
FINANCIAL INCLUSION TOOLS AND PROFITABILITY OF SELECTED COMMERCIAL BANKS IN KENYA

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ABSTRACT

This study investigates the influence of using a Web-Based Learning Environment as an enhancing agent to support university-level students self-regulated learning (SRL) strategies as they work through their learning process. The aim was to help them adopt a consistent approach to their learning practice (self-regulation), to foster a realistic appraisal of their met a cognitive strategies strengths and weaknesses (self-judgment), and to examine the relationship between self-initiated processes and students' overall performance. The study adopted Zimmerman and Tsikalas [1] computer-based learning environments self-regulation three-phase model as a basis for Self-Regulated Learning in e-portfolio courses. Using a non-equivalent pre-/post- test quasi-experimental research design, 127 male students from King Khalid university departments of Mathematics (51 students) and English Language (76 students) were recruited during the first semester of 2012 academic year. A mixed methodology was used consisting of an online questionnaire, artifacts, online tracking data, and interviews in order to collect relevant data. These findings suggest that e-portfolio software, by facilitating both working on tasks, and the provision of regular peer and teacher feedback on tasks, has the potential to encourage a significant improvement in students SRL and met a cognitive strategies as well as their performance.

Keywords: Financial inclusion Tools, Profitability, Commercial Banks, Automatic Teller Machines, Agency Banking and Mobile Banking.

Introduction and Background

Banking industry is key in the financial system of any economy (San & Heng, 2013). Innovation fosters an organization to grow, prosper and transform in synchronization with the changes in the environment, both internal & external. The banking sector has witnessed radical transformations due to many innovations in their products, processes, systems, business models, technology, governance and regulations. The pervasive influence of information technology has revolutionaries in banking (Kumar, 2011). Commercial banks have been faced with financial crises ranging from peaks in nonperforming loan ratios, loose credit, and inferior capital adequacy ratios, over banking due to excessive competition, less profitability and lack of innovation .The modern commercial banks are trying to improve their profitability by innovating in products, governance and services among other innovations. Gorton and Metrick (2010) states that the main reasons that have led to an increase in bank product innovations are reduction in

bankruptcy costs, tax advantages, reduced regulatory costs, transparency and profitability. Good bank performance is measured through profitability levels and is essential both to customers and other stakeholders and assured expansion and survival (Nkegbe & Yazidu, 2015).

Technology has introduced new ways of delivering banking services and products to the customers, such as ATMs, and internet banking as opposed to the traditional mode of branch networks. These developments in the banking industry have positive impacts on service quality and future of the banking activities. The ability of financial institution to deliver products and services in the most efficient and effective manner is therefore key to performance and profitability of the banking sector (Aduda & Kingoo, 2012). Technology has led to a wide range of alternative delivery mechanisms such as mobile banking, agency banking and ATMs. These have reduced the dependence on the branch network as a core delivery mechanism (Amoako, 2012). These innovative channels of availing financial services to this calibre of populace and consequently making money, without necessarily using the traditional branch networks or Automated Teller Machines (ATMs) has helped the banks reach the unbanked population. This has helped increase the level of formal financial inclusion in unserved and underserved areas and as a consequence positively impacting the banks revenues and profits (Muriuki, 2011).

Commercial banks` performance in Kenya over the last decade has been erratic. Several reforms have been implemented in the financial sector aimed at increasing performance, stability, productivity, financial access and profitability. Despite the overall good performance posted by commercial banks, there are some recording losses (Ongore & Kusa, 2014). For instance, the National Bank of Kenya reported a loss for the financial year 2014/2015 while the Cooperative bank of Kenya reported a drop in their profits in 2014 resulting to restructuring. In spite of strong regulatory and legal framework enforce by the Central Bank of Kenya (CBK), the Kenyan banking system has experienced banking problems since 1986, Further, based on the CBK annual Reports, the pace of growth of commercial banks in Kenya has been on a decline and as such the growth in profitability is declining (Sawe, 2011).

Chiteli (2013) contends that the Kenyan banking industry has faced many challenges among them stiff competition from the existing local banks as they offer substitute financial products at different terms. However, as the banking sector continues to grow especially in retail banking segment major consumer segments remain largely unbanked. Commercial banks have adopted modern technological tools such as mobile banking, internet banking, ATM networks and agency banking in order to satisfy this market. Korir et. al (2015) contends that the improved profitability of the banks depends on the higher utilization of the M-banking, ATMs and e-banking. Financial inclusion enhances the livelihood of the deprived population. These developments are aimed at improving banks` profitability and reduce operational costs. It is therefore important to understand the impact of use of these new innovative financial inclusion tools on banking profitability. This will influence policy making and management decisions that can improve profitability in Kenya`s banking sector.

Research Problem

Technological innovations have revolutionized the banking system (Sehrish, Irshad & Khalid, 2010). However, compared to other sectors the banking sector has experienced weighty changes mostly due to technological innovations and the unstoppable forces of globalization creating expansion opportunities as well as challenges to banking managers in ensuring their banks remain profitable and competitive (Scott & Arias, 2011). Profitability of commercial banks is key in contributing towards their overall financial performance. Despite their heavy investment in financial inclusion, it remains quite unclear if the same has a significant relationship with the banks' Profitability- this formed the motivation for the current study.

Despite good overall financial performance of most commercial banks, some are recording losses (Ongore & Kusa, 2014). This is largely attributed to their unstable profitability trends. In spite of strong regulatory and legal framework enforced by Central Bank of Kenya, the Kenyan banking system continues experiencing problems. In the same market, Equity Bank Limited and Kenya Commercial Bank Limited recorded an improvement in their profitability. This was attributable to improved products such as investment in agency banking, mobile banking and the improvement in their customer base. The link between Financial innovation tools and bank profitability remains an unresolved issue especially in the Kenyan context. The current study sought to resolve this issue.

According to Gichungu and Oloko (2015) investigated the possibility of innovative technology having an impact in the performance of commercial institutions in the Kenya. The study focused on establishing the impact of mobile phone banking, ATM banking, online banking and agency banking on the performance of financial banks in Kenya using a target population of 43 Kenyan commercial banks. The researchers concluded that banking platforms had a positive impact on banking profitability of the sampled banks for a period between 2009 and 2013. Ndambuki (2016) evaluated the effect of agency banking on profitability of commercial banks in Kenya. The research findings indicate that the number of agents has a minor positive significance on profitability. The volume of withdrawals and bill payments had an insignificant negative relationship. The study found that an increase in the number of agents increases the profitability and a decrease in volume of deposits, withdrawal and bills payments negatively affects the profitability of commercial banking institutions. These studies differ on their findings on the real contribution of use of financial inclusion tools on profitability of commercial banks. Other than agency banking, ATM network and mobile banking are other tools used by commercial banks to improve on their financial inclusion. Hence, the study sought to assess the relationship between financial inclusion tools and profitability of commercial banks in Kenya.

Objectives

The specific objectives of the study were:

- i. To establish the effect of Automatic Teller Machine network on Profitability of selected commercial banks in Kenya.

- ii. To determine the effect of Agency Banking on Profitability of selected commercial banks in Kenya.
- iii. To evaluate the effect of Mobile Banking on Profitability of selected commercial banks in Kenya.

***Null hypotheses were formulated for respective specific objectives and tested at a Significance level of 0.05.**

Significance of the study

The study is useful to the Government in Policy formulation. It will help the government understand financially underserved areas and develop policies that promote their financial inclusion such as agency infrastructure, subsidies to financial inclusion tools enrichment in financially excluded areas among others. The findings will help the policy makers better understand financial inclusion strategies hence inform policy formulation in line with new trends to ensure financial inclusion that's a key pillar in the economic development of Kenya.

The study will assist Bank Management to understand the underserved and unserved areas which will help them understand their market coverage in these areas and any potential market gaps that exist as well as how these gaps can be filled. This will ensure their customer base and revenues are boosted and therefore promoting the country's economic growth. The Banks Management will gain more awareness on the importance of financial inclusion and develop strategies aimed at bolstering their profitability. Academicians and researchers will need the study to enable them understand the findings of the study and any recommendations for possible areas of research. The study will be a good reference point to the future researchers.

Scope of the study

The study sought to determine the effect of financial inclusion tools on Profitability of selected commercial banks in Kenya over 5 years (2011 to 2015). Financial inclusion dwelt on 3 components. Profitability was largely measured using profitability ratios. The study focussed on 9 selected commercial banks classified as large, medium and small peer group based on the Central Bank of Kenya classification. The study focussed on the leading first three from each category which apparently have a customer base of more than 50%. The study focused on the Head offices of the selected Commercial Banks where policies are made and data collection as a result possible.

Review of Literature

a) Theoretical Review

The study was based on three theories; Bank-Led theory, Agency Theory and Bank-Focused theory. Bank-Led theory was proposed by Lyman, Ivatury and Staschen (2006) and is based on the premise that a licensed financial institution delivers financial services through a retail agent.

According to Owens (2006), Banks are the ultimate providers of financial services and are the institutions in which customers maintain accounts.

Agency Theory was proposed by Stephen Ross and Barry Mitnick in the early 1970s. The theory highlights the potential conflicts that arise between principals and agents when the latter runs operations on behalf of principal. According to Ndungu and Njeru (2014), the theory explains the relationship between principal and agent in business. It's concerned with resolving conflicts that can exist in agency relationships between principals and their agents.

Bank-Focused Theory arises when a traditional bank uses non-traditional low-cost delivery channels to provide financial services to its existing customers. These include automatic teller machines (ATMs), internet banking and mobile banking to provide banking services to clients (Vutsengwa & Ngugi, 2013). This is evidenced by mobile money transfer in the Kenyan Telecommunications sector called M-pesa. Customers can interact with M-Pesa agent to deposit or withdraw cash, their stored value can be used to buy airtime or send money to relatives or even just to store money in their e-money accounts (Anyasi, 2009).

Bank-Led theory outlines the work of a bank as that of developing financial products and distributes them through retail agents who handle most of the customer interactions. Banks are the ultimate financial services providers and the institutions where customers maintain accounts. Agency theory highlights the potential conflicts that arise between the principal and agents who run operations on behalf of the principals. Bank-Focused theory indicates the use of non-traditional low-cost delivery channels in provision of financial services to the existing customers such as ATMs and Mobile Banking.

b) Empirical Review

Ndambuki (2016) studied the effect of agency banking on profitability of commercial banks in Kenya. The research findings showed that the number of agents has a minor positive significance on profitability. The volume of withdrawals and bill payments had an insignificant negative relationship. The study concluded that an increase in the number of agents increases the profitability and a decrease in volume of deposits, withdrawal and bills payments negatively affects the profitability of commercial banking institutions. The study recommended that commercial banks in Kenya should invest more resources towards increasing their number of agents to increase their profitability and develop deposit mobilization strategies through agency banking to ensure that their clients use agency-banking services.

Gichungu and Oloko (2015) investigated the possibility of innovative technology having an impact in the profitability of commercial institutions in the Kenya. The study focused on establishing the impact of mobile phone banking, ATM banking, online banking and agency banking on the performance of financial banks in Kenya. The researchers concluded that banking platforms had a positive impact on profitability. Kambua (2015) investigated the effect of agency banking on profitability of Commercial Banks in Kenya. This study concluded that increase in the number of agents of commercial banks lead to an increase in the financial profitability of commercial banks hence there is a positive relationship between number of agents and financial

performance. As agency banking grows the level of financial inclusion grows proportionately hence increasing profitability. We recommend that commercial banks be encouraged to embrace agency banking through adoption of improved technology. This is aimed at increasing volume of transactions and bank size thus leading to improved profitability.

Ndirangu (2011) examined the effect of agency banking on profitability of banks in Kenya. The findings were agents lack capacity to handle large transactions of cash. The concentration of most agents is on the lower end market areas where most individuals operate informal business and deal with small values of money. This may contribute the huge number of transactions but not necessarily translating to greater value. Therefore their contribution to improved profitability is quite minimal. King'ang'ai et. al, (2016) investigated the impact of agency banking on bank performance in Rwanda using a sample of four (4) Rwandese commercial banks in operation as at 31st December 2015. The study findings revealed that regulating agency banking, low transaction cost, accessibility of banking services by customers through the bank agents and overall growth in the market positively impact the profitability of banks in the country. The study established a positive significant relationship between agency banking and the banking institutions performance in Rwanda. This led to increased profitability of these banking institutions.

Githikwa (2009) studied the relationship between financial innovation and profitability of commercial banks in Kenya. The study found that banks conceptualize financial innovation as a means to create impact in the profit performance.

Methodology

The study used descriptive research design and a target population of 43 commercial banks operating in Kenya as per annual supervision report (CBK, 2015). Kenyan commercial banks are classified into Large Peer, Medium Peer and small peer groups depending on their asset size. This classification was used as the base for the sample and data was collected from the first three leading commercial banks from each category which formed 9 as the sample for the study.

Permission was also sought from the 9 targeted commercial banks. Questionnaires and document review guides were used to collect data. The questionnaire respondents from each of the 9 banks were Operations officers, Agency Banking officers, Accounting officers and Credit officers. The respondents were selected from each of the departments on a random basis. These questionnaires were dropped at the various bank Head offices through the customer care office who contacted the various sections for the interviewees for responses. Secondary data on profitability was collected through review of financial statements such as statement of financial position and statement of comprehensive income and other sampled bank reports. Data has been analyzed using descriptive analysis (Mean and Standard deviation) and Multiple Regression Analysis. This helped draw inferences on the relationships between the variables under study. The data analyzed was interpreted in line with the study objectives and assumptions through use of SPSS to communicate research findings.

The regression model that was used is shown below:

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

Where:

Y = Profitability

β_0 = Intercept

$\beta_1 - \beta_3$ = Coefficients

X_1 = ATM Network

X_2 = Agency Banking

X_3 = Mobile banking

e = Error term

Preliminary tests were carried before conducting multiple regression analysis. The regression was carried out at a significance level of 0.05 for purposes of hypothesis testing.

Results, Findings and Discussion

a) Descriptive Analysis

i) ATM Network and profitability

The study established that 48% of the targeted commercial banks had enough ATMs across their customer base regions while 52% indicated otherwise. The respondents indicated that most banks had concentrated ATMs in the urban areas due to high cash flow, population, businesses, security and other amenities within the towns while the rural areas were neglected. This left out most of the unbanked out of the loop. The respondents indicated that most customers complained on the insufficient number of ATMs, lack of a manual display on how to use the machine for new clients, unreliability of the machines with most of them not being functional most of the time and the challenges of travelling long distances to access them. The respondents further indicated that some customers did not use the ATMs well as they did not serve the illiterate well and were insecure in making most of the bank transactions. It was established that customer complaints regarding insufficiency of ATMs were being addressed by the respective banks through substitution with online banking, mobile banking and agency banking.

The study established that the bank revenues from ATM usage for transactions were high in 2011 at 12% and went down to 8% in 2013 to 4% by 2015. This shows that the revenue from use of ATMs went down over the years as mobile banking; agency banking and internet banking took effect and proved convenient to the clients. The clients indicated that the ATMs were neither convenient nor safe. The banks had installed CCTV cameras at the ATM centres, hired security personnel manning the points, put posters and notices to clients not to ask for assistance from any person a part from the bank staff or security personnel and also for customers not to share their PIN with anyone else including the bank staff. Other respondents further indicated that to a very great extent their banks' ATMs were accessible to customers and especially the new ones, 15% to a great extent, 10% were neutral (neither), 14% to a moderate extent while 26% indicated that their ATMs to a little extent were accessible to customers since their location was mainly in urban areas. Generally, the study established that the ATM network of the banks had contributed to their profitability to a little extent.

ii) Agency Banking and Profitability

The study sought to find out whether the selected banks had agency banking departments. It was realized that 85% of the banks had functional agency banking departments while 10% had merged agency banking with the retail banking department while 5% didn't have such a department. The agency banking department was mandated with ensuring agents comply, have sufficient funds to transact, embraced proper customer care, channelled complaints or concerns to the department and feedback given, were evenly distributed to improve customer coverage and embraced safety for both cash and customers. Majority of the banks had agency banking. Majority of the banks therefore had agency banking. The banks have set requirements for agents to meet before being allowed to transact on behalf of the bank at local level and they can offer deposit and withdrawal services with a few offering account opening. This has reached more clients and the number of the agents ranged between 25 and 168. This indicates a significant but not adequate number to reach the unbanked and hence improve financial inclusion.

Majority of the respondents (87%) indicated that agency banking has contributed to the increase in the banks' customer base through inclusion of majority of the unbanked in the society, convenience banking, open and banking that is not time-bound. This has led to more clients making deposits, withdrawals, transfers, checking balances and even engaging with the customer base. Kambua (2015) on his study on agency banking and profitability among banks in Kenya, established the same outcomes that promoted profitability of the financial institutions. Agency banking due to its decentralization has improved bank transactions in volume and frequency and hence led to improved profitability of the commercial banks that have embraced this financial inclusion tool. It was realized further that the customer market share of those banks that were engaged in agency banking significantly and consistently increased from 5% in 2011 to 13% in 2015. This generally indicated that there was a strong influence of agency banking on market share development among the commercial banks in Kenya. This was attributed to convenient, round the clock, decentralized and open banking services through agency banking. This study concurs with a study by Caltlin (2013) on the role of agency banking on market share development among commercial banks in Brazil. Agency banking improves the footprint of a bank to the unbanked and geographically making the brand more visible and therefore preferred by customers.

Moreover, it was realized that the revenues of the banking involved in agency banking increased significantly over the five-year period. In 2011 generally all the banks had an average increase in revenue from 11% to 21% in 2015. This is a significant and positive trend in the increase in bank revenues among the commercial banks in Kenya. The study realized that for the banks to licence a new agent there was need for the agent owner to have an active and good bank statement, deposit money within the bank to serve as cash float, fill the necessary forms to register as an agent with his or her ID, business registration certificate, KRA PIN, prepare the agent outlet or shop by painting the colours of the bank, agency name, proper signage and comply with local authority regulations. As indicted by Mwenda & Ngachu (2016) agency banking is a very sensitive and delicate mechanism of transacting for banks and therefore the need to perform due diligence and evaluation before an agent is given the mandate to act on behalf of the bank.

Performance based incentives were practiced in 78% of the banks while 22% didn't. These were aimed at motivating the agents to performance well and generate revenue for them and their banker. These included commissions based on number of transactions, volume of transactions, new clients enrolled, new account numbers opened and free branding or signage and direct and uninterrupted customer care access and action thereof. Ndambuki (2016) also in his study indicated agency banking uptake among agents can be spurred by giving the agents and potential ones incentives to make the venture more attractive to them. The commission based rewards should be attractive if the banks are to generate more revenue via the strategy. The banks indicated that to a large extent agency banking increased their customer base through decentralized banking, convenience and timeless banking. This proved to be convenient to customers especially from urban areas where there are ATMs and bank branches. The agents proved not to be congested and clumsy like the branches. This made agency banking favourite to customers as also alluded to by Hawkins (2012) in his study where he established that agency banking enhances financial inclusion to the unbanked and those who may not manage to reach the bank branches. Majority of the respondents concluded that agency banking has to a very great extent improved the profitability of commercial banks in Kenya at 41.67% and also to a great extent at 30%. This generally indicates a positive and significant influence of agency banking on bank profitability as established by Kandie (2013) and Gitau (2014) who also conducted a study on agency banking and financial performance of banks.

iii) Mobile Banking and Profitability

The study sought finally to establish the effect of mobile banking as an aspect of enhancing financial inclusion on the profitability of commercial banks in Kenya. Despite the vast adoption of this banking product and platform, averagely 71% of the respondents indicated that their customers experienced challenges in accessing the bank products due to a good number of them not having mobile phones, challenge of operating the phones, mix-up of PINs, impulse use of finances, insecurity, poor network in some areas, lack of power in some areas, fraudulent clients and bank officials hence loss of cash and also the illiterate population are not able to use the product. The findings are in tandem with Afande and Mbugua (2015) and Gitau (2014) who established that the uptake of agency banking has been hampered by use of mobile banking, insecurity among other factors. This has slowed down the rate of financial inclusion in the rural areas. The study established that mobile banking platform had provisions for making bank deposits, transfers, withdrawals, checking balances, contacting customer care, paying for bills, transferring money to and from mobile platforms like M-PESA and Electronic funds transfer. The study established that banks enlighten their customers on mobile banking products through their agents, bank staff, advertisements on both mainstream media (broadcast and print), social media and radio stations and also through seminars and open days. An average of 47% of the respondents indicated that mobile banking contributed at least 4% to 6.1% to their revenues between 2011 and 2015. This indicated an upward, positive and significant influence of mobile banking on the profitability of the commercial banks in Kenya as also established by Gichungu & Oloko (2015).

The study further indicated that an average of 10-15% of their customer base is attributed to mobile banking. Most clients currently transact through the mobile platform and only a few visits the bank branch premises for banking services. Most deposits, withdrawals and balance checks are done through the mobile platform. Clients only visit the branch for special cases and problems which may not be done through the phone. The emergence of smart phones and apps has made banking easy and convenient to most customers who are busy working in the outskirts of urban centres and who may not leave their premises to go and bank. This generally indicated a positive and significant relationship between mobile banking and bank profitability. The same results were established by Kandie (2013) and Barasa & Mwirigi (2013) who realized that mobile banking as an innovative banking strategy has improved the rate and volume of banking transaction and generated revenue for the banks with customers enjoying accessible banking services and products.

The study captures results on Return on Assets and Return on Equity for the selected commercial banks between 2011 and 2015 financial years and the findings were as illustrated in Table 1 below:

Table 1: Profitability

Year	2011	2012	2013	2014	2015	Total
ROA						
Mean	2.89	3.99	3.57	3.37	3.52	3.14
Std. Dev	1.997	1.794	1.794	2.477	2.08	2.122
Min	-4.05	0.16	0.91	-1.16	-0.85	-6.23
Max	5.95	6.36	7.18	10.39	7.25	12.33
ROE						
Mean	18.17	25.90	23.54	20.70	21.48	20.52
Std. Dev	16.445	13.828	11.615	13.246	13.192	13.571
Min	-46.31	0.50	1.93	-3.27	-11.43	-46.31
Max	48.34	64.17	44.28	44.01	43.61	64.17

Where: Mn=Mean; Std Dev = Standard Deviation, Min=Minimum Max= Maximum

Results in Table 1 above indicate that financial performance of commercial banks in Kenya from 2011-2015 had an irregular trend as indicated by both ROA and ROE. The returns on assets and equity based on shareholders' investment showed a general but insignificant increase between 2011 and 2015. The improvement was not consistent but rather erratic with a steep drop in 2014 in ROA and ROE at 3.37 and 20.7 respectively. In 2015 ROA and ROE grew slightly to 3.52 and 21.48 respectively. The growth has been occasioned by revenues resulting from introduction of financial inclusion tools for the unbanked in society and mobile banking services.

b) Regression Analysis

The results of the analyses were presented in tables as shown below. The hypotheses were to singly test the effect of ATM networks, agency banking and Mobile banking on profitability of selected commercial banks in Kenya.

Table 2 below presents the results of correlation analysis and coefficient of determination.

Table 2: Model Summary Table

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.795	0.751	0.811	0.695

In view of the results in Table 2 above, an R Square of 0.751 implies that 75.1% of changes in profitability of commercial banks in Kenya are explained by the financial inclusion tools collectively. An adjusted R Square of 0.811 indicates that the financial inclusion accounts for 81.1% of changes in profitability. Hence, 81.1% of changes in profitability are explained by financial inclusion. There are however other factors that influence profitability of commercial banks in Kenya that are not included in the model which account for 24.9%. A correlation (r) of 0.795 indicates a strong positive correlation between financial inclusion and profitability of commercial banks in Kenya.

Table 2 below presents results of the analysis of variables from the multiple regressions to establish the statistical significance and degree of influence among the study variables. The findings were as tabulated in Table 3 below:

Table 3: ANOVA Table

Model	SS	df	MS	F	Significance
Regression	544.15	5	564.5	686.013	0.0022
Residual	382.40	327	0.955		
Total	926.55	332			

From the ANOVA table above, the value of F- statistic calculated is 686.013 and p-value of 0.0022 indicating that the model overall was statistically significant. Hence the financial inclusion tools have an effect on profitability of selected commercial banks in Kenya.

Table 4 below captures Beta Coefficients (to form the basis for the regression function) as well as P-values for purposes of hypothesis testing.

Table 4: Coefficients and p-values associated with study variables

Model	Unstandardized coefficients		Standardized Coefficients	t	Sig
	B	Std Error	Beta		
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Constant	4.21	0.668		8.012	0.000
ATM Network	0.758	0.023	0.751	14.15	0.000
Agency Banking	0.896	0.043	0.124	11.04	0.000
Mobile Banking	0.957	0.026	0.125	1.15	0.000

$\alpha=0.05$

The resultant regression function extracted from the table is:

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

Where Y= Profitability, β_0 - β_3 are the regression coefficients, X_1 - X_3 represent ATM network, agency banking and mobile banking respectively.

Hence, the regression function extracted from Table 3 above is as follows:

$$Y = 4.21 + 0.758X_1 + 0.896X_2 + 0.957X_3$$

In view of the regression function above, we make the following findings. When all the variables of the study are held constant, profitability of commercial banks in Kenya due to financial inclusion tools will be at the intercept which is 4.21. A unit change in ATM network results in a 0.758 positive change in profitability of commercial banks all other factors held constant; a unit change in agency banking results in 0.896 positive change in profitability of commercial banks all else held constant. Similarly a unit change in mobile banking results in 0.957 positive increase in profitability of commercial banks in Kenya all else held constant.

The hypotheses were tested using p-value method as captured above. The p-value for ATM network was (p=0.000) which is less than the significance level of 0.05 hence the null hypotheses that ATM network does not have a significance effect on profitability of commercial banks was rejected. This means use of ATM networks as an independent variable has a significant effect on profitability of commercial banks in Kenya. The p-value for agency banking was (p=0.000) which is less than the significance level of 0.05 hence the null hypothesis that Agency Banking does not have a significant effect on Profitability of commercial Banks was rejected. This implies that agency banking tool as an independent variable has significant effect on profitability of commercial banks in Kenya. The p-value for Mobile banking was (p=0.000) which is less than the significance level of 0.05 hence the null hypothesis that Mobile banking does not have a significance effect on Profitability of selected commercial banks was rejected. This means Mobile banking as an independent variable has a significant effect on profitability of commercial banks in Kenya.

The study realized that for the banks to licence a new agent there was need for the agent owner to have an active and good bank statement, deposit money within the bank to serve as cash float, fill the necessary forms to register as an agent with his or her ID, business registration certificate, KRA PIN, prepare the agent outlet or shop by painting the colours of the bank, agency name, proper signage and comply with local authority regulations. As indicted by Mwenda & Ngachu (2016) agency banking is a very sensitive and delicate mechanism of transacting for banks and

therefore the need to perform due diligence and evaluation before an agent is given the mandate to act on behalf of the bank.

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The study sought finally to establish the effect of mobile banking as an aspect of enhancing financial inclusion on the profitability of commercial banks in Kenya. Despite the vast adoption of this banking product and platform, averagely 71% of the respondents indicated that their customers experienced challenges in accessing the bank products due to a good number of them not having mobile phones, challenge of operating the phones, mix-up of PINs, impulse use of finances, insecurity, poor network in some areas, lack of power in some areas, fraudulent clients and bank officials hence loss of cash and also the illiterate population are not able to use the product. The findings are in tandem with Afande & Mbugua (2015) and Gitau (2014) who established that the uptake of agency banking has been hampered by use of mobile banking, insecurity among other factors. This has slowed down the rate of financial inclusion in the rural areas.

The study found that mobile banking platform had provisions for making bank deposits, transfers, withdrawals, checking balances, contacting customer care, paying for bills, transferring money to and from mobile platforms like M-PESA and Electronic funds transfer. The study established that banks enlighten their customers on mobile banking products through their agents, bank staff, advertisements on both mainstream media (broadcast and print), social media and radio stations and also through seminars and open days. An average of 47% of the respondents indicated that mobile banking contributed at least 4% to 6.1% to their revenues between 2011 and 2015. This indicated an upward, positive and significant influence of mobile banking on the profitability of the commercial banks in Kenya as also established by Gichungu & Oloko (2015). This generally indicated a positive and significant relationship between mobile banking and bank profitability. The same results were established by Kandie (2013) and Barasa & Mwirigi (2013) who realized that mobile banking as an innovative banking strategy has improved the rate and volume of banking transaction and generated revenue for the banks with customers enjoying accessible banking services and products.

Other respondents further indicated that to a very great extent their banks' ATMs were accessible to customers and especially the new ones, 15% to a great extent, 10% were neutral (neither), 14% to a moderate extent while 26% indicated that their ATMs to a little extent were accessible to customers since their location was mainly in urban areas neglecting a chunk of customers in

the rural areas. Generally, the study established that the ATM network of the banks had contributed to their profitability to a little extent.

Conclusions and recommendations

a) Conclusions

The study found that ATM network has a significant effect on the profitability of banks although dwindling. Most banks have enhanced ATM user interface to incorporate more services and products to enable customers to access and conduct banking services at their convenience around the clock. ATM use accounted for 75.8% of all changes in bank profitability however their use is slowly decreasing due to increased use of e-banking and mobile banking platforms. Banks have done more investments of their ATM network in areas where agency banking and mobile banking is inaccessible because of poor networks. This decentralisation of modern ATM machines has boosted profitability from earnings being realised from these marginalised areas that the banks were not earning before.

It was found that agency banking has contributed to the increase in the banks' customer base through inclusion of majority of the unbanked in the society, convenience banking and banking that is not time-bound. This has led to more clients making deposits, withdrawals, and transfers and checking balances. Agency banking explained 89.6% of all changes in bank profitability in Kenya. Banks have improved on their due diligence on licensing new agents which has boosted customer confidence in agency networks. This has led to continued increase in client base and volume of transactions which in turn has continued increasing the banking profitability. The study further found that most clients had resorted to mobile banking since it is convenient, cheap and reliable from anywhere at any time. The study further indicated that financial inclusion had taken roots and a significant number of the unbanked had been reached. Government in collaboration with banks and telecommunications sector have done investments in ensuring good networks across the country. This has had an effect of boosting mobile banking businesses and in turn improving the banking profits.

b) Recommendations

The study recommended that Bank Managers collaborate with telecommunication players to enhance uptake of mobile banking to boost financial inclusion as well as profitability. For financial inclusion to succeed in reaching the unbanked population, the banks need to organize forums to sensitize, educate and show-case agency banking and mobile banking products and platforms for the customers to understand and be able to use them. The study further recommends stringent measures to ensure secure and reliable mobile banking to gain customer confidence when using them.

The study recommended that the bank management should ensure agents are well vetted before they are given the mandate of conducting agency banking and their premises should be well labelled and security features installed to ensure the clients have confidence with them, are aware and feel safe when conducting their transactions. Commercial banks need to continue investing

in modern ATMs that allow for diverse banking services hence improving on financial inclusion and profitability. The study therefore recommends commercial banks to focus more and invest more in financial inclusion tools for better financial performance and hence profitability.

Contribution to knowledge

The study findings will provide an insight to commercial banks management about their clientele and as a result make decisions geared towards increasing their customer base which in turn will improve their banking profitability. Given the limitations of the studies done on financial inclusion and profitability, this study will be helpful to academicians as a reference tool and advance the research study for future research. The study will help the Government understand and develop policies geared towards promoting financial inclusion across the country, which can be through subsidies or tax holidays aimed at boosting economic activities and as a result spur economic growth.

Areas for Further Research

There is need for further research to be undertaken on similar financial inclusion tools on profitability of commercial banks over a longer period like 10 years. A longer time scope would lead to better understanding on profitability trends and financial inclusion of commercial banks. Use of Financial inclusion tools has a significant effect on profitability of commercial banks and clientele seem to switch from outdated tools to new banking platforms. The study suggests to the academicians to find out if the profits that could have been foregone from outdated technology such as ATMs are realised from modern technology advancement such as agency banking and mobile banking. Another study can be carried out incorporating internet banking together with Agency banking, Mobile banking and ATM networks on profitability and find out if this has a relationship with the Bank's market share.

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