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ABSTRACT

Existing literature indicates contradicting correlations between banks innovativeness and banks' performance, conceptually some researches merely report on bank innovations without relating the effectiveness and efficiency of the purported innovations on bank performance. The study was anchored on Innovation Diffusion theory, Schumpeter theory of innovation and Technology Acceptance Model. Lack of sufficient empirical evidence on the relationship between emerging banks' innovativeness and bank profitability motivated this study to be undertaken. The objective of the study was to determine the effect of crowd funding system on financial performance of commercial banks in Nakuru County, Kenya. The research adopted descriptive survey research design. The study targeted managers from commercial banks in Nakuru County, Kenya. The study sample size was determined using Taro Yamane's proportional sampling technique formula, which was drawn randomly from managers of commercial banks in Nakuru, Kenya. Primary data was collected by means of self-administered questionnaires. Data collected from the field was coded, cleaned, tabulated and analyzed using both descriptive and inferential statistics with the aid of specialized Statistical Package for Social Sciences (SPSS) software. The output of analysis was presented using tables to make them reader friendly. Descriptive statistics such as frequencies and percentages as well as measures of central tendency (means) and dispersion (standard deviation) were used. Data was organized into graphs and tables for easy reference. Further, inferential statistics such as regression and correlation analyses was computed to determine both the nature and the strength of the relationship between the dependent and independent variables. Both descriptive and inferential statistics showed that crowd funding significantly influenced financial performance of commercial banks in Nakuru County, Kenya. The study concluded that commercial banks to effectively utilize crowd funding system practices to boost bank's financial performance. Commercial banks to enable their customers access crowd funding platforms to attract a huge customer base and benefit from financial transactions of customers who secure their business transactions using the bank.

Key words: *Bank Innovations, Crowd Funding System, Financial Performance*

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INTRODUCTION

Turbulent financial performance of many financial lending institutions has attracted a myriad or researches on the most effective ways of mitigating financial loss, thus, the need for innovations. In this regard, Rosenbusch, Brinckmann and Bausch's (2011) meta-analysis of previous research on the relationship between innovation and firm performance aimed at establishing the direction and strength the relationship. They document a positive relationship between innovation and performance and that investment in process innovation leads to higher firm performance than investment in product innovations.

According to Laforet (2013), few financial lending institutions have empirically examined innovation outcomes at the firm level or the link between a firm's innovation and financial performance. In this regard, artificial intelligence has been introduced due to the high dependence of banking industry on human involvement; where most of the operations were dependent on employed manpower. With time technological inventions were adopted in day-to-day working of banks and it efficiently improved their performance. Thus, application of artificial intelligence in banking sector can make the operations more impactful and hassle free, possibly having a significant impact on banks' financial performance (Manning, 2018).

Further, financial innovation has been an integral component of economic activity for several millennia (Goetzmann, 2009). About six thousand years ago, the Sumerian city of Uruk blossomed as tradable debt contracts emerged to facilitate a diverse assortment of inter-temporal transactions underlying increased specialization, innovation, and economic development (Goetzmann, 2009). In ancient Rome, private investors steadily developed all of the features of limited liability companies, including freely traded shares, an active stock exchange, and corporations that owned property and wrote contracts independently of the individual shareholders. The creation of these corporations eased the mobilization of capital for innovative, large-scale mining technologies (Malmendier, 2009). Crowd-funding innovations facilitates the access to market hubs /capital markets, peer to peer & equity-based lending, connecting funders to business startups on profitability of listed commercial banks in Kenya.

In this regard, IOSCO (2014) asserted that crowd-funding as a market-based financing technique can be used to raise funds from large numbers of individuals or legal entities in small amounts, bypassing traditional financial intermediaries, and using mobile phones and online web-based platforms to connect with borrowers (IOSCO 2014). Thus, crowd-funding platforms are websites that enable interaction between fundraisers and the crowd (borrowers), where financial pledges can be made and collected through the platform facilitated by the bank.

GPFI (2016) report on global standard-setting bodies and financial inclusion in the evolving landscape, asserted that in the financial inclusion context, crowdfunding was now being used as a market-based financing technique where funds are raised from large numbers of individuals or legal entities in small amounts, bypassing traditional financial intermediaries, and using mobile phones and online web-based platforms facilitated by a bank to connect with borrowers, whether to fund a business, a specific project, or other needs.

European Commission (2016) also reported that crowdfunding is part of the broader universe of financial innovations enabled by technological advancement, also known as FinTech. FinTech has been changing the way the financial sector operates and crowdfunding is specifically part of FinTech's subcategory called alternative finance. Alternative finance refers to technology-enabled market-based funding outside the traditional financial system and includes online marketplaces for consumer and business lending, invoice trading, and third-party payment platforms facilitated by a bank that supports the innovative platform. But recommended empirical enquiries in the

relationship between crowdfunding innovation and bank financial performance.

Agrawal, Catalini, and Goldfarb (2013) study on types of crowdfunding found that reward-based crowdfunding enables beneficiaries to access capital at a lower cost compared to traditional sources for three reasons; one, better outreach and targeting— donors are not constrained by their geographical location, and campaigns can have global reach, thus targeting interested crowds with no or limited geographical barriers; two, monetization of assets—beneficiaries can leverage assets that are difficult, to trade in traditional markets and three; technological innovations including streamlined online procedure to set up a campaign, social media marketing, increased transparency and competition.

Grella (2015) further found that debt crowdfunding allows funders (lenders) to directly lend to fundraisers or invest in debt obligations issued through a platform. Debt crowdfunding is also known as lending-based crowdfunding, marketplace lending, or person-to-person (P2P) lending—terms that are not as broad as debt crowdfunding. Debt crowdfunding is best thought of as a new approach to lending rather than a completely new financial product. By leveraging the Internet's interconnectivity, this form of crowdfunding builds a direct relationship between the funder and the fundraiser.

Statement of the Problem

Banks innovativeness is meant to boost profitability but evidence from existing literature indicate conflicting relationships between banks crowd funding system and banks' performance, while other researches merely report on bank innovations without relating the effectiveness of the purported innovations on bank performance (Cheng et al., 2017).

For instance, in Kenya, Central Bank of Kenya (2017) indicated that, the number of automated teller machines grew from 166 in 2001 to 2091 in 2010, debit cards increased from 160,000 in 2001 to over 6 million cards in subsequent years while mobile banking transactions increased from 48,000 per annum in 2007 to over 450,000 transactions per annum in 2017. Performance of commercial banks in Kenya also grew impressively between years 2001 to 2010 where profit before tax grew from Kshs 2.7 billion in 2001 to Kshs 74 billion in 2010. During the same period, total income grew from Kshs 61billion to Kshs 178 billion while total assets grew from Kshs 425 billion to over Kshs 1.7 trillion (CBK, 2017); but the banks do not comprehensively report whether banking innovations have had a contributing effect on their growth in total assets.

Further, existing researches on financial innovation have focused on internet and mobile banking innovations without considering other emerging innovations that give banks a competitive edge over their rivals and maintaining a sustainable increase in profitability (Aduda & Kingoo's, 2012). More so, some researchers have revealed conflicting results on the relationship between crowd funding system innovations and financial performance. For instance, Gopalakrishnan (2013) study found a reverse causality crowd funding system innovation and bank financial performance and recommended further researches. World Bank (2016) study reported that there was an opportunity for up to 344 million people in developing economies to participate in debt crowd funding, as a form of digital credit, but few banks are aware of the innovation or some lacked the crowd funding innovativeness.

Therefore, lack of adequate empirical evidence on the relationship between emerging banks' crowd funding system and bank performance, hence the motivation of this study to examine the influence of crowd funding system innovations on financial performance of commercial banks in Nakuru County, Kenya.

Study objective

To examine the effect of crowd funding system on Financial Performance of commercial banks in

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Nakuru, Kenya.

Research Hypothesis

There is no significant effect of crowd funding system on Financial Performance of commercial banks in Nakuru, Kenya.

LITERATURE REVIEW

Theoretical Literature Review;

Innovation Diffusion theory

This theory proponed by Rogers (1983) asserts that factors which influence the diffusion of an innovation include; relative advantage (the extent to which a technology offers improvements over currently available tools), compatibility (its consistency with social practices and norms among its users), complexity (its ease of use or learning), trialability (the opportunity to try an innovation before committing to use it), and observability (the extent to which the technology's outputs and its gains are clear to see). These elements are not mutually exclusive thus unable to predict either the extent or the rate of innovation diffusion.

Dillon and Morris (1996) further expanded the array of innovation characteristics. Three of the seven innovation characteristics are directly borrowed from Rogers: relative advantage, compatibility, and trialability. The other characteristic, ease of use, is a close relative to Rogers' (1983) complexity. It is worth noting that both relative advantage and ease of use are subjective characteristics since they can be viewed differently depending on an individual's perceptions.

Further, while Rogers (1983) included image as an internal component of relative advantage, Moore and Benbasat (1991) found it to be an independent predictor of adoption. Image is the self-perception that adopting an innovation could result in enhanced social status.

In this regard, the innovation diffusion theory describes the innovation-decision process within organizations, and is relevant to this study in that it helps in understanding how the characteristics of banking innovation interact to affect its adoption within the banking sector and its consequent on financial performance of commercial banks.

Schumpeter theory of innovation

Proponed by Schumpeter (1928), the theorist argued that entrepreneurs, who could be independent inventors or research and development engineers in large corporations, created the opportunity for new profits with their innovations. In turn, groups of imitators attracted by super-profits would start a wave of investment that would erode the profit margin for the innovation. However, before the economy could equilibrate a new innovation or set of innovations, conceptualized by Schumpeter as Kondratiev cycles, would emerge to begin the business cycle over again.

That is, according to Freeman, (1994), Schumpeter saw innovations as perpetual gales of creative destruction that were essential forces driving growth rates in a capitalist system. Schumpeter's thinking evolved over his lifetime to the extent that some scholars have differentiated his early thinking where innovation was largely dependent on exceptional individuals/entrepreneurs willing to take on exceptional hazards as an act of will. His later thinking recognized the role of large corporations in organizing and supporting innovation. This resulted in his emphasis on the role of oligopolies in innovation and which later was falsely viewed as the main contribution of his work.

In relation to the banking industry, Schumpeter drew a clear distinction between the entrepreneurs whose innovations create the conditions for profitable new enterprises and the bankers who create credit to finance the construction of the new ventures (Schumpeter, 1939). He emphasized that the special role of credit-creation by bankers was 'the monetary complement of innovations' (Schumpeter, 1939). As independent agents who have no proprietary interest in the new enterprises they finance, bankers are the capitalists who bear all the risks (none is borne by the entrepreneurs). That requires having the special ability to judge the

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potential for success in financing entrepreneurial activities. Schumpeter emphasized that it is just as important to deny credit to those lacking that potential as it is to supply credit to those having it (Schumpeter, 1939).

Therefore, Schumpeter theory of innovation is relevant to this study in the sense that banking innovations emerge as advanced entrepreneurial skills meant to make commercial banks maintain a competitive financial edge against rivals and also for the very reason of remaining relevant in the current turbulent competitive business environment in Kenya.

Technology Acceptance Model

Davis (1989) advanced the Technology Acceptance Model which relates the individuals' behavioral intentions and his/her ICT use. From the model, it is suggested that, the actual behavior of a person is determined by his behavioral intention to use, which is in turn influenced by user's attitude toward and perceived usefulness of the technology.

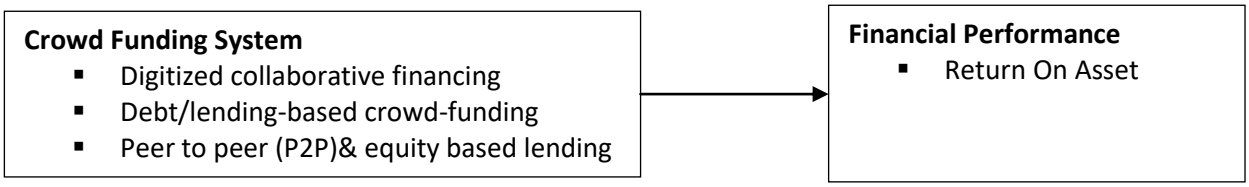
However, attitude and perceived usefulness are both determined by ease of use. Adopting the TAM model requires the understanding of end-users' requirements regarding usefulness and user friendliness. From this model, usefulness and user friendliness affect users' attitudes towards any service.

While trying to apply the TAM, Wang, Wang, Lin and Tang (2003) were interested in identifying the factors that determine acceptance of internet banking by the users. According to the Technology Acceptance Model (TAM), perceived ease of use and perceived usefulness constructs are believed to be fundamental in determining the acceptance and use of various Information Technologies. These beliefs may not fully explain the user's behavior toward newly emerging IT, such as internet banking.

Using the TAM as a theoretical framework, Wang, Lin and Tang, (2003) introduces "perceived credibility" as a new factor that reflects the user's security and privacy concerns in the acceptance of internet banking. Wang et al. (2003) examines the effect of computer self-efficacy on the intention to use internet banking. The results strongly support the extended TAM in predicting the intention of users to adopt internet banking. It also demonstrates the significant effect of computer self-efficacy on behavioral intention through perceived ease of use, perceived usefulness, and perceived credibility (Wang, Lin &Tang, 2003).

Therefore, the Technology Acceptance Model is relevant in this study in the sense that the rolling out of many innovations by commercial banks can be affected by the customers' attitudes of perceived relevance and ease of use of the emerging bank innovations; thus, commercial banks normally use pull and push strategies to enable customers accept new product/service innovations.

Conceptual Framework



Independent Variable **Dependent Variable**

Figure 1: Conceptual Framework

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METHODOLOGY

Research Design

Kothari (2007) defines a research design is the arrangement of conditions for collection and analysis of data in a manner that aims to combine relevance to the research purpose. This research adopted explanatory survey research design. That is the explanatory survey research design is suitable for exploring relationships that are conducted in order to explain any behaviors or reactions of people to a given phenomenon in the society (Hair *et al*., 2006). The explanatory survey design was therefore used to determine an association between the conceptualized independent and dependent variable as shown in the study's conceptual model.

Target Population

This study targeted managers from 12 listed commercial banks headquarters in Nakuru County, Kenya, stratified as shown in table 3.1; target population.

Table 1: Target population

Category of employee	No. of targeted respondents
Internal audit managers	12
Risk Managers	12
Compliance Managers	12
ICT managers	12
Loans managers	12
Personal banking managers	12
Finance managers	12
Debt Collection Managers	12
Credit Managers	12
Human Resource Managers	12
Total	**120**

Sampling Frame

A sampling frame is a list of all the items in the population (Cooper & Schinder, (2007). That is, it is a complete list of everyone or everything you want to study or a list of things that you draw a sample from. In this study it consisted of senior managers of commercial banks in Nakuru County, Kenya.

Sample Size and Sampling Procedure

Cooper & Schinder (2007) defines a sample size as a number of subjects included in a sample, that is, a group of subjects that is selected from the general population which is considered a representative of the true population for that specific study.

Existing literature on sampling methods offers various strategies for determining sample size. That is, a researcher may use census for small population; adopt a sample size of similar studies; or apply formulas to calculate the size. For as long as the study sample is sufficient enough so as to capture the desired effect sizes and be representative of the target population (Dillman, 2000).

In this study, the study sample size was determined using Taro Yamane's proportional sampling technique formula. The importance of this expression is that it gives a researcher the required sampling interval for a given population and a known sample. Therefore, a sample size has been calculated as per Taro Yamane's proportional sampling technique formula shown as follows;

Sample

$n = N/ (1+ (e)^2)$

Where n = Sample size

N = population under study

E = margin error (0.05)

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I = constant

Therefore;

$n=120/ (1+120 (0.05)^{2)}$

n=120/ (1+120(0.0025)

n=120/ (1+0.3)

n=120/1.3

n=92

From the calculation 92 and were drawn randomly from managers of commercial banks of Nakuru county, Kenya as per the break down in table 2.

Table 2: Sample Size

Category of Staff	No. of Senior Management Staff (N)	Sample n= (N/Target Pop.) x Sample size
Internal audit managers	12	10
Risk Managers	12	10
Compliance Managers	12	9
ICT managers	12	9
Loans managers	12	9
Personal banking managers	12	9
Finance managers	12	9
Debt Collection Mangers	12	9
Credit Managers	12	9
Human Resource Managers	12	9
Total	**120**	**92**

Sampling techniques

Sampling technique is a process whereby individuals are selected for a study and they are selected in such a way that they represent the larger group from which they have been drowned from (Cooper & Schinder, (2007). The study employed stratified random sampling technique which guided how sampled managers of commercial banks headquarters in Nairobi city county, Kenya, are to be selected. The stratified sampling technique ensured that it has minimized sample selection bias and ensures that certain elements of the population are not over represented or under represented.

Data collection Instruments

Kothari (2007) asserts that a questionnaire consists of a number of questions printed or typed in a definite order on a form or set of forms and the questionnaire is vital since respondents are provided with questions for each study variable and a lot of information can be collected over a short period of time (Dillman, 2000). Primary data was collected by means of self-administered questionnaires. The questionnaires had structured questions. These questionnaires were structured and designed in multiple choice formats. Section one introduced the researcher, topic of research and its purpose to the respondent. Section two was designed to elicit demographic data of the respondents such as gender, level of education and age while section three dwelled on independent and dependent variable of the study.

Pilot Test

A pilot study is a small-scale preliminary study before the main research in order to measure the validity and reliability of data collection instruments, (Kothari, 2007). For the purposes of this study, all components of the questionnaires were checked and coded to ensure clarity of words and the accuracy of the statements in relation to the specific research questions, then pretested in an established commercial bank in Nakuru County (Bank of Africa) that was not included in the final sample. A sample size of ten respondents was chosen to form the pilot study. This is because it is necessary to pretest the

instruments of the research on a small sample of respondents in a preparatory exercise to find out if there are any weakness in the instruments so that they could be corrected before used in the final study (Dillman, 2000).

Data Analysis

Data collected from the field was coded, cleaned, tabulated and analyzed using both descriptive and inferential statistics with the aid of specialized Statistical Package for Social Sciences (SPSS). version 24 software. The output of analysis was presented using tables to make them reader friendly.

Descriptive statistics such as frequencies and percentages as well as measures of central tendency (means) and dispersion (standard deviation) was used. Data was also organized into graphs and tables for easy reference.

Further, inferential statistics such as regression and correlation analyses were used to determine both the nature and the strength of the relationship between the dependent and independent variables. Correlation analysis is usually used together with regression analysis to measure how well the regression line explains the variation of the dependent variable. The linear and multiple regression plus correlation analyses were based on the association between two (or more) variables. SPSS version 24 is the analysis computer software that was used to compute statistical data.

$y = \alpha + \beta_1 X_1 + \varepsilon$

Where;

Y= Financial Performance

α =constant

β_1 = parameter estimate

X_1 = Crowd Funding System

ε is the error of prediction.

FINDINGS AND DISCUSSION

Response Rate

From 92 questionnaires that were dispatched for data collection, 77 questionnaires were returned completely filled, representing a response rate of 83.6% which is good for generalizability of the research findings to a wider population. The high response rate was achieved because the researcher patiently waited for respondents to completely fill the questionnaire before picking them.

Descriptive Statistics of the Variable in the Study;

Descriptive Statistics for Crowd Funding System

Most respondents agreed (48.1%) and strongly agreed (16.9%) that the bank operates a crowdfunding platform based on sound and enabling legal/regulatory framework; while 46.8% agreed that the bank facilitates a crowdfunding platform to connect various investors/funders with bank customers, which attracts a large customer base assumed to translate to improved financial performance.

More so, 45.5% and 16.9% of respondents agreed and strongly agreed respectively that the bank has digitized collaborative financing where willing investors fund business startups for bank customers; and 50.6% agreed that the bank's crowdfunding platform facilitates customers in accessing varied capital markets and marketing hubs; thus, transactions from successful customers on crowd funding platform translates to financial benefits to the bank.

Furthermore, most respondents agreed (41.6%) and strongly agreed (15.6%) that the bank facilitates crowdfunding to enable bank customers raise business starting capital and access diverse marketing hubs. Thus, successfully facilitated customers make financial transactions of their business through the facilitating bank, which then increases financial benefits for bank.

Lastly, most respondents agreed (50.6%) that generally, the bank's facilitation of crowdfunding platform has made it raise some capital, increased and retained a higher capital base which has translated to increase in its return on assets. This is also indicated by the grand mean of 3.48 rounded off to 4 which agree on the likert scale of measurement. This is also supported by IOSCO (2014) assertion that crowd-funding as a market-

based financing technique can be used to raise funds from large numbers of individuals or legal entities in small amounts, bypassing traditional financial intermediaries, and using mobile phones and online web-based platforms to connect with borrowers who benefit the facilitating bank through financial transactions and attracting a higher customer base.

Inferential statistics

Correlation Analysis

Table 3: Correlation Matrix

Variables	Crowd system funding	Financial Performance
Crowd System Funding	1	.555**
Financial Performance	.555**	1

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

All independent variable was positively and significantly correlated with financial performance. Crowd Funding System (.555) had the strongest relationships, suggesting its dominant influence.

Analysis of linear regression;

Linear influence of Crowd funding system on financial performance

This tested the direct influence of crowd funding on financial performance of commercial banks in Nakuru County, Kenya. The results are shown table 4.

Table 4: Direct influence of crowd funding on financial performance

Model Summary

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	.676[a]	.457	.449	.90463	.457	63.037	1	75	.000

ANOVA[b]

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	51.587	1	51.587	63.037	.000[a]
	Residual	61.377	75	.818		
	Total	112.964	76			

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	T	Sig.
1	(Constant)	1.162	.304		3.826	.000
	Crowd funding	.756	.095	.676	7.940	.000

a. Dependent Variable: Financial performance

From table 4, the model summary shows that R^2 = 0.457; implying that 45.7% variations in the financial performance of commercial banks in Nakuru County, Kenya are explained by crowd funding while other factors not in the study model accounts for 54.3% of variation in financial

performance of commercial banks in Nakuru County, Kenya. Further, coefficient analysis shows that crowd funding has positive significant influence on financial performance of listed commercial banks in Kenya (β = 0.756 (0.095); *at p<.01*). This implies that a single improvement in effective crowd funding innovations will lead to 0.756 unit increase in the financial performance of commercial banks in Nakuru County, Kenya. Therefore, the linear regression equation is;

(iii) $y = 1.162 + 0.756X_3$

Where;

y = financial performance of commercial banks in Nakuru County, Kenya.

X_3 = crowd funding

Testing of study hypotheses

The study hypothesis (H_{03}) stated that crowd funding system does not significantly influence financial performance of commercial banks in Nakuru County, Kenya. Multiple regression results indicate that crowd funding system significantly influence financial performance of commercial banks (β = 0.314 (0.102) at *p<0.05*). The **Hypothesis is therefore rejected**. The results indicate that that a single improvement in effective crowd funding systems will lead to 0.314 unit increase in the financial performance of commercial banks in Nakuru County, Kenya.

The results are supported by World Bank (2013) who while studying on the crowdfunding's potential for the developing world reported that some banks utilized Crowdfunding as an Internet-enabled way for businesses or other organizations to raise money typically from about US$1,000 to US$1 million in the form of either donations or investments from multiple individuals facilitated by the banks; thus, banks financially benefited from the crowd funding system.

European Commission (2016) also reported that crowdfunding is part of the broader universe of financial innovations enabled by technological advancement, also known as FinTech. FinTech has been changing the way the financial sector operates and crowdfunding is specifically part of FinTech's subcategory called alternative finance. Alternative finance refers to technology-enabled market-based funding outside the traditional financial system and includes online marketplaces for consumer and business lending, invoice trading, and third-party payment platforms facilitated by a bank that supports the innovative platform; but recommended empirical enquiries in the relationship between crowdfunding innovation and bank financial performance; a gap that has been filled by this study.

CONCLUSIONS AND RECOMMENDATIONS

This tested the influence of crowd funding system on financial performance of commercial banks in Nakuru County, Kenya. The study found that crowd funding mechanisms like digitized collaborative financing, debt/lending-based crowd-funding, peer to peer (P2P) and equity-based lending significantly influenced financial performance of listed commercial banks in Kenya.

The study findings support other researchers who found that crowdfunding is part of the broader universe of financial innovations enabled by technological advancement and if well customized by the banking can attract a huge customer base whereby huge transactions by customers using the crowd funding platform can enhance financial performance of commercial banks that efficiently utilize it.

Commercial banks that facilitate their customers access crowd funding platforms can attract a huge customer base and benefit from financial transactions of customers who secure their business transactions using the bank.

The study recommended that commercial banks should embrace crowd funding platforms to attract and retain a huge base.

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