Application Of Internal Control System In Fraud Prevention In Banking Sector.

Samuel Ngigi Nyakarimi, Samuel Nduati Kariuki, Peter Kariuki

Abstract: The main purpose of the study was to establish the effect of internal control system on fraud prevention in banking sector in Kenya. The study involved all the banks where branch managers, operations managers and cash supervisors were sought for the study. The study analysed 117 questionnaires from respondents. Factor analysis was used to reduce the number of variables for analysis purposes. Correlational research study and structural equation model were applied in the study to establish the relationship between variables and in analysis of hypotheses. The study found that control environment and control activities have no statistically significant effect on fraud prevention whereas risk assessment, monitoring of activities and communication of information have statistically significant effect on fraud prevention. Discussions based on the results and related studies were provided. Limitations of the study were highlighted. Recommendations based on the findings were provided. The recommendations were on policy, practise and further research in the same or related areas.

Keywords: Internal Control System, Fraud Prevention, Banking Sector, Kenya.

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1 INTRODUCTION

Fraud causes distress and losses to the organization which include and not limited to financial psychological and social. Banking industry fraud makes the stakeholders to loose trust and confidence towards bank and at the same time frauds in banks leads to de-reputation of a nation [35]. Fraud in both private and public firms has gone up. Fraud prevention as a strategy involves those activities that detect and deter fraudulent activities from taking place [34]. Banking sector all over the world has become vulnerable to financial fraud due to economic hardships and financial scandals [9]. The management is often aware of the occurrence of fraud in organization [5].

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- *Samuel Ngigi Nyakarimi is currently pursuing post graduate degree program in Accounting in University of Embu Kenya,. E-mail: ngigi.samuel@embuni.ac.ke*

- *Samuel Nduati Kariuki and Peter Wang'ombe Kariuki are currently lecturers School of Business and Economics, University of Embu, Kenya*

Financial frauds in an organization involve the management as they can override the controls and manipulate the records in order to present fraudulent accounting information. Management can also instruct employees to commit fraud [28]
The management may be involved in fraudulent activities which include and not limited; concealing personal gains and misappropriation of assets, ensuring increased prices of stocks of organization and reporting higher financial than the reality [5]. The projected loss through fraud in the entire world in 2016 was estimated to be 3.8 trillion United States dollars [15]. Fraudsters have devised new ways of committing fraud and eliminating traces. These new ways of perpetrating fraudulent activities has made it complicated to deal with fraud and therefore it is prudent for one to understand the reasons behind fraud perpetration and the ways to reduce fraud [15].

The organization must first identify the perpetrators of fraud, establish the reason of committing fraud and understand the time the fraud may be committed before proactively managing risks and mitigating fraud [1]
Fraud prevention involves integration of all efforts that may be used to reduce the opportunities to commit fraud, ensure employees are able to meet their needs in order to reduce pressure on them that would lead to commit fraud and lastly ensure that there is no justification by employees to commit fraud. Fraud prevention can be effective if the firm maintains ethical practices, maintains organizational honesty culture, assess the possibilities and eliminate risks, reduce the fraudulent activities and implement internal control system (Kabue and Aduda 2017).
Frauds in firm mostly occur in those organizations with weak internal controls [5]. The ICS can only be successful and efficient if there is an independent controller who monitors the action of the management and business operations [9]. Sound ICS facilitates economic growth of banks, introduction of modern business practices and proper organization in banks. However, the rise in fraudulent activities in banks has led to scrutiny in the ICS [21].
ICS is a collection of components that are related and they work together to assure the management that the organization will achieve its own objectives [10]. Internal controls are vital in every business firm but are more important in banking industry as it is highly prone to risks that may affect both profitability and performance of banks (Asiligwa and Rennox, 2017). Lack of proper internal controls will reduce the ability of management to monitor the trend of operations in the organization and establish proper corrective measures. Proper controls can draw the attention of managers to potential problematic areas (Ifeoluwa, 2017).
ICS is a significant component of management that ensures the organization meet its goals and objectives by ensuring

proper financial and managerial reporting and also enables the firms to achieve targeted profit levels. Losses through frauds damage banks and these losses could have been deterred or detected before causing damages to the organization by maintaining strong ICS. ICS ensures that financial and transaction processing are done accurately (Kabue and Aduda 2017).

Effective ICS improves stakeholders' confidence by ensuring that the financial statement reporting is transparent through reduction of information asymmetry, there is accountability and the reports are reliable [4]. Fraud prevention maintains the organizations' reputation and retains the ideals. The firm should incorporate proper audit processes and whistleblowing in fraud prevention [22].

Banking industry plays a significant role in economic development and transformation of a nation through addressing unemployment and inflation, though the integrity of banks in countries like Nigeria have suffered due to increased fraud and accounting scandals. These frauds have led to increased need to identify and control fraudulent activities [12]. Banking sector has experienced corruption, fraudulent activities risks and reduced growth in economic activities. ICS forms the basis of good and safe banking industry. The ICS reduces irregularities and errors committed and at the same time help to detect these errors [19]

Kenya as a country has to grapple with major fraudulent cases especially in banking sector in the recent past. A survey carried out by Price Waterhouse Coopers (PWC), indicated that economic crimes cases in Kenya rose 9 % between 2014 and 2016 [24]. The findings of [16], showed that the banking sector lost approximately Kenya Shillings (Ksh.) 1.5 billion in 2016 only. In this study it was indicated that fraudulent schemes involved technological survey employees and this was due to the failure on the side employees and banking processes that could not detect and control fraud. Individually Kenyans surveyed by PWC indicated that they have lost between Ksh. 2.5 M and Sh. 500M through fraud activities and other economic crimes between 2016 and 2018 [29].

Akelola (2012), studied fraud in the banking sector in Kenya which found that fraud is still endemic in the country especially in banking sector. Ndege, Odhiambo and Byaruhanga (2015), studied how internal controls can be used to detect and prevent fraud in district treasuries. The study concluded that there is significant relationship between ICS and fraud detection and prevention. The studies focused on fraud in commercial banks and use of internal controls in fraud detection and prevention in government departments, this means there is hardly any study that has addressed the ICS and fraud together in banking sector. It is against this backdrop that this study focused on the effect of ICS on prevention of fraud banking sector in Kenya.

2 LITERATURE REVIEW AND HYPOTHESES

The study by [8] stated that internal control system (ICS) plays an important role in fraud detection and prevention, as it is used to estimate organisation's resources, monitor how the resources are utilised and direct how the resources should be utilised. The ICS is majorly used to improve the performance of the organization and financial accomplishments [3].

Internal Control System in banks is important as the banks play crucial and critical role in the development of economy of a nation. The development in the economy can be hindered by macro-economic instabilities, corruption fraud and slowed real economic expansion. Strong and effective ICS in banks can address the aforementioned hindrances of the economic development [19]. Banking sector has experienced corruption, fraudulent activities risks and reduced growth in economic activities. ICS forms the basis of good and safe banking industry. The ICS reduces irregularities and errors committed and at the same time help to detect these errors [19].

ICS's effectiveness can be determined if, in the assessment of its components - Control Environment, Risk Assessment, Control Activities, Communication of information, and Monitoring they are found to be present and working properly.

2.1 Control Environment

The study carried out by [3] on Assessment of Government Internal Control Systems on Financial Reporting Quality in Ghana found that, the influence of control environment was negative, weak and insignificant on the quality of financial reporting. Thao (2018), studied effectiveness of the internal control system in the private joint-stock commercial banks in Thai Nguyen province, Vietnam. The findings in this study showed that control environment has weak positive effect on ICS in private joint –stock commercial banks.

Kumuthinidevi (2016) studied the Effectiveness of the Internal Control System in the Private Banks of Trincomalee. In this study it was concluded the control environment within private bank is moderately support the level of effectiveness of ICS. Gesare, Michael and Odongo (2016)studied influence of internal control systems on fraud risk management in banks in Kisii town. In this study it was found that that control environment has a significant positive influence on fraud risk management in banks in Kisii town. This is an indication that improvement in the quality of the control environment likely leads to improved fraud risk management in banks.

Etengu and Amony (2016) studied the Internal Control System and Financial Performance in Non-Governmental Organisations in Uganda: A Case Study of International Union for Conservation of Nature, the study findings showed that control environment significantly affect financial performance. Amudo and Inanga (2009) studied evaluation of ICS and they found that control environment is not effective and efficient in providing reliable financial reporting. The reviewed studies gave conflicting results and as such it is important to establish the truth by carrying out research in the area. Therefore, the study hypothesised that;

H01: Control environment has no significant effect on fraud prevention in banking sector   in Kenya.

2.2 Risk Assessment

Risk assessment is meant to determine the exact kind of risk the organization face, the kind of controls that should be put in place to address the risks identified and also to manage the risks that have been identified [19]. Thao (2018) studied effect on ICS in private joint –stock commercial banks the findings of this study indicated that risk assessment moderately and positively affects the ICS in commercial banks. Gesare, Nyangol and Odongo (2016) in their study concluded that risk assessment and fraud risk management have significant positive relationship. Risk assessments undertaken in African Development Bank (AfDB) were not efficient to address the problems in projects initiated (Amudo & Inanga, 2009). The reviewed studies indicated that there are conflicting results that required further study. It was necessary to carry further research to determine the truth. To establish this, the second hypothesis was developed as follows;

H02: Risk assessment has no significant effect on fraud prevention in banking sector in   Kenya.

2.3 Control Activities

Control activities should be established in all functions, throughout the organization and at all levels of management to ensure that the organization is able to deal potential risks [26]. In the study carried out by [4] titled internal controls and credit risk relationship among banks in Europe, it was concluded that bank control activities were able to significantly minimize the credit risks. Ikeotuonye Victor and NnennaLinda (2016) studied Internal Control Techniques and Fraud Mitigation in Nigerian Banks, the study found the control techniques that have been employed are effective in mitigating fraud in banks. The study by [11] found that control activities significantly affect financial performance. Owusu-Boateng, Amofa and Owusu (2017)studied Internal Control Systems of GN Bank- Ghana and the study concluded that control activities that were put in place by the board and management were able to reduce and adequately address

the risk problems in the bank. Control activities that had been established by the AfDB were not functioning properly to detect frauds in projects initiated as it was found through the study carried out by (Amudo & Inanga, 2009). The study by [3] found that control activities' influence on the quality of financial reporting was positive though insignificant statistically. The findings given above are conflicting and confusing. Therefore, it is prudent to question the validity of the assertions by carrying out a study and third hypothesis was developed

H03: Control activities have no significant effect on fraud prevention in banking sector   in Kenya.

2.4 Communication of Information

Communication creates good working relationship within the organization. In order for communication to be effective, it must be flowing in all directions effortlessly. It is argued that authenticating information without ensuring that the information is passed through safer channels will defeat the purpose of such information [26]. The study by [2], found that the internet and other Communication of information Technology improvements in delivery of services in banks have led to increased frauds situation in banks. Qualifications and better remuneration of bank staff were also found to be able to discourage and reduce fraud.

Communication of information procedures such as accounting procedures, adoption of technological measures, prevention of technological failures and communication method implemented conveniences around the bank were moderate in supporting the effectiveness of ICS [19]. Mwithi and Kamau (2015) on the study titled strategies adopted by commercial banks in Kenya to combat fraud: a survey of selected commercial banks in Kenya found that technology embraced by banks has reduced the cases of fraud as compared with manual operations. Conclusions that were drawn indicated that fraud can be increased as well decreased by the use communication of information. This however shows that there is no clear and agreeable position when it comes to this variable. This study therefore was necessary to determine the right position. Hypothesis to assist draw conclusion was;

H04: Communication of information has no significant effect on fraud prevention in   banking   sector in Kenya.

2.5 Monitoring of Activities

Monitoring of activities is a process that is used to evaluate and assess the ICS to ensure that it is applied consistently over a long period of time. Monitoring in banks is meant to alert the management on any significant, unexplained and unexpected changes or inconsistencies of the movement on

the money, the amounts involved and the type of customers to ensure that the activities involved are legitimate [20]. The study by [11] further showed that monitoring significantly affects financial performance. Ayagre, Appiah-Gyamerah and Nartey (2014), studied effectiveness of Internal Control Systems of banks in Ghana and was found that monitoring activities on ICS were effective in the banks. Kumuthinidevi (2016) further in the study showed that self-assessment or monitoring has moderately support the level of effectiveness of ICS. Amudo and Inanga (2009) further in evaluating the monitoring it was found that control activities in projects did not function properly, though it was concluded that this was due to weak control environment. Monitoring has been found to be both effective and ineffective in the aforementioned study. Therefore, it is important to carry out study to draw a definitive conclusion and hypothesis five was utilized for this purpose;

H05: Monitoring of activities has no significant effect on fraud prevention in banking   sector   in Kenya.

3 METHODOLOGY

The study utilized correlation research design. Correlational research design was used to determine whether the variables are related [19], The aim of correlational research design is to predict as well as check the consistency. Correlational studies do not manipulate variables but they determine whether there is relationship between variables which is indicated by presence of correlation [25]. The study's general objective was to establish the effect of ICS on fraud prevention in banking sector in Kenya, therefore correlational research designs was most appropriate. The study used census thus all the banks registered to operate in Kenya were included in research study. Kenya has 42 registered banks but the study was conducted on 39 banks and 117 questionnaires were received from 33 banks. Three banks which include Charter house bank, Chase bank and Imperial banks were not included in the study as they are either under statutory management or have collapsed. Questionnaire were used as a tool of collecting primary data. These respondents are experienced and educated thus the questionnaire was very suitable for data collection. The structural equation modelling (SEM) and moderated multiple regression models were used to determine the strength of the relationship between the ICS and fraud prevention. Regression equation models 1 data analysis;

OLS equation $Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \varepsilon_i$ …. Equation 1

Where: Y is Fraud Prevention

X1 is Control Environment

X2 is Risk Assessment

X3 is Control Activities

X4 is Communication of information

X5 is Monitoring Controls

β_0 is constant or coefficient of intercept;

$\beta_1 - \beta_5$ are corresponding coefficients for the respective independent variables

ε is Error term

OLS is Ordinary Least Square

4 DATA ANALYSIS AND RESULTS

4.1 Factor Analysis

The KMO test was undertaken to test adequacy of sample and Bartlett's test of sphericity was also undertaken. The KMO index ranges of 0.5 or more indicates the sample is adequate [32]. Bartlett's test of sphericity tests the

hypothesis that the correlational matrix is identity matrix [31]. The Bartlett's test statistics must be significant that is the p value must be less than 0.05 for factor analysis to be suitable [32]. Table 1 shows the KMO test on adequacy of sample and Bartlett's test of sphericity tests.

Table 1: KMO and Bartlett's Test Results

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.702
Bartlett's Test of sphericity	Approx. Chi-Square	102.562
	df	171
	Sig.	.000

The results shown on table 1 shows that the sample is adequate as the KMO index of 0.702 is above the minimum threshold of 0.5 and Bartlett's test of sphericity is significant

as p value is 0.0001 which is less than 0.05 as suggested by [32]. Therefore, it was concluded that data was suitable for factorability.

4.2 Extraction of Factors

In multiple regression, a large number of variables will cause multicollinearity or difficulty in identifying the variables (Tong, Wang and Xu, 2014). The study used principal component analysis (PCA) for factor extraction. In factor analysis PCA is suitable where a researcher has developed an instrument and would need to reduce the number of latent variables. This method is preferable when there are no prior models or theoretical basis exist [29].

Varimax also reduces the number of variables with high loadings with each other and make smaller loadings even smaller [33]. Varimax rotation method was used to facilitate simple interpretation of factor loadings. Varimax method provides simple structure of factor loading. This was used as it produces results that are uncorrelated as explained by [29]. Table 2 shows the description of extracted variables whereas table 3 shows the factor loading of extracted variables

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Table 2: Description of Extracted Variables

Latent Variable	Label of Latent Variable	Observable Variable
R3	Mechanisms of identifying potential risks	
R6	Response to potential risks	Risk Assessment
R9	Periodic reconciliations for transactions	
R1	Mechanisms for Mitigation of risks	
CV2	Chain of command in the organization	
CV5	Mechanisms of promoting and compensating employees	Control
CV3	Follow-up on delegated responsibilities	Environment
CA2	Regular reconciliation of transactions	
CA6	Proper verification of supporting documents	Control Activities
CA3	Application of proper accounting principles	
M8	Investigation and rectifications of complaints	Monitoring of
M1	Mechanisms for evaluation of activities	controls
M10	Management take corrective measures	
C7	Evaluation of information	Communication
C1	Easier, quicker and safe means of passing information	of
C6	Restriction to accessibility of information	Information
F2	Mechanisms to identify, measure and analyse risk	Fraud Prevention
F1	Establishment of structures	

Factor analysis on ICS and fraud prevention led to extraction of seven factors that had Eigen values of more than one. Eigen value was used to determine the factors to be retained. Samuels (2016) indicated that factors with Eigen values of more than one should be retained.

Table 3: Factor Loading Matrix

	1	2	3	4	5	6
R3	.866					
R6	.807					
R9	.805					
R1	.738					
CV2		.853				
CV5		.842				
CV3		.824				
CA2			.843			
CA6			.728			
CA3			.607			
M8				.718		
M1				.686		
M10				.598		

C7	.821	
C1	.803	
C6	.555	
F2		.820
F1		.754

4.3 Model fit Test for Regression Model

The overall model fit for un-moderated regression model was undertaken using chi-square, CMIN/DF, comparative fix index (CFI), root mean square for error approximation (RMSEA), pclose and standardized root mean residual (SRMR) as suggested by [27]. The criteria or cut off points for the various goodness of fit statistics are as follows; chi-square should be equal or less than 0.05, CMIN/DF should be between 1 and 3, CFI should be equal or greater than 0.8, RMSEA should be more than 0.05, pclose should be less

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than 0.05 [17]. Shopati, Mitonga and Aipinge (2018) indicated that the threshold of SRMR should be less than 0.08. The results presented in table 4.18 show the chi-square of 143.731, df of 128 and p value of 0.162. The CIM/DF of 1.123, CFI of 0.938, RMSEA of 0.062, pclose of 0.361 and SMRM of 0.203. SMRM falls outside the limit suggested by [27]. The other parameters obtained are all within the threshold suggested by [17]. Therefore, it was concluded that the overall model fit well. Table 4 shows model fit statistics and evaluation

Table 4: Model fit Test Results for Regression Model

Measure	Cut-off Value	Estimates	Model Evaluation
Chi-square	$p \geq 0.05$	$\chi2 = 143.731$, df= 128, p = 0.162	Model Fit
CIM/DF	Between 1 and 3	1.123	Model Fit
CFI	≥ 0.8	0.938	Model Fit
RMSEA	≤ 0.08	0.063	Model Fit
Pclose	> 0.5	0.361	Model Fit
SMRM	≤ 0.08	0.203	Model Un-fit

4.4 Hypothesis Test Results on Effect of ICS on Fraud Prevention

In this section the results of hypothesis testing are presented. Individual variables are also analysed and presented. The regression results in figure 4.3 show

coefficient of variation value of 0.92 ($R2 = 0.92$). This means that the ICS explains 92% of variability in fraud prevention in banking sector in Kenya.
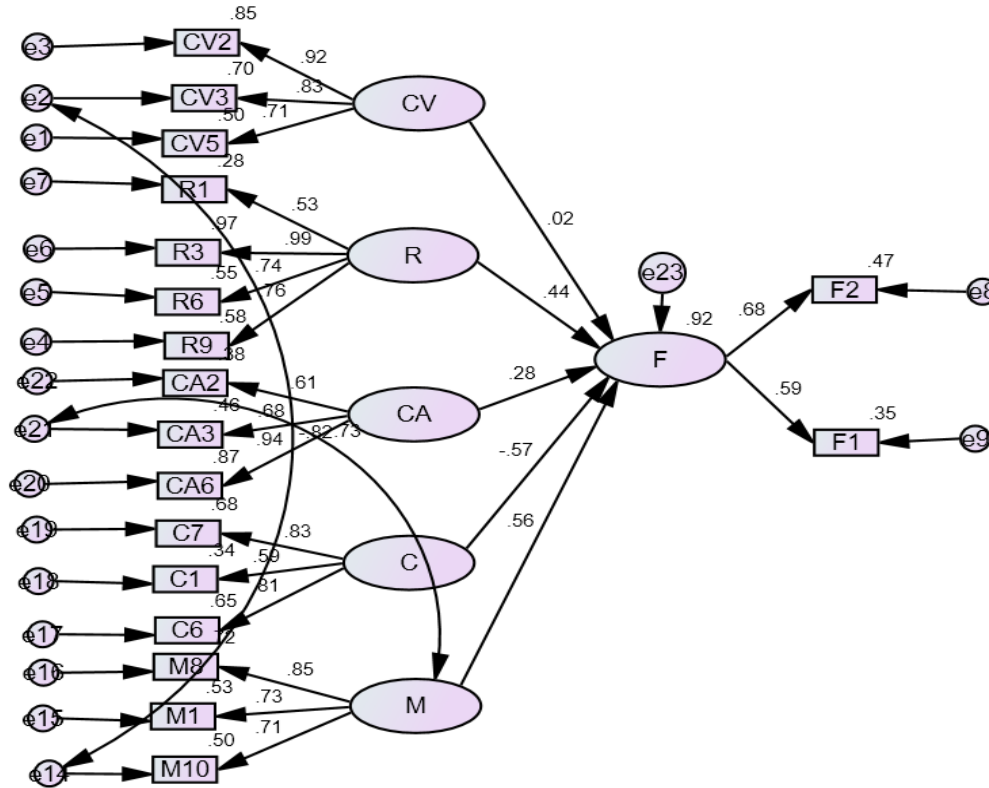
Figure 1 Structural Equation Model (SEM)

Table 5 shows the regression results of effects of ICS and fraud prevention in banking sector in Kenya

Table 5: Regression Results of Effect of ICS on Fraud Prevention

		Estimate	S.E.	C.R.	P
Fraud Prevention <---	Control environment	.009	.086	.104	.917
Fraud Prevention <---	Risk assessment	.339	.146	2.326	.020
Fraud Prevention <---	Control activities	.205	.137	1.498	.134
Fraud Prevention <---	Communication	-.372	.141	-2.639	.008
Fraud Prevention <---	Monitoring	.498	.182	2.734	.006

The results shown on table 5 indicate a t value (critical ratio) of 0.104 and p value of 0.917 which is greater than the critical p value of 0.05. The p value from the test is insignificant, therefore the null hypothesis is not rejected and it is concluded that control environment has no significant effect on fraud prevention. The control environment and fraud prevention are shown to have weak positive relation (B = 0.009) as per the ranges provided by [13]. The results presented in table 5 indicate that risk assessment has statistically significant effect on fraud prevention (ß=0.339, t= 2.326, p = 0.0.020 < 0.05). Therefore, the null hypothesis was rejected. The strength of relationship of between 0.01 and .30 indicate very weak relationship [13]. The study findings indicated in table 5 shows that risk assessment has weak (B=0.339) significant positive relationship with fraud prevention.

Regression coefficient values on control activities provided in table 5, indicated that the control activities have no statistically significant effect on fraud prevention (ß=0.205, t=1.498, p = 0.134>0.05). Therefore, null hypothesis is not rejected and it is concluded that control activities have no significant effect on fraud prevention. Research study findings presented in table 4.27 shows that the control activities have weak positive significant effect (B=0.205) on fraud prevention in banking sector in Kenya. The regression results shown in table 5 indicates that communication of information has statistically insignificant effect on fraud prevention (ß= -0.372, t= -2.639, p=0.008 < 0.05). Therefore, the null hypothesis was rejected and it is concluded that communication of information has significant effect on fraud prevention. The findings showed that communication of information has a weak negative relationship with fraud prevention (B= -0.372). Table 5 shows the research findings on regression on the

effect of monitoring of activities on fraud prevention. The results show that the monitoring of activities has significant effect on fraud prevention (t = 2.734, p = 0.006 < 0.05). Based on the results the null hypothesis was rejected and it was concluded that monitoring of activities has significant effect on fraud prevention. Gan and Ahmad (2011), scale that rated a beta of between 0.71 and 0.90 as very weak relationship, therefore Karl Pearson's product moment coefficient of correlation (B = 0.498) of monitoring of controls showed strong positive relationship between monitoring of controls and fraud prevention.

4.5 Overall Multiple Regression Models Analysis on ICS and Fraud Prevention

The study analysed the overall effect of each ICS component on fraud prevention in banking sector in Kenya using ordinally least square equation. Table 6 shows the overall models summary results. The results for model show that the ICS has strong relationship with the fraud prevention (R = 0.741, R2 = 0.549).

Table 6: Model Summary Results

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.741a	.549	.465	.37128	.549	6.572	5	27	.000
2	.529b	.279	.146	.92414	.279	2.094	5	27	.097

a. Predictors: (Constant), Monitor, Risk Assessment, Communication, Control Environment, Control Activities

b. Predictors: (Constant), M_G, R_G, C_G, CV_G, CA_G

ANOVA test was used to determine of how well the observed data fit in the model. The null hypothesis was that the model fits. The ANOVA test results on table 7 indicate F value of 6.572 and p value of 0.000 (P < 0.05) for model 1, it is therefore concluded that the overall ordinary regression model fit significantly. These implies that the coefficients derived can be substituted in the ordinary regression
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model. The results in table 7 further show an F value of 1.788 and p value of 0.097 for model 2 which is more than critical p value of 0.05, therefore the study concludes that the moderated multiple regression model does not fit significantly. This implies that the derived coefficients cannot be substituted in moderated regression model

Table 7: ANOVA Test Results

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	4.529	5	.906	6.572	.000a
	Residual	3.722	27	.138		
	Total	8.251	32			
2	Regression	8.941	5	1.788	2.094	.097b
	Residual	23.059	27	.854		
	Total	32.000	32			

a. Dependent Variable: Fraud Prevention

b. Predictors: (Constant), Monitor, Risk Assessment, Communication, Control Environment, Control Activities

b. Predictors: (Constant), M_G, R_G, C_G, CV_G, CA_G

Results in table 8 show regression weights of different components of the ICS and the moderating variable. The t values and p values are also indicated. Ordinary regression

model represented by equation 4.1 was used in analysis of the effect of ICS on fraud prevention

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OLS equation $Y = \beta_0 + \beta_1 X1 + \beta_2 X2 + \beta_3 X3 + \beta_4 X4 + \beta_5 X5 + \varepsilon_i...$ **Equation 1**

The coefficients obtained from test are substituted in ordinary least square model used give model that follow:

Fraud Prevention = 2.017 - 0.048 Control Environment + 0.164 Risk Assessment + 0.328 Control Activities – 0.387 Communication + 0.440 Monitoring...... Equation 2

The results indicated in the model indicate that for every unit percentage increase in control environment (X1) there is 4.8% decrease in fraud prevention (Y), further it is shown that for every unit percentage increase in risk assessment there is 16.4% increase in fraud prevention. The control activities coefficient indicates that for every unit percentage increase in control activities there is 32.8% increase in fraud prevention. Communication shows a negative relationship with fraud prevention. The test results show that for every unit percentage increase in communication there is 38.7% decrease in fraud prevention. Monitoring coefficient shows that for every unit percentage increase in monitoring there is 44% increase in fraud prevention.

5 CONCLUSION AND DISCUSSION

The hypothesis test results showed that control environment has no significant effect on fraud prevention in banking sector in Kenya. It was therefore concluded that the control environment parameters have no significant effect in fraud prevention in banking sector in Kenya. These results were similar to those of [30] which showed that control environment has weak positive effect on ICS in private commercial banks. The study findings deviated from other studies which showed different results. Study [14] found that that control environment has a significant positive influence on fraud risk management in banks in Kisii town. Kumuthinidevi (2016) concluded that control environment within private bank moderately support effectiveness of ICS. In a different study's findings, the control environment was found to have significant effect on financial performance [11]. The findings by [6] showed that control environment was not effective and efficient in providing reliable financial reporting. The control environment from inferential analysis has been shown to have weak positive relationship with fraud prevention. The inferential findings that shows weak relationship between the control environment and fraud prevention is not expected mostly, this is because control environment includes integrity issues, code of conduct, competencies of employees, proper chain of command among other factors that ensures that the recruited personnel are well scrutinized to ensure employees are of high integrity and competent. The managements of the organizations must refocus on control environment to ensure that the policies and procedures put in place to assess the competences and integrity of employees are revised, enforced and proper continuous evaluations are carried out. The control environment affects all other components and as such greater emphasis on their proper working should be ensured. Proper control environment should facilitate fraud prevention.

The hypothesis test results showed that risk assessment has significant effect on fraud prevention. It was concluded that the mechanisms put in place are effective in fraud prevention. [4] in their findings also found that there was weak significant effect of risk assessment on credit risk. These findings are contrary to the findings by [30] who found that there is moderate significant effect of risk assessment on ICS. Gesare, Nyangol and Odongo (2016) concluded that there is significant positive relationship between risk assessment and fraud risk management. This meant that the quality of risk assessment directly affects the quality of fraud risk management. Amudo and Inanga (2009) in their study indicated that the risk assessments put in place by African Development Bank (AfDB) were not efficient in addressing problems in projects initiated. Risk assessment is vital as it helps in early detection before fraud occurs. When the management get hint of risk potential it puts in motion activities to stop fraudulent activities. The study findings have shown that risk assessment barely help in fraud prevention and therefore it is prudent to enhance place identification, analysis, estimation and mitigation of risks to seal off loopholes both in laws and organization policies.

The hypothesis test results on control activities indicated that control activities have insignificant effect in fraud prevention in banking sector in Kenya. It is therefore concluded that the mechanisms put in place are capable of preventing fraud, these parameters are not strong enough based on tests findings to address issues of fraud prevention completely. Therefore, it would be prudent to reinforce these parameters or introduce new and more effective mechanisms. These study findings are similar to the studies by [6], in their study they indicated that the control activities functionalities were weak, although they added an override and stated that the malfunctioning is purely due to problems with control environment. The study findings were contrary to the study conducted by [30] which concluded that control activities are neutral in effectiveness on internal controls, Kumuthinidevi (2016), found that control activities within the banks included in

the research had moderate effectiveness on ICS. Ikeotuonye Victor and NnennaLinda (2016) on their study they concluded that control techniques that have been employed are effective in mitigating fraud in banks.

The hypothesis test results showed that communication of information has statistically significant effect on fraud prevention. It was therefore concluded that the mechanisms that the organizations have put in place pertaining to communication of information are working properly and have significant effect in fraud prevention in banking sector in Kenya. This study is closely related to a study carried out by Omowunmi and Taiwo (2016) that concluded that internet and other communication of information technology meant to improve delivery of services in banks, led to increased frauds situation in banks. The research findings however did not agree with findings of Kumuthinidevi (2016) that showed that communication of information procedures such as accounting procedures, adoption of technological measures, prevention of technological failures and communication method implemented conveniences around the bank were moderate in supporting the effectiveness of ICS.

Mwithi and Kamau (2015) found that technology embraced by banks for capturing and dissemination of information has reduced the cases of fraud as compared with manual operations. Inferential statistics result communication of information does not contribute effectively on fraud prevention.

The communication of information did not contribute positive results in fraud prevention this may be due to wrong information being passed, the information passed is not acted upon or bureaucratic nature of dealing with received information takes too long and therefore when acted upon the perpetrators have accomplished have their mission. The positive significant relationship between communication of information and fraud prevention may be due to the respondents putting in place mechanisms to ensure tasks that are delegated are supervised well or have established peer evaluations to ensure each person's task is evaluated by another colleague. The independent evaluators could have also contributed to ensure that the loopholes have sealed. The respondents who are at the top of management in bank branches could also be competent in monitoring or may have given higher ratings to boost the investors' confidence in their organizations to safeguard their investments.

The conclusion of the study was that the monitoring of activities that are carried out by banks in Kenya were

working properly to address the issues of fraud in the sector. The findings may due to strict peer to peer audit that most banks practice to seal all the loopholes that might be used by fraud perpetrators in organizations. The study findings were similar to the studies by [11] in their study concluded that monitoring significantly affect financial performance and study by [7] on effectiveness of ICS of banks in Ghana which found that monitoring activities on ICS were effective in the banks. The findings of the study were contrary to the findings by [6] who evaluated ICS in Uganda, it was found that monitoring of activities in projects did not function properly, though the weaknesses were attributed to weak control environment. The study findings were also different from some other studies which include; study by [19] that concluded self-assessment or monitoring has moderately support the level of effectiveness of ICS.

6 LIMITATIONS AND RECOMMENDATIONS
The limitation of the study is that it only focused on banks only, used primary data and selected managers, future research studies should be broader involving other institutions, both primary and secondary and other levels of employees. It is recommended that banks should reward acts of moral high standards by either remunerating the high fliers well, recognizing them or promoting them. The employees who violate the code of conduct should be punished to deter others from doing the same. Reward those who adhere to moral standards will encourage employees to continue the right thing and will reduces cases of fraud. Punishing the wrongdoers will have a deterrent effect which will discourage others from committing fraud. The authorities and management should introduce offices that will be responsible for ensuring that laws and regulations are followed by the banks. The office should not replace the already existing regulatory bodies but should be able to supplement these bodies. The authorities should also come up with the policy document that can be able seal the loopholes in accounting standards and other regulations that are used by the firms to manage earnings and defraud the investors.

Though it was found that risk assessment has significant effect on fraud prevention, it is recommended; identification, analysis, estimation and mitigation activities for risks should be stringent to conceal all loopholes both in laws and organization policies that may be manipulated by fraudsters. The control activities also had significant effect on fraud prevention. The organizations should improve on unannounced or surprise checks to complement and support internal audit. This will deter employees from engaging in teaming and landing form of fraud as they will not be able to know time for surprise checks to clean their

accounts. The employees should be rotated regularly and should be engaged in peer review of other employees' jobs in different departments.

Communication of information is also an important part of preventing fraud. In the study it was found that communication of information has significant effect on fraud prevention. It is recommended that the organizations should shorten the channels of communication further to ensure that the information on fraud reaches the appropriate body or personnel on time. The study findings showed that the monitoring of activities had significant effect of fraud prevention. The study recommends that the monitoring activities to be evaluated and revised regularly to improve on capability of addressing sophisticated nature of current fraud perpetration.

References

[1] Abayomi, S. O. and Abayomi, S. O. (2016) 'Personal Ethics and Fraudster Motivation: The Missing Link in Fraud Triangle and Fraud Diamond Theories', International Journal of Academic Research in Business and Social Sciences, 6(2), pp. 159–165. doi: 10.6007/ijarbss/v6-i2/2020.

[2] Adetiloye, K. A., Olokoyo, F. O. and Taiwo, J. N. (2016) 'Fraud prevention and internal control in the nigerian banking system', International Journal of Economics and Financial Issues, 6(3), pp. 1172–1179.

[3] Agbenyo, W., Jiang, Y. and Cobblah, P. K. (2018) 'Assessment of Government Internal Control Systems on Financial Reporting Quality in Ghana: A Case Study of Ghana Revenue Authority', International Journal of Economics and Finance, 10(11), p. 40. doi: 10.5539/ijef.v10n11p40
.

[4] Akwaa-Sekyi, E. K. and Gené, J. M. (2017) 'Internal controls and credit risk relationship among banks in Europe', Intangible Capital, 13(1), pp. 25–50. doi: 10.3926/ic.911.

Akelola, S. (2012). Fraud in Banking Sector: A Case Study of Kenya (Doctoral dissertation).Trent University, Nottingham, United Kingdom.

[5] Amoa-Gyarteng, K. (2014) 'Analyzing a Listed Firm in Ghana for Early Warning Signs of Bankruptcy and Financial Statement Fraud: An Empirical Investigation of AngloGold Ashanti', European Journal of Business and Management, 6(5), pp. 10–17. Available at: http://iiste.org/Journals/index.php/EJBM/article/view/10908
.

[6] Amudo, A. and Inanga, E. L. (2009) 'Evaluation of internal control systems: A case study from Uganda', International Research Journal of Finance and Economics, 1(27), pp. 124–144.

Asiligwa, M. and Rennox, G. (2017) 'The Effect of Internal Controls on the Financial Performance of Commercial Banks in Kenya', IOSR Journal of Economics and Finance, 08(03), pp. 92–105. doi: 10.9790/5933-08030492105.

[7] Ayagre, P., Appiah-Gyamerah, I. and Nartey, J. (2014) 'The Effectiveness of Internal Control Systems of Banks. The Case of Ghanaian Banks', International Journal of Accounting and Financial Reporting, 4(2), p. 377. doi: 10.5296/ijafr.v4i2.6432.

[8] Bangsa, I. N. (2018) 'The Effect of Internal Control Systems, Accounting Systems on the Quality of Financial Statements Moderated by Organizational Commitments.' Accounting Analysis Journal, 7(2), pp. 127–134. doi: 10.15294/aaj.v7i2.20616.

[9] Bayyoud, M. and Sayyad, N. A. (2015) 'The Impact of Internal Control and Risk Management on Banks in Palestine', International Journal of Economics, Finance and Management Sciences, 3(3), p. 156. doi: 10.11648/j.ijefm.20150303.12.

[10] Bruwer, J.-P., Coetzee, P. and Meiring, A. (2013) 'The perceived adequacy and effectiveness of internal control activities in South African small , medium and micro enterprises', The Southern African Journal of Entrepreneurship and Small Business Management, pp. 1–11. doi: 10.4102/sajesbm.v11i1.148.

[11] Etengu, R. O. and Amony, M. (2016) 'Internal Control System and Financial Performance in Non-Governmental Organisations in Uganda: A Case Study of International Union for Conservation of Nature', International Journal of Contemporary Applied Sciences, 3(2), pp. 2308–1365. Available at: www.ijcas.net.

[12] Etim, E. (2017) 'FRAUD IN NIGERIAN BANKING INDUSTRY A STUDY OF CUSTOMERS ' PERCEPTION WITHIN THREE COMMERCIAL BANKS IN UYO METROPOLIS', 2(4), pp. 150–156.

[13] Gan, S. O., & Ahmad, S. (2011). Multiple Linear Regression to Forecast Balance of Trade. Journal of Fundamental Sciences, 7 (2), 150-155

[14] Gesare, M. R., Michael, N. and Odongo, A. J. (2016) 'Influence of Internal Control Systems on Fraud Risk Management among Commercial Banks in Kisii Town, Kenya', IOSR Journal of Business and Management, 18(4), pp. 2319–7668. doi: 10.9790/487X-1804032834.

[15] Georgios L. Vousinas (2017) 'Advancing theory of fraud: The S.C.O.R.E. Model Abstract', Journal of financial crime, pp. 1–20.

Ifeoluwa Mary, A. (2017) 'Impact of Effective Internal Control in the Management of Mother and Child Hospital Akure, Ondo State', Journal of Finance and Accounting, 5(1), p. 61. doi: 10.11648/j.jfa.20170501.16.

Ikeotuonye Victor, D. O. and NnennaLinda, E. (2016) 'Internal Control Techniques and Fraud Mitigation in Nigerian Banks', IOSR Journal of Economics and Finance, 07(05), pp. 37–46. doi: 10.9790/5933-0705013746.

[16] KABUE, L. N. and ADUDA, J. (2017) 'Effect of Internal Controls on Fraud the Detection and Prevention Among Commercial Banks in Kenya', Effect of Internal Controls on Fraud the Detection and Prevention Among Commercial Banks in Kenya, 2(1), pp. 52–68. Available at: https://www.iprjb.org/.

[17] Kanda, R., & Handa, H. (2018). The Impact of Service Ethics on Organizational Competitiveness in India - A Primary Approach to the Startup and Emerging Service Enterprises. International Journal of Business Ethics in Developing   , 7 (1), 13-22

[19] KIMANI, E. (2015) EFFECT OF GOVERNMENT REGULATIONS ON FACTORS HINDERING FINANCING OF SMALL SCALE WATER INVESTMENTS IN KENYA (Business Administration) JOMO KENYATTA UNIVERSITY OF. Jomo Kenyatta University of Agriculture and Technology.

[19] Kumuthinidevi, M. S. (2016) 'A Study on Effectiveness of the Internal Control System in the Private Banks of Trincomalee', International Journal of Scientific and Research Publications, 6(6), p. 600. Available at: www.ijsrp.org.

[20] Mwithi, J. M. and Kamau, J. N. (2015) 'Strategies adopted by commercial banks in Kenya to combat fraud', International Journal of Current Business and Social Sciences, 1(3), pp. 1–18.

Ndege J. O., Odhiambo, A., & Byaruhanga, J. (2015). Effect of Internal Control on Fraud Detection and Prevention in District Treasuries of Kakamega County. International   Journal of Business and Management Invention, 4(1), 47-57.

[21] Owusu-Boateng, W., Amofa, R. and Owusu, I. (2017) 'The Internal Control Systems of GN Bank- Ghana', British Journal of Economics, Management & Trade, 17(1), pp. 1–

17. doi: 10.9734/bjemt/2017/32261.

[22] Pamungkas, I. D., Ghozali, I. and Achmad, T. (2017) 'The effects of the whistleblowing system on financial statements fraud: Ethical behavior as the mediators', International Journal of Civil Engineering and Technology, 8(10), pp. 1592–1598.

[23] Price Waterhouse Coopers (2018) 'Fraud: The Overlooked Competitor', Global Economic Crime and Fraud Survey 2018.

[24] Price Waterhouse Coopers (2016). 2016 Global Economic Crime Survey: Kenya Report.   Nairobi. Author.

[25] Queirós, A., Faria, D., & Almeid, F. (2017). STRENGTHS AND LIMITATIONS OF QUALITATIVE AND QUANTITATIVE RESEARCH METHODS. European Journal of Education Studies, 3 (9), 369-387

[26] Rafindadi, A. A. and Olanrewaju, Z. A. (2019) 'the Impact of Internal Control System on the Financial Accountability of Non-Governmental Organisations in Nigeria: Evidence From the Structural Equation Modelling', International Review of Management and Marketing, 9(3), pp. 49–63. doi: 10.32479/irmm.7909.

Samuels, P. (2016) 'Advice on Exploratory Factor Analysis Statistics teaching resources View project Educational robotics enhancement classes View project', (June). doi: 10.13140/RG.2.1.5013.9766.

[27] Shopati, A. K., Mitonga, K. H. and Aipinge, L. P. (2018) 'Healthcare service quality measurement towards successful implementation of intervention strategies in three Namibian public healthcares facilities: a deterministic framework', International Journal of Community Medicine and Public Health, 5(2), p. 511. doi: 10.18203/2394-6040.ijcmph20180227.

[28] Suyanto, S. (2009) 'Fraudulent Financial Statement: Evidence from Statement on Auditing Standard No. 99', Gadjah Mada International Journal of Business, 11(1), p. 117. doi: 10.22146/gamaijb.5539.

[29] Taherdoost, H., Sahibuddin, S. and Jalaliyoon, N. (2014) 'Exploratory factor analysis: Concepts and theory', 2nd International Conference on Mathematical, Computational and Statistical Sciences, pp. 375–382.

[30] Thao, N. P. (2018) 'Joint-Stock Commercial Banks in Thai Nguyen Province , Vietnam', (April), pp. 766–780.

[31] Watkins, M. W. (2018) 'Exploratory Factor Analysis: A

Guide to Best Practice', Journal of Black Psychology, 44(3), pp. 219–246. doi: 10.1177/0095798418771807.

[32]   Williams, B., Onsman, A. and Brown, T. (2010) 'Exploratory factor analysis: A five-step guide for novices', Journal of Emergency Primary Health Care, 8(3), pp. 1–13. doi: 10.33151/ajp.8.3.93.

[33] Yong, A. G., and Pearce, S. (2013) "A Beginner's Guide to Factor Analysis: Focusing on Exploratory Factor Analysis"   Tutorials   in   Quantitative   Methods   for Psychology,9(2), pp. 79-94

[34] Yuniarti, R. D. (2017) 'The effect of internal control and anti-fraud awareness on fraud prevention (A survey on inter-governmental organizations)', Journal of Economics, Business & Accountancy Ventura, 20(1), pp. 113–124. doi: 10.14414/jebav.v20i1.626.

[35] Zager, L., Malis, S. S. and Novak, A. (2016) 'The Role and Responsibility of Auditors in Prevention and Detection of Fraudulent Financial Reporting', Procedia Economics and Finance. The Author(s), 39(November 2015), pp. 693–700. doi: 10.1016/s2212-5671(16)30291-x