

## **EFFECT OF BANK INNOVATIONS ON FINANCIAL GROWTH OF COMMERCIAL BANKS IN KENYA**

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**Abstract:** *Bank Innovations involves the design, the development, and the implementation of innovative financial instruments and processes, and the formulation of creative solutions to problems in finance. Bank innovation is important especially since it will always give an edge to competitors offering the same service or product in order to differentiate the items given on offer. The study was be guided by the following specific objectives; determine whether bank product innovation affects the financial growth of commercial banks in Kenya; determine whether bank process innovation affects the financial growth of commercial banks in Kenya; determine whether bank institutional innovations affects the financial growth of commercial banks in Kenya. The population of the study consisted of forty-three commercial banks that are currently operating in Kenya, The target population used all the forty three banks as it used a census study. Secondary data was collected from the bank's, annual reports, CBK website, audited financial statements for the periods 2014-2018. The study was analyzed the data through SPSS version 25 and used descriptive and inferential statistics. The findings show that bank product innovation had the highest significant impact on financial growth since it has a highest t-value, which was 7.970 followed by bank institutional innovations which had a T-Value of 5.590 and finally bank process innovations which also had a t-value of 3.6184. All the variables were significant at 0.01 level since they both had a p-value of 0.000 which was less than 0.01. It can be concluded that bank innovations influence financial growth of commercial banks in Kenya positively. It is therefore recommended to the management of commercial banks and the Government continue to explore and implement sustainable business linkages and collaborations with mobile phone service providers as well as the internet service providers as a way of accelerating the penetration of innovations and eventually creating desired impacts in the economy. Banks should leverage on mobiles phones in order to grow their business and customer base. This study did not include all bank innovations and a further study is recommended to include innovations like service innovations, securitization and credit guarantees and their influence on the financial growth of commercial banks.*

**Keywords:** *Financial Innovation, Financial growth, Bank Process Innovation, Bank Product Innovation, Bank institutional Innovation*

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### **1.0 Introduction**

The history of bank innovation can be drawn back to the very beginning of the use of medium of exchange, a few thousand years ago and certainly to the time when merchant banks first emerged in medieval Italy (Bernholz & Vaubel, 2014). However, its pace accelerated in the post-world war two period and in particular

since the 1970s. Financial innovation has mostly relied upon financial intermediation and this has led to the growth of the economy (Kingiri & Fu 2019). Financial innovation has the potential to revolutionize the financial industry more so with what has already happened to a great extent. Today, banks and non-banking financial institutions operate in a different way as they did do 20 or 30 years ago (Gennaioli, Shleifer, & Vishny, 2012).

In Schumpeter (1934) development theory, finance and efficient financial institutions are crucial for sustainable economic growth, assuming that credit, money, and finance influence innovation processes (Knell, 2015). Following Laeven, Levine and Michalopoulos (2015) seminal work, other finance scholars advocated for financial efficiency to ensure the smooth flow of capital across countries, playing an intermediation role that is a critical determinant of economic growth. An efficient financial system has been promoted by the use and diversification of financial instruments and having an effective regulatory body in the capital markets. An efficient financial system can achieve technological improvements through adoption of new financial systems, new financial institutions, new financial intermediation and efficacy in financial services.

The world in 2019 is described by the rapid technological change. In the U.S large companies are given the name “technological companies” because of their large market capitalization. Thanks to the much development and investment in information technology consumers now expect that the services should be there in an instant. This is particularly true because every industry and sector is changing including financial institutions. Bucherer, Eisert, and Gassmann (2012). Financial institutions play a key role in today’s economy of any given country by providing liquidity to the economy through giving credit, managing markets and pooling risks together among consumers (Lange, Saunders, Thompson, & Anderson, 2007).

Bank innovations have been crucial especially with technology transforming in the banking sector. The industry has been pigeonholed by physical branches, privileged access to financial data especially for analysis. The banking industry is adjusting to this new world and also facing challenges to traditional methods of banking models. With such changes it has increased pressure on managers and workers to improve productivity in such a way that costs may be reduced significantly so as to be able to compete with competitors in the same industry as outlined by Noyer (2007) especially in new distribution channel systems such as mobile and internet banking. In this way it has led to financial inclusion whereby more people are able to access financial services at affordable costs and can be able to transact.

### **Statement of the Problem**

Every industry is being challenged to perform efficiently. Amid the national and international competition an organization must aim for improving its product/service, quality, increase productivity, greater responsiveness to change in market demand and to maintenance. Excellence in operations in any business is a critical drive for success. The growth and progress of a firm depend on the accomplishment of adequate results in their operations. In order to achieve good results, there is a basic need to accomplish two essential circumstances, i.e. to optimum utilize the available funds for the formation of its consequences and for achievement of consequences which fulfill the desires of the customers (Potocan, 2006).

Certain financial improvements mainly focus on enhancing the current products, processes and business models in an existing market while other financial developments disrupt the present markets as a consequence of introducing new products, processes and business models to a target on the new market. Factors such as the sort of innovation and the cultural context affects the effect of innovation on firm performance to a substantial degree (Demombynes & Thegeya, 2012).

Influencing financial performance is key in any given institution is key. Bank innovation is important for boosting financial performance, it is not clear how bank innovations affect the financial growth of firms especially commercial banks in Kenya. Clearly there has not been adequate studies done on the effect of bank innovation on financial growth as most have only looked at profitability. Financial growth will tend to look at the growth of banks in terms of assets and profits while reducing costs and still maintain the same quality.

Kinuthia (2010) conducted a study on the analysis of financial innovations in the Kenyan banking sector and to determine motivations, benefits and challenges of innovations in the last 15 years. He used a census survey and the study used primary data collected by use of questionnaires. The findings stated that before and after financial innovations small sized banks have not been majorly making enough profits as compared to the large and middle sized banks which have a large income. The large and middle sized banks will always innovate regularly and most of these banks are banks which have been operating in Kenya for 5 to 15 years while the small sized banks did not innovate regularly.

Sum and Memba (2016) did a study on the effect of financial innovation on financial performance among SACCOs in Kiambu county. The study analyzed the role of product, process, institutional innovations in the performance of SACCOs. The findings were that the variables which were analyzed were said to be statistically significant on the effect of financial performance among SACCOs.

Alamitu (2014) conducted a study on the effect of financial innovation on operational efficiency of listed commercial banks. The study recognized that the number of ATMs, number of agency outlets and size of bank as its variables. The study used descriptive design with the use of secondary data. The findings were that ATMs and number of agency of agency outlets were positively and statistically significant with affects operational efficiency and that size of the bank plays a minimal role in operational efficiency.

Studying the existing literature, empirically researchers have explained and have done a good job on the different researches about financial innovation in the banking sector. In this case some of the papers and books did not cover all variables of financial innovation. (Nyathira,2012) was only looking for the payment systems of two payment systems; Automated Clearing House and Real Time Gross Settlement, it did not cover other forms of innovation and basically these payments may be classified as product innovations. Most researchers(Itumo, 2015; Klingenberg, Timberlake, Geurts, & Brown, 2013; Lee, 2015) were only looking at financial performance of the financial institutions and no other variables such as market growth, operational efficiency.

Most studies have covered effect of bank innovation on financial performance. This study try to put a gap on by studying effect of bank innovation on financial growth and is likely help bank managers in trying to find the best ways of increasing the assets and profits while reducing costs and still maintaining the same quality(Kabiro & Maina, 2016; Laforet, 2011; Monyoncho, 2015; Mutevu, 2015).

### **Specific Objective**

- 1.To establish the effect of bank product innovations on financial growth among commercial banks in Kenya.
2. To establish the effect of bank process innovations on financial growth among commercial banks in Kenya.
3. To establish the effect of bank institutional innovations on financial growth among commercial banks in Kenya.

### Research Hypothesis

H<sub>01</sub>: Bank product innovations has no significant effect on financial growth of among commercial banks in Kenya.

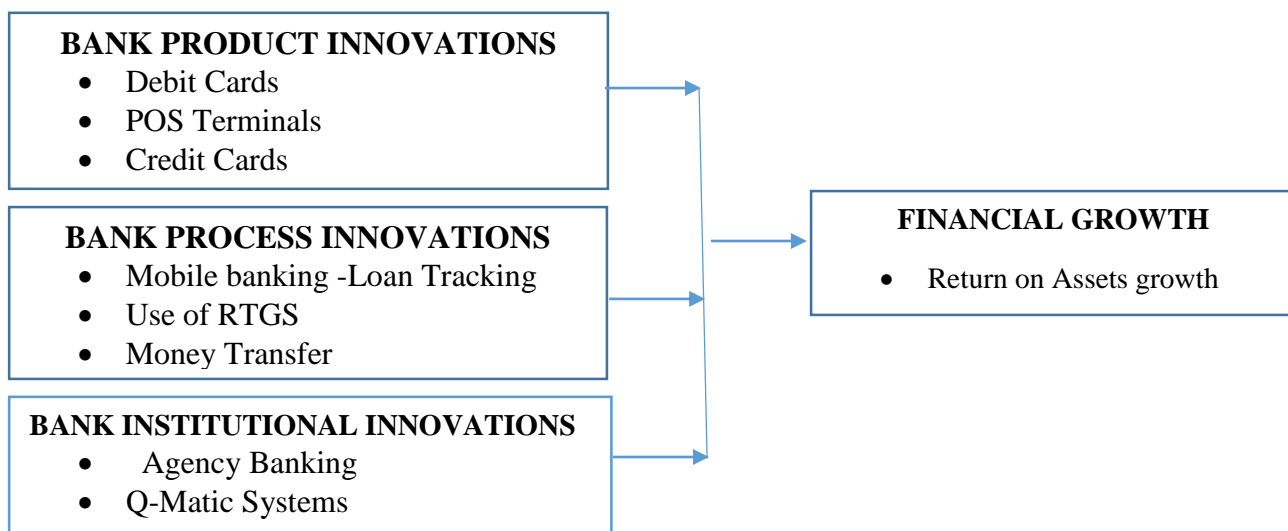
H<sub>02</sub>: Bank process innovations has no significant effect on financial growth of among commercial banks in Kenya.

H<sub>03</sub>: Bank institutional innovations has no significant effect on financial growth of among commercial banks in Kenya.

## 2.0 Theoretical Framework

Several theories and arguments have been proposed by other researchers, scholars and managers on the effect of financial growth on financial growth among commercial banks in Kenya. This study was pegged on; **X-efficiency theory, Diffusion Theory of Innovation, Company Life Cycle Theory and Resource Based Theory.**

### 2.3 Conceptual Framework



## 3.0 Research Methodology

This study used quantitative research design was due to their appropriateness for the numerical data that was collected. Extant literature is filled with researchers who have successfully embraced quantitative research design to investigate that, relationship between bank innovation and financial growth(Ho & Zhu, 2004). The quantitative research design, that is ordinary least Square (OLS) regression, was employed to determine the relationship between bank innovation OLS and financial growth for commercial banks. The OLS regression will be aligned to the objectives of the study through model specification. For this study, the target population was commercial banks in Kenya for five years from 2014- 2018. Cumulatively, the sum of all the commercial banks for the period of study was forty-three. The sampling frame the sampling frame for this study used all the forty three commercial banks. The study used a census study which is a study of all items in the target population. A census is highly recommended since it eliminates errors that are associated with sampling Kothari (2013). Moreover, the availability of secondary data from financial statements, and annual reports of commercial banks in Kenya and also CBK annual reports in Kenya supported the use of census, CBK website

from January, 2014 to December 2018. The data was analyzed through SPSS version 25. Data analysis is the processing, editing and reducing accumulated data to a manageable size, developing summaries, looking for patterns, and applying statistical techniques (Copper& Schindler, 2007).The relationship between the dependent variable and the independent variables are determined by the below presented regression model.(Kothari, 2013)

Descriptive data design was applied in data analysis. Regression model was used

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \varepsilon$$

Where: Y = Financial growth,  $\beta_0$  = Constant Term,  $\beta_1$  = Beta coefficients,  $X_1$  = Bank Product Innovation,  $X_2$  = Bank Process Innovation,  $X_3$  = Bank Institutional innovation,  $\varepsilon$  = Error Term

#### 4.0 Data Analysis, Findings and interpretations

##### 4.1 Introduction

This chapter presents the findings and interpretations of the results based on the objective of the study, which was to determine the effect of bank innovations on financial growth of commercial banks in Kenya. Specifically, the study sought to find out effects of bank product, bank process innovation and bank institutional innovations on financial growth of commercial banks in Kenya.

##### 4.2 Descriptive Statistics

Table 4.1 presents the descriptive analysis results of the variables of the study. The data collected on the financial growth of the sector (measured in change in ROA) and the independent variables (Bank Product innovation, bank process innovation and bank institutional innovation) was analyzed to give the mean values for the entire period under study as well as their standard deviations.

**Table 4. 1 Summary Statistics**

		<b>Product Innovation</b>	<b>Process Innovation</b>	<b>Institutional Innovation</b>	<b>ROA</b>
<b>Minimum</b>		6.30	.12	.22	.00
<b>Maximum</b>		8.27	.46	.26	.03
<b>Mean</b>	Statistic	6.9749	.2558	.2365	.0079
	Std.Error	.07405	.01314	.00093	.00787
<b>Standard Deviation</b>	Statistic	.57362	.10175	.00719	.00787
<b>Variance</b>		.329	.010	.000	.000
<b>Skewness</b>	Statistic	1.520	.542	.277	.553
	Std. Error	.309	.309	.309	.309

According to the study results in Table 4.2, the average ROA (financial growth) of commercial banks in Kenya for the period (2014-2018). The result illustrates that the average change in return on assets was 0.0079 with standard deviation of 0.00787. The mean number of bank product innovations was 6.9749 with a standard deviation of 0.57362 Average mean of bank process innovations stood at 0.2558 with a standard deviation of 0.10175. Bank institutional innovation registered a mean of 0.2365 with standard deviation of 0.00719. Thus, these values can be relied as representatives of the financial growth of commercial banks in Kenya.

Nyambariga (2013) conducted a study on effect of financial innovation on performance for commercial banks in South Sudan and his findings were shows that return on asset (ROA) recorded a mean of 3.2534 with standard deviation of 1.2548. On average the commercial banks received a net income of Ksh6.9839 for every shilling invested in equity. The average number of daily transactions using ATM for the commercial banks was 156,547 with standard deviation of 20,511 during the study period.

### 4.3 Inferential Statistics

#### 4.3.1 Autocorrelation Test

Autocorrelation is correlation between the residue terms for any two observations; it is expected that the residue terms for any two observations should be independent (Field *et al.* 2005). Durbin-Watson test was used to test for the presence of autocorrelation between variables. According to Gujarati (2004), Durbin-Watson statistic ranges from 0 to 4. A value near 0 indicates positive autocorrelation while a value close to 4 indicates negative autocorrelation. On the other hand, a value ranging from 1.5 to 2.5 indicates that there is no presence of statistically significant autocorrelation, thus it was applied in the study according to table 4.2.

**Table 4. 2 Durbin-Watson Model Summary<sup>b</sup>**

Model	R	R Square	Adjusted Square	R Std. Error of the Estimate	Durbin-Watson
1	.724 <sup>a</sup>	.614	.499	.00557	1.530

a. Predictors: (Constant), INSTITUTIONINNOVATION, PROCESSINNOVATION, PRODUCT\_INNOVATION

b. Dependent Variable: ROAT1

Autocorrelation is a characteristic of data in which the correlation between the values of the same variables is based on related objects. It violates the assumption of instant independence, which underlies a good number of conventional models. It exists in those types of data sets in which the data instead of being randomly selected is from the same source. According to Gujarati (2004), Durbin Watson is the most celebrated test for detecting serial correlation. Table 4.4 shows that the value for Durbin-Watson for the general model was 1.530, implying that there was no presence of statistically significant autocorrelation which ensured the independence of errors and enhanced accuracy of the regression models.

#### 4.3.2 Normality Tests

Statistical tests for normality are more precise since actual probabilities are calculated. Tests for normality calculate the probability that the sample was drawn from a normal population. The study used Kolmogorov-Smirnov and Shapiro–Wilk tests to examine the normality of data used and the finding were summarized in table 4.3.

**Table 4. 3 Tests of Normality**

	Kolmogorov-Smirnov <sup>a</sup>			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
ROAT1	.133	60	.010	.947	60	.011
PRODUCT_INNOVATION	.391	60	.061	.912	60	.000

PROCESSINNOVATIO N	.151	60	.580	.915	60	.001
INSTITUTIONINNOVA TION	.065	60	.200*	.982	60	.000

\*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

The study adopted the Kolmogorov-Smirnov statistic to verify the normality assumption for this study. The findings indicated a value of 0.133 for dependent variable, financial growth with a corresponding significance of 0.010. Since this value is less than 0.05, the null hypothesis of non-normality for the model is accepted with the inference that the model residual values agree to the normality expectations. According to bank product innovation, the findings reflected a value of 0.391 with a corresponding significance of 0.061 which is equally more than 0.5 prompting a rejection of the null hypothesis and further concluding that the values agree with the normality expectations. The same finding was replicated in other variables where process innovation registered a value of 0.151 with a corresponding significant value of .580 which is also higher than 0.05. Bank institutional innovation registered a Kolmogorov-Smirnov statistic value of 0.065 and a corresponding significance of 0.200.

### 4.3.3 Multicollinearity

Multicollinearity is a state of very high intercorrelations or inter-associations among the independent variables. It is therefore a type of disturbance in the data, and if present in the data the statistical inferences made about the data may not be reliable. Multicollinearity can be detected with the help of tolerance and its reciprocal, called variance inflation factor (VIF). If the value of tolerance is less than 0.2 or 0.1 and, simultaneously, the value of VIF 10 and above, then the multicollinearity is problematic. The researcher conducted the multicollinearity test on the used variables and the results were summarized in table 4.4.

**Table 4. 4 Test for Multicollinearity**

Model		Collinearity Statistics	
		Tolerance	VIF
1	PRODUCT_INNOVATION	.979	1.021
	PROCESSINNOVATION	.984	1.016
	INSTITUTIONINNOVATION	.971	1.030

a. Dependent Variable: ROAT1

Based on the multicollinearity rule, the findings from table 4.4 above indicated that there was no multicollinearity problem among the independent variables. the study was reliable and valid for all the variables. For product innovation, the tolerance value was 0.979 with a VIF of 1.021 an indication that the finding obeyed the rule. Equally, the same findings were replicated in the bank process innovations where the tolerance value was 0.984 with a VIF of 1.016 and also for bank institutional innovations, the tolerance value was 0.971 with a VIF of 1.030.

### 4.3.4 Correlation Analysis for Product Innovation and Financial Growth

Correlation analysis was conducted in order to determine the direction and the strength of the relationship between the dependent variable and independent variables. In this study Pearson correlation coefficient was

used to determine the magnitude and the direction of the relationships between the dependent variable and independent variables. Pearson Correlation Coefficient was computed to show the relationship existing between the variables and the results were presented in Table 4.5.

**Table 4.5 Correlation analysis for Bank Product Innovations and Financial Growth**

		ROAT1	PRODUCT_INNOVATION
ROAT1	Pearson Correlation	1	.868**
	Sig. (2-tailed)		.004
	N	60	60
PRODUCT_INNOVATION	Pearson Correlation	.868**	1
	Sig. (2-tailed)	.004	
	N	60	60

\*\* . Correlation is significant at the 0.01 level (2-tailed).

The values of the correlation coefficient are supposed to be between -1 and +1. A value of 0 infers no relationship, +1 correlation coefficient indicates that the two variables are perfectly correlated in a positive linear sense, that is, both variables increase together while a value of -1 correlation coefficient indicates that two variables are perfectly correlated in a negative linear sense, that is, one variable increase as the other decreases. A correlation between product innovation and financial growth indicated a Pearson correlation coefficient of 0.868 which indicated a positive significant value which indicated that product innovation were very significant in financial growth. The researcher went further to determine the regression analysis to determine the ability of product innovations to affect financial growth.

Gunday, Ulusoy, Kilic and Alpkam(2011) conducted a study on the effect of innovation types on firm growth. The findings on product innovation showed that the correlation between product innovation and firm growth was 0.317 which indicates a weakly positive significant value which indicates that product innovation is significant to firm growth. Bowen et al., (2010) conducted a study on the effect of innovation on company growth in US banks. The findings on product innovation indicated that correlation between product innovation and firm growth was 0.16 which is closer to zero and shows it is weakly positively correlated. Wang et al. (2011) conducted a study on effect of product innovation on firm growth and showed that there is a positive relationship between product innovation and firms innovation performance where correlation was 0.597. The findings were summarized in table 4.6.

**Table 4.6 Model Summary for Product Innovation**

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	.368 <sup>a</sup>	.136	.121	.00737	.136	9.111	1	58	.004

a. Predictors: (Constant), PRODUCT\_INNOVATION

The findings from table 4.6 indicated the multiple linear regression model summary and overall fit statistics. The findings indicated an adjusted R<sup>2</sup> of 0.121 with the R<sup>2</sup> of 0.136. This means that the linear regression



explains 13.6% of the variance in the data. An indication that product innovation explains 13.6% of financial growth.

**Table 4.7 Regression analysis coefficient for product innovation**

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.	95.0% Confidence Interval for B	
		B	Std. Error				Lower Bound	Upper Bound
1	(Constant)	.512	.306		1.673	.001	.020	.067
	PRODUCT_INNOVATION	.805	.502	.368	1.604	.004	.008	.002

a. Dependent Variable: ROAT1

The findings indicated the beta coefficients of each predictor variable which is in this case product innovations. From the coefficients, the researcher was able to develop a fitted regression equation as follows.

$$Y = 0.512 + 0.805X_1 + e$$

Where  $X_1$  stands for bank product innovations.

This results mean that if there are no bank innovations financial growth will change or increase by 51.2%. However, if the commercial banks come up with product innovations, then financial growth will change with a margin of 80.5%. This therefore implies that commercial banks should come up with bank product innovations to increase financial growth.

#### 4.3.5 ANOVA for Product innovations.

Analysis of variance (ANOVA) is an assortment of statistical models and their associated approximation procedures used to investigate the variances among group means in a sample. ANOVA was established by statistician and evolutionary biologist Ronald Fisher. In the ANOVA setting, the observed variance in a particular variable is apportioned into components attributable to different sources of variation. In its modest form, ANOVA provides a statistical test of whether the population means of several groups are equal, and therefore simplifies the t-test to more than two groups. The ANOVA test for product innovations is summarized as follows.

**Table 4.8 ANOVA for Product Innovation**

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	.000	1	.000	9.111	.004 <sup>b</sup>
	Residual	.003	58	.000		
	Total	.004	59			

a. Dependent Variable: ROAT1

b. Predictors: (Constant), PRODUCT\_INNOVATION

The ANOVA test was conducted in order to determine how useful product innovation predicts financial growth. The researcher was more interested on the significance column. This table indicates that the regression model predicts the dependent variable significantly well. This is because it had a significance level of  $P = 0.004$

which is less than 0.05 and indicates that, overall, the regression model statistically significantly predicts the outcome variable.

### 4.3.6 Correlation Analysis for Bank Process Innovations and Financial Growth

A correlation analysis was conducted to examine the extent of relationship between bank process innovation and financial growth. Correlation analysis for this section was conducted in order to determine the direction and the strength of the relationship between the dependent variable and independent variables. Accordingly, Pearson correlation coefficient was used to determine the magnitude and the direction of the relationships between the dependent variable and independent variables. Pearson Correlation Coefficient was computed to show the relationship existing between the variables and the results were presented in Table 4.9

**Table 4.9 Correlation Between Bank Process Innovations and Financial Growth**

		ROAT1	PROCESSINNOVATION
<b>ROAT1</b>	Pearson Correlation	1	.642**
	Sig. (2-tailed)		.000
	N	60	60
<b>PROCESSINNOVATION</b>	Pearson Correlation	.642**	1
	Sig. (2-tailed)	.000	
	N	60	60

**\*\*.** Correlation is significant at the 0.01 level (2-tailed).

The findings from table 4.9 indicated that there was a strong correlation between process innovation and financial growth. This was explained by a Pearson correlation coefficient of 0.642 which was significant at 0.01 level. From this finding, it can be concluded that in order for bank managers to adopt financial growth, all factors related to bank process innovation are very vital. The researcher went further to determine the regression analysis to determine the ability of process innovation to affect financial growth. The findings were summarized in table 4.10.

**Table 4.10 Model Summary of Bank Process Innovation**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. Change
1	.642 <sup>a</sup>	.412	.402	.00608	.412	40.668	1	58	.000

**a. Predictors: (Constant), PROCESSINNOVATION**

The findings from table 4.10 indicated the multiple linear regression model summary and overall fit statistics. The findings indicated an adjusted R<sup>2</sup> of 0.402 with the R<sup>2</sup> of 0.412. This means that the linear regression explains 41.2% of the variance in the data. The remaining percentage can be explained by the remaining variables including those that have not been put into this test.

**Table 4.11 Regression Analysis Coefficient for Bank Process Innovation**

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.	95.0% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	.021	.013		1.615	.000	.016	.025
	PROCESSINNOVATION	.749	.408	.642	1.836	.000	.065	.034

a. Dependent Variable: ROAT1

The findings from table 4.11 indicated the beta coefficients of each predictor variable which is in this case bank process innovation. From the coefficients, the researcher was able to develop a fitted regression equation as follows.

$$Y = 0.021 + .749X_1 + e$$

Where  $X_1$  stands for bank process innovations.

This results means that if there are no bank process innovations financial growth will change or increase by 2.1%. However, if the commercial banks come up with bank process innovations, then financial growth will change with a margin of 74.9%. This therefore implies that commercial banks should come up with bank process innovations to increase financial growth.

#### 4.3.7 ANOVA for Bank Process Innovations.

ANOVA was used in this section as a parametric test or statistical technique to compare datasets. It was suitable because two variables were being compared. Table 4.12 shows the ANOVA results for bank process innovation and financial growth.

**Table 4.12 Anova for Bank Process Innovations**

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	.002	1	.002	40.668	.000 <sup>b</sup>
	Residual	.002	58	.000		
	Total	.004	59			

a. Dependent Variable: ROAT1

b. Predictors: (Constant), PROCESSINNOVATION

The ANOVA test was conducted in order to determine how useful process innovation predicts financial growth. The researcher was more interested on the significance column. This table indicates that the regression model predicts the dependent variable significantly well. This is because it had a significance level of  $P = 0.000$  which is less than 0.05 and indicates that, overall, the regression model statistically significantly predicts the outcome variable.

### 4.3.8 Correlation Analysis for Bank Institutional Innovation and Financial Growth

Bank Institutional innovation were understood to have a relationship with financial growth. In order to test the extent and direction of the relationship, the researcher conducted a correlation analysis and the findings were summarized in table 4.13.

**Table 4.13 Correlation between Bank Institutional Innovation and Financial Growth**

		ROAT1	INSTITUTIONI NNOVATION
ROAT1	Pearson Correlation	1	.969
	Sig. (2-tailed)		.752
	N	60	60
INSTITUTIONINNOVATION	Pearson Correlation	.969	1
	Sig. (2-tailed)	.752	
	N	60	60

The findings from table 4.13 indicated that there was a perfect strong correlation between bank institutional innovation and financial growth. This was explained by a Pearson correlation coefficient of 0.969 which was significant at 0.01 level. From this finding, it can be concluded that in order for bank managers to adopt financial growth, all factors related to institutional innovation procedures are very crucial. The researcher went extra mile to determine the regression analysis to understand the ability of bank institutional innovation to affect financial growth. The findings were summarized in table 4.14.

**Table 4.14 Regression Analysis Coefficient for Bank Institutional Innovation**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					
					R Square Change	F Change	df1	df2	Sig. Change	F
1	.969 <sup>a</sup>	.939	.938	1.279828	.002	.101	1	58	.752	

**a. Predictors: (Constant), INSTITUTIONINNOVATION**

The results from table 4.14 designated the multiple linear regression model summary and overall fit statistics. The findings indicated an adjusted R<sup>2</sup> of 0.938 with the R<sup>2</sup> of 0.939. This means that the linear regression explains 93.9% of the variance in the data. An indication institutional innovation procedures explain 93.9% of financial growth. The remaining percentage can be explained by the remaining variables including those that have not been put into this test.

**Table 4.15 Coefficient analysis between bank institutional innovation and financial growth**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
		B	Std. Error				Lower Bound	Upper Bound
1	(Constant)	.003	.034		.0882	.933	.071	.065
	INSTITUTIONI NNOVATION	.682	.344	.042	1.982	.752	.242	.333

a. Dependent Variable: ROAT1

The findings from table 4.15 indicated the beta coefficients of each predictor variable which is in this case institutional innovation. From the coefficients, the researcher was able to develop a fitted regression equation as follows.

$$Y = 0.003 + .682X_1 + e$$

Where  $X_1$  stands for bank institutional innovation.

This results means that if there are no bank institutional innovations financial growth will change or increase by 0.3%. However, if the commercial banks come up with bank institutional innovations, then financial growth will change with a margin of 68.2%. This therefore implies that commercial banks should come up with bank institutional innovations to increase financial growth.

**Table 4.16 ANOVA for Institutional Innovation**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.000	1	.000	.101	.000 <sup>b</sup>
	Residual	.004	58	.000		
	Total	.004	59			

a. Dependent Variable: ROAT1

b. Predictors: (Constant), INSTITUTIONINNOVATION

The ANOVA test was conducted in order to determine how useful bank institutional innovation predicts financial growth. The researcher was more concerned on the significance column. Table 4.16 indicates that the regression model predicts the dependent variable significantly well. This is because it had a significance level of  $P = 0.000$  which is less than 0.05 and indicates that, overall, the regression model statistically significantly predicts the outcome variable.

#### 4.0 Overall Regression Model

A multiple regression was conducted for all the variables to determine whether all the independent variables could predict the dependent variable and the fitted model was derived from the coefficients as shown in table 4.17

**Table 4.17 Overall Coefficients**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
		B	Std. Error				Lower Bound	Upper Bound
1	(Constant)	.512	.027		18.962	.010	.018	.126
	INSTITUTIONINNOVATION	.682	.122	.075	5.590	.000	.287	.123
	PRODUCT_INNOVATION	.805	.101	.337	7.970	.001	.007	.002
	PROCESSINNOVATION	.749	.207	.628	3.6184	.000	.063	.034

a. Dependent Variable: ROAT1

A multi-regression analysis was also used to determine whether all the independent variables would predict the dependent variable. Therefore, the model can be defined as follows:

$$Y = 0.512 + 0.805X_1 + 0.749X_2 + 0.682X_3 + e$$

According to the regression equation established, taking all factors into account (Bank Product innovation, Bank Process innovation and organizational innovation) constant at zero, Financial growth will be 0.512. The data findings analyzed also show that taking all other independent variables at zero, a unit increase in Bank product innovation will lead to a 0.805 increase in Financial growth; a unit increase in bank process innovation will lead to a 0.749 increase in financial growth, unit increase in bank institutional innovation will lead to a 0.682 increase in financial growth. It is also evident that bank product innovation is statistically significant because the p value of 0.001 is less than 0.05 (level of significance), bank process innovation and bank institutional innovation is also significant because of their p value which are 0.000 and 0.000 respectively. They are less than 0.05 (level of significance). This means that they predict the independent variable more than the intercept only model one.

This implies that bank product innovation contributes most to the financial growth followed by bank process innovation and then bank institutional innovation. At 5% level of significance and 95% level of confidence, bank product innovation, bank institutional innovation and bank process innovation, were all significant in financial growth. This means commercial banks should be very keen in bank product innovation so as to attract more customers and increase their financial activities.

The findings agreed with that of Mwangi et al. (2016) who found that agency banking had a positive impact on the financial performance of commercial banks. They also support that of Kambua (2015) that there was a positive relationship between cash deposits, volume of deposits, volume of withdrawals and financial performance.

The p-values in Table 4.17 indicate the significance of the independent variables in predicting the dependent variable. For this study, the values of the t-statistics were used to determine the relative importance of the independent variables. In this case, bank product innovation had the highest significant impact on financial growth since it has a highest t-value, which was 7.970 followed by bank institutional innovations which had a T-Value of 5.590 and finally bank process innovations which also had a t-value of 3.6184. All the variables were significant at 0.01 level since they both had a p-value of 0.000 which was less than 0.01.

#### 4.1 ANOVA Analysis for All Variables

ANOVA analysis was conducted to test the significance of the multi linear regression model at better predicting the dependent variable than the mean. Therefore, the findings in Table 4.18 indicated that the model, as a whole, significantly fitted to adequately predict financial growth since  $p = 0.000 < 0.05$ . Hence, all the independent variables had influence on financial growth.

**Table 4.18 ANOVA for All Variables**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.002	3	.001	20.590	.000 <sup>b</sup>
	Residual	.002	56	.000		
	Total	.004	59			

- a. Dependent Variable: ROAT1
  - b. Predictors: (Constant), PROCESSINNOVATION, PRODUCT\_INNOVATION, INSTITUTIONINNOVATION
- 

## 5.0 Conclusions

The research found that bank innovations has a substantial influence on financial growth of Kenyan Commercial banks. The research therefore suggests that commercial banks ought to ensure that they continually invest in research in efficiency, reduction of unearning assets and thus better utilization.

From the findings the researcher concluded that there it can be concluded that is a supervisory framework that monitors commercial banks. Some of the innovations observed by commercial banks in mobile banking include partnerships, financial trainings, branch networking and opening up new branches. It was also concluded that innovations can be a source of competitive advantage if a firm understands customer needs, competitors' actions and technological development and act accordingly to stay at par with rivals. Bank product innovations are relatively high compared to other financial institutions. Products offered by commercial banks are also highly differentiated. Product innovations dimensions in terms of new products, improved products, and quality products largely and positively influence firm financial growth. Innovation enhances firm financial growth by strategically placing a firm in the market.

In relation to the second objective, it can be concluded that the delivery process in Commercial banks is up to date. Commercial banks have automated their service delivery. Bank process innovation besides enhancing speed and quality result to flexibility and cost efficiency. Process enhances speed and quality result to flexibility and cost efficiency.

On the third objective, bank institutional innovation positively enhances business financial growth when they examined institutional innovation, transformational leadership, knowledge management, organizational learning and organizational financial growth in commercial banks in Kenya.

Bwire (2014) did a study on the effect of financial innovation on financial performance of commercial banks in South Sudan and the objective of the study was to establish the relationship between financial innovations and financial performance of commercial banks in South Sudan. The findings indicated that financial innovation is significant and has a positive impact on the financial performance of the commercial banks in South Sudan. The study is consistent with Corolyne (2012) who found that financial innovation contributes to and is positively correlated to profitability in the banking sector particularly that of commercial banks.

Bank innovation presents more convenience, efficiency and security to commercial banks customers resulting to more demand for the new innovations. Demand for traditional payment systems reduces as customers switch to the more effective payment systems; this as seen by the negative correlation between. Real Time Gross Settlement transactions turnover and Automated Clearing House Throughput and the negative correlation between profitability and ACH throughput.

## 6.0 Recommendations

In the light of the foregoing findings, the study recommends that in-order to enhance firm financial growth the management of commercial banks ought to focus on the firm activities aligned towards renewing routines, procedures and processes in an innovative manner in a firm. This will positively improve the financial growth of commercial banks .The study also recommended that commercial banks ought to develop unique micro

bank products and other loan and service product in order to meet the rising demands of the poor and the marginalized who cannot afford the current packages offered by the institutions. It is also important that in order to enhance financial growth, commercial banks should focus more on bank product innovation, like mobile banking this will have a significant relationship to financial growth of commercial bank.

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