROE and ROA are explained by regulations on lending. The influence of cost of regulations on lending on performance measured by ROA and ROE is also statistically not significant meaning that the influence may be by chance or other factors and not regulations on lending only. There are few or no loan defaulters due to the institutions efficient lending policy which incorporates credit information sharing regulations as set out by CBK.

V. CONCLUSIONS

Based on the results of the regression analysis, it can be concluded 79.4% of the variation in performance of commercial Banks as measured by ROE and ROA is explained by lending volume, cost of information sharing, customer credit reports and regulations on lending.

Based on the findings on objective one, the study concludes that volume of lending information has a positive effect on the performance of commercial banks. Credit information sharing has made commercial banks lend more loans to deserving customers based on their reputation thus increasing their profitability.

Based on the findings on objective two, the study concludes that cost of credit information sharing has a positive effect on commercial banks performance. Credit information sharing has reduced information search costs for the banks and reduced the number of staff involved in loan approval and debt recovery. Reduction of these costs has led to improvement in the overall performance of these banks.

Based on the findings on objective three, the study concludes that customer credit reports have a positive effect on the performance of commercial banks. The banks by utilizing customer credit reports are able to price their loan products well and reduce the rate of defaulting by customers thus improving the overall performance of the bank.

Based on the findings on objective four, the study concludes that regulations on lending have a positive effect on the performance of commercial banks. Through credit information sharing commercial banks are able to observe CBK regulations on lending and reserve requirements and reduce the nonperforming loan portfolio all of which improve their profitability.

Recommendations

Commercial banks should use the information provided by CRB effectively to lend to potential borrowers. Only borrowers who have good credit history should be allowed to access the loans. Commercial banks should ensure that the loan borrowers have high collateral to ensure that banks recover the loan from the defaulters.

The study also recommends that commercial banks should develop a customer monitoring system which would reduce credit track records, risk premiums and search costs imposed on customers

by the banks. This would increase the customer base which would enhance performance in the banks.

The study also recommends that the commercial banks in Kenya should base award of loans on the reputational capital of the borrowers which would ensure that the level of loan default is low hence improving the performance of commercial banks.

Central bank of Kenya should closely monitor credit referencing bureaus to ensure that the information given to commercial banks is accurate.

The study recommends that the commercial banks in Kenya should not approve loans without information sharing in order to decrease the volume of non-performing loans. The government through the Central Bank of Kenya should ensure that all banks comply with legislation that makes it mandatory for commercial banks to inquire from CRB on potential loan borrowers.

Suggestions for Further Research

This study was limited to use of only four variables namely lending volume, cost of credit information sharing, customer credit reports and regulation on lending as factors that influence performance of commercial banks. Therefore, the researcher recommends that future researchers consider adding other variables such as CBK prudential regulations to the model to assess their joint impact on performance of commercial banks. The researcher further recommends that future research should be directed towards validating the results of this study by conducting a similar research in micro-finance in Kenya by collecting data from different sources.

REFERENCES

Baghsorkhi, S. S., Delahaye, M., Patel, S. J., Gropp, W. D., & Hwu, W. W. (2010). An adaptive perfonnance modeling tool for GPU architectures. ACM Sigplan Notices, 45(5), 105-114.

Barth, J. R., Lin, C., Lin, P., & Song, F. M. (2009). Corruption in bank lending to firms: Cross-country micro evidence on the beneficial role of competition and information sharing. Journal of Financial Economics, 91(3), 361-388.

Bennardo, A., Pagano, M., & Piccolo, S. (2009). Multiple-bank lending, creditor rights and information sharing.

Berger, A. N., & Frame, W. S. (2006). Small business credit scoring and credit availability. Journal of Small Business Management, 45(1), 5-22.

Bouckaert, J., & Degryse, H. (2006). Entry and Strategic Information Display in Credit Markets*. The Economic Journal, 116(513), 702-720.

Brown, M., Jappelli, T., & Pagano, M. (2006). Information sharing and credit market performance: firm-level evidence from transition countries. CEPR Working Paper.

Brown, M., Jappelli, T., & Pagano, M. (2009). Information sharing and credit: Firm-level evidence from transition countries. Journal of Financial Intermediation, 18(2), 151-172.

Brown, M., & Zehnder, C. (2007). Credit reporting, relationship banking, and loan repayment. *Journal of Money, Credit and Banking, 39(8), 1883-1918.*

Brownbridge, M. (1998). Financial distress in local banks in Kenya, Nigeria, Uganda and

Zambia: causes and implications for regulatory policy. *Development Policy Review, 16(2), 173-188.*

Canela, M. A., & Collazo, E. P. (2007). Portfolio selection with skewness in emerging market industries. *Emerging Markets Review, 8(3), 230-250.*

Cheng, X., & Degryse, H. (2010). Information sharing and credit rationing: Evidence from the introduction of a public credit registry.

Davidson, P. (1990). A Keynesian View of Friedman's Theoretical Framework for Monetary Analysist. *Milton Friedman: Critical Assessments, 1, 135.*

Dimand, R. W. (1991). Keynes, Kalecki, Ricardian equivalence, and the real balance effect. *Bulletin of Economic Research, 43(3), 289-292.*

Djankov, S., McLiesh, C., & Shleifer, A. (2007). Private credit in 129 countries. *Journal of financial Economics, 84(2), 299-329.*

Doblas-Madrid, A., & Minetti, R. (2009). Sharing Information In the Credit Market: Contract-Level Evidence from US Finns.

Fisher, l. (1930). Theory of interest: as determined by impatience to spend income and opportunity to invest it.

Gehrig, T., & Stenbacka, R. (2007). Information sharing and lending market competition with switching costs and poaching. *European Economic Review, 51(1), 77-99.*

Ghauri, P. N., & Buckley, P. J. (2003). International mergers and acquisitions: Past, present and future. *Advances in Mergers & Acquisitions, 2, 207-229.*

Giannetti, C., Jentzsch, N., & Spagnolo, G. (2010a). Information sharing and cross-border entry in European banking.

Giannetti, C., Jentzsch, N., & Spagnolo, G. (2010b). Information sharing and cross-border entry in European banking.

Gill, I., & Johnson, P. (2002). Research methods for managers. *Sage Publications Limited.*

Grigorian, D. A., & Manole, V. (2002). Determinants of commercial bank performance in transition: an application of data envelopment analysis. *World Bank Policy Research Working Paper, (2850).*

Haubrich, J. G. (2003). Combining bank supervrsion and monetary policy. *Economic Commentary, (Nov).*

Hauswald, R., & Marquez, R. (2006). *Competition and strategic information acquisition in credit markets. Review of Financial Studies, 19(3),967-1000.*

Houston, J. F., Lin, C., Lin, P., & Ma, Y. (2010). *Creditor rights, information sharing, and bank risk taking. Journal of Financial Economics, 96(3), 485-512.*

Ioannidou, V. P., & Penas, M. F. (2010). *Deposit insurance and bank risk-taking: Evidence from internal loan ratings. Journal of Financial Intermediation, 19(1), 95-115.*

Jappelli, T., & Pagano, M. (2002). *Information sharing, lending and defaults: Cross-country evidence. Journal of Banking & Finance, 26(10), 2017-2045.*

Jappelli, T., & Pagano, M. (2006a). *The Role and Effects of Credit Information Sharing. The economics of consumer credit, 347.*

Jappelli, T., & Pagano, M. (2006b). *The Role and Effects of Credit Information Sharing. The economics of consumer credit, 347.*

Jappelli, T., & Pagano, M. (2006c). *The Role and Effects of Credit Information Sharing. The economics of consumer credit, 347.*

Khrawish, H. A. (2011). *Determinants of commercial banks performance: evidence from Jordan. International Research Journal of Finance and Economics, 81, 147-159.*

Kusa, Ongore, & Okoth, Vincent. (2013). *Determinants of Financial Performance of Commercial Banks in Kenya. International Journal of Economics and Financial Issues. 1, 3, 237-257.*

Lewis, P., Saunders, M. N., & Thornhill, A. (2009). *Research methods for business students. Pearson.*

Lin, C., Ma, Y., & Song, F. M. (2012). *4 What drives bank operating efficiency? The role of bank competition and credit information sharing. Research Handbook on International Banking and Governance, 87.*

Luoto, J., McIntosh, C., & Wydick, B. (2007). *Credit information systems in less developed countries: A test with micro finance in Guatemala. Economic Development and Cultural Change, 55(2), 313-334.*

Miller, M. J. (2003). *Credit reporting systems and the international economy. MIT Press.*

Mugenda, O. M., & Mugenda, A. G. (2003). *Research methods: Quantitative and qualitative approaches. African Centre for Technology Studies.*

Ndung'u, N., & Ngugi, R. (2000). *Banking sector interest rate spread in Kenya. Kenya Institute for Public Policy Research and Analysis.*

Olweny, T., & Shipho, T. M. (2011). *Effects Of Banking Sectoral Factors On The Profitability Of Commercial Banks In Kenya. Economics and Finance Review, 1.*

Powell, A. (2004). *Improving credit information, bank regulation, and supervision: on the role and design of public credit registries (Vol. 3443). World Bank Publications.*

Rambo, C. M. (2013). *Influence of the Capital Markets Authority's Corporate Governance Guidelines on Financial Performance of Commercial Banks in Kenya. The International Journal of Business and Finance Research, 7(3), 77-92.*

Schoenmaker, D. (2012). *Banking supervision and resolution: the European dimension. Duisenberg School of Finance Policy Paper, (19).*

Stiglitz, J. E., & Weiss, A. (1981). *Credit rationing in markets with imperfect information. The American economic review, 393--410.*

Van Donge, J. K. (2012). *Governance and access to finance for development: an explanation of divergent development trajectories in Kenya and Malaysia. Commonwealth & Comparative Politics, 50(1), 53-74.*

Waweru, N., & Kalani, V. (2009). *Commercial banking crises in Kenya: Causes and remedies. African Journal of Accounting, Economics, Finance and Banking Research,4(4).*