MOBILE BANKING AND PROFITABILITY OF TIER 1 COMMERCIAL BANKS IN KENYA

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ABSTRACT
Bank profitability has been erratic in the banking sector in Kenya especially with competition being quite high. Hence, financial innovations have been largely adopted by local banks to enhance profitability. Mobile banking is evolving as the new front on which banks can differentiate their service delivery as a form of financial innovation. More and more banks are strategically launching newer and newer mobile banking platforms. At the same time, improved financial performance in comparison to previous periods has been the trend by these commercial banks, yet limited studies focusing on the effect of mobile banking on profitability of commercial banks in Kenya. There is limited empirical evidence to determine the effect of mobile banking on profitability of Tier 1 Commercial banks in Kenya: this was the motivation of the study. Hence, the purpose of this study was to determine the effect of mobile banking on the profitability of tier 1 commercial banks. The study was informed by three forms of mobile banking (independent variables) that is transactions, electronic funds transfer services and customization whereas profitability was measured through profitability ratios. The study adopted a descriptive research design. The target population for the study was the six top tier 1 commercial banks. Primary data was collected from 60 respondents through a structured questionnaire. Data was analyzed using descriptive analysis and multiple regression analysis. The study found that transactions had a statistically significant effect on profitability while electronic funds transfer services and customization did not have a significant effect on profitability of tier 1 commercial banks in Kenya. However, descriptive analysis suggests some link between mobile banking and profitability unlike findings on multiple regression analysis. The study further found that most customers were carrying out most transactions via their mobile devices and thus had a positive effect on profitability as compared to electronic funds transfer services and customization. The study concludes that commercial banks should therefore strategically endorse more transaction services to offer their customers quality services and as a result will continue to receive a significant amount of revenue from mobile banking as customers carry out more and more transactions on the mobile platform.

Keywords: Electronic Funds Transfer services, Mobile banking, Profitability, Tier 1 commercial banks and Transactions.

Introduction and Background
The banking industry is one of the significant sectors of financial systems in most countries (San & Heng, 2013). Profitability of banks is important since the soundness of an industry is closely connected to the soundness of the whole economy (Lipunga, 2014). Kenya has six banks that make up the top tier and collectively control 49.9% of the market namely: Co-operative bank of Kenya, Kenya commercial bank (KCB), Equity bank, Barclays bank, Commercial bank of Africa (CBA) and Standard Chartered bank. Mobile banking is informed by three variables i.e. transactions, electronic funds transfer services and customization. Under transactions, a mobile user can inquire for a bank mini-statement, manage bank and stock market transactions and make bill payments. Electronic funds transfer services include wire transfer, credit/debit transfer, inter-bank networking and offering local and foreign currencies. Polatoglu and Ekin (2001) document that internet banking lowers operational costs while increasing customer satisfaction and retention. Customization inherently involves a value exchange of data sharing. It included personal financial advisory services, convenience and data alerts such as geo-fenced based notifications.

Mobile banking has gained increased attention as a financial innovation in the banking sector. Mobile banking has come to stay, providing its customers with an expedient way of banking. It can make basic financial services more accessible by minimizing time and distance to the nearest retail bank branches (CGAP, 2006). It is therefore, necessary to measure current and past profitability and also project future profitability of any business (Adeusi, Kolapo & Aluko 2014). Thus this study aims at bringing out the relationship between mobile banking and profitability of tier 1 commercial banks in Kenya.

**Research Problem**

Bank profitability has remained a key concern for Tier 1 commercial banks in Kenya as they seek to boost their financial performance as the banks seek to overcome stiff competition. The adoption of mobile banking was a financial innovation to boost bank profitability. Mobile banking presents a solution to all banks especially in the increase of clientele base, increase in amount of revenue, controlled management and improvement of service delivery. Increase in mobile banking adoption by customers’ leads to costs reduction (Bradley & Stewart, 2003). From literature, size is measured by the natural log of the level of assets of banks (Moraa, 2014). Large banks operate at lower costs because of economies of scale and can raise capital at lower costs. Despite the heavy investment in mobile banking, it remains unclear if mobile banking has a significant effect on profitability of commercial banks in Kenya. This formed the motivation of the study.

There is substantial empirical literature on mobile banking and profitability: the link between the two remains largely unclear whereas some findings are contradictory. Empirical models are towards leveraging the operating costs of commercial banks. In essence when costs are minimized, there is a likelihood of positive impact on the bank’s financial performance. However, electronic transaction banks differed from other banks primarily by size. In contrast to the results of England *et al.* (1998), Furst *et al.* (2000a, 2000b, 2002a & 2002b) found that banks
in all size categories offering e-banking were more profitable and tended to rely less heavily on traditional banking services in comparison to non-electronic banks.

**Objectives of the study**

The study sought to achieve the following specific objectives:

i. To assess the effect of transactions on profitability of tier 1 commercial banks in Kenya.

ii. To determine the effect of electronic funds transfer services on profitability of tier 1 commercial banks in Kenya.

iii. To establish the effect of customization on profitability of tier 1 commercial banks in Kenya.

*The study formulated null hypotheses for each specific objective and tested the same at a level of significance of 0.05.*

**Significance of the study**

The study will be of significance to various stakeholders. To the management of commercial banks, the study will enable them of the effect of mobile banking on profitability returns of their institutions. The administration should be able to strategize on how to realize maximum benefits from mobile banking. To the regulator and policy makers and agencies such as the Central Bank of Kenya (CBK), the findings of this study were significant in informing the policy formulation especially about regulating the mobile banking services in Kenya. To the academicians and finance students this study may help in building the knowledge base in the discipline by adding on the existing literature on mobile banking and financial performance.

**Review of Literature**

**Theoretical Review**

The study was informed by four theories which include: Financial Intermediation theory, Market Power and Efficiency structure theory, Agency theory and Bank-focused theory. In view of financial intermediation theory (developed by Franklin Allen, 1998), the banking business thrives on the financial intermediation abilities of financial institutions that allow them to lend out money at relatively high rates of interests while receiving money on deposits at relatively low rates on interests. Commercial banks also intermediate between traders by transferring funds and enabling settlements through the same. This model posits that banks benefits on a large scale from intermediation and is thus likely to record profits.

Market Power and Efficiency structure theory attributed to several scholars namely Smirlok (1985), Sherpherd,(1986) and Berger, (1995). Smirlok (1985) subscribing to efficiency hypothesis, considers market share as a proxy for efficiency. This method implicitly assumes that a higher market concentration is the main source of market-power and efficiency structure. It is worth noting that efficiency measurements highlights the way banks allocate their resources. Commercial banks hence strive to reduce operational costs through efficient
operations whereas customers are assured of fast, speedy and easy access to financial services thereby creating opportunities to improve and create value for commercial banks.

Agency theory is based on the premise that agents are more informative than the principals. This information asymmetry affects the ability of the principals to monitor their wealth efficiency, and this is where the agents come in to help. It assumes principals and agents act rationally (Brigham& Gapensiki, 1993). Bank-focused theory (Carigan, 1982) argues that banks are particular because 1) they provide transaction services and administer the nation’s payment system 2) they provide back-up liquidity to the economy and 3) they are transmitters of monetary policy. For example the use of ATM to ensure specific unlimited banking services to clients (David, 2005).

**Empirical Review**

The study reviewed empirical literature with an objective of documenting research gaps. Kharwish and Al-sadi (2011) assessed the impact of e-banking on banks and profitability for the banking sector in Jordan during the period (2000-2009). For banks that apply the electronic banking services for less than 2years, there is no significant effect of these services on the ROA and ROE but the same was founded to be having a significant effect on margin.

The study sought to establish whether there exists a relationship between dependent variable for example performance measured by PAT and independent variables consisting of number of ATMs, number of debits and credits cards issued to customers, number of point of sales terminals and the usage level of mobile banking, internet banking and electronic funds transfer as components of e-banking. The study used secondary data which was collected from annual reports of commercial banks of Kenya. The findings of the study were that e-banking has a significant and robust effect on the profitability of commercial banks in the Kenyan banking industry. The specific objectives were to determine the extent of e-banking adoption and the impact of this adoption on the financial performance of commercial banks. The study adopted a descriptive research design. Primary data was collected through data collection methods from that was developed and sent to the respondents of commercial banks. Appropriate frequency tables and charts were used; multiple regression analysis was used to explain the findings. The adoption of e-banking has enhanced the performance of commercial banks due to increased effectiveness and productivity.

**Methodology**

The section highlights the key methodology adopted for the study. The study employed a descriptive research design. Mugenda and Mugenda (2003) defines descriptive research design as a systematic empirical enquiry into which the researcher does not have direct control on the independent variable as their manifestation has already occurred. The descriptive research design is more appropriate because the study seeks to build a profile about the effect of mobile banking adoption on the profitability of tier 1 commercial banks in Kenya.
The target population for the study focused on the top six tier 1 commercial banks with headquarters in Nairobi City County, Kenya and fully operational within the period 2012-2016. The target respondents were operations manager, ICT officers, M-banking officers and finance/accounts officers. The study employed utilized both primary and secondary data. Primary data was collected using questionnaires whereas secondary data was obtained from the financial statements of the banks. This is because they enabled the study to obtain more up-to-date information from the respondents. Questionnaires contained both open-ended and closed-ended type. Secondary data was extracted from bank records, annual financial reports and previous reports, journals and newsletters. Data analysis was aided by Statistical Package for social sciences (SPSS). Data was analyzed using descriptive analysis (means and standard deviation), and multiple regression analysis. Preliminary diagnostic tests (normality, multicollinearity and heteroscedasticity) were performed before running the regression and were all in the affirmative.

Data was presented in the forms of tables. The regression model adopted is presented below:

\[ Y = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \varepsilon \]

Where

- \( Y \) = Profitability
- \( \beta_i \) = Coefficients
- \( X_1 \) = Transactions
- \( X_2 \) = Electronic Funds Transfers services
- \( X_3 \) = Customization
- \( \varepsilon \) = Error term

Results and Findings
The section presents results in tables and documents findings out of the results and a brief discussion of the same. Output is presented in the form of tables. Multiple regression analysis was adopted besides descriptive analysis.

Descriptive Analysis
The general objective of the study was to determine the effect of mobile banking on profitability of tier 1 commercial banks in Kenya. It was in this regard that the independent variable-dependent variable relationships were analyzed. Average value of the data analyzed indicated that majority of most customers (about 95%) carry out most transactions on the mobile platform the main ones being cash withdrawals, deposits and bill payments. Results show that as per the year 2012 number of mobile users stood at 16.69 million and has risen over the years. The study also found that many banks are offering banking products such as funds transfer between accounts/ E-funds transfer, free E-statement enquiry and account balance and hence concluded that profitability of these banks has improved because they ensure efficiency of the banking services. Hence, Electronic funds transfer services do have a positive relationship with profitability of the banks. A vast majority of respondents (95%) perceives mobile banking as cheaper than normal banking services and have quite positive attitude towards mobile banking. Commercial banks therefore seek to customize most services to the customers’ preference such sending alerts in case of fraud-detect among others. According to the study customers can
receive banking services on their mobile devices 24hours 7 days a week. For this customization too has a robust effect on the profitability of tier 1 commercial banks.

Regression Analysis
The section captures results in 3 tables (model summary, anova and coefficients table). P-value method was used to test hypothesis at 0.05 level of significance. Table 1.1 below presents an overview of simple correlation analysis and coefficient of determination.

Table 1.1: Model Summary

<table>
<thead>
<tr>
<th>Model</th>
<th>R</th>
<th>R Square</th>
<th>Adjusted R Square</th>
<th>Std. The error of the Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0.608a</td>
<td>0.602</td>
<td>0.260</td>
<td>2.40644</td>
</tr>
</tbody>
</table>

a. Predictors: (Constant), Number of transactions, electronic fund transfer services and customization of services

Source: research data (2018)

From the table 1.1 above, the simple correlation of 0.608 indicates a fairly strong positive correlation between the Number of transactions, electronic funds transfer services, and customization. The model indicates that 60.2% of the variance in the profitability can be explained by mobile banking services as shown by an R\textsuperscript{2} factor. The findings of this study, therefore, indicate there is a weak positive correlation between mobile banking on the profitability of tier 1 commercial banks in Kenya.

Table 1.2: ANOVA

<table>
<thead>
<tr>
<th>Model</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Regression</td>
<td>6.797</td>
<td>2</td>
<td>3.399</td>
<td>0.587</td>
<td>0.630a</td>
</tr>
<tr>
<td>Residual</td>
<td>11.582</td>
<td>2</td>
<td>5.791</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>18.379</td>
<td>4</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

a. Predictors: (Constant), Number of transactions, electronic fund transfer services and customization of services

b. Dependent Variable: Profitability

Source: research data (2018)

The Table 1.2 above documents the Analysis of Variance (ANOVA) results which indicate the models overall goodness of fit. The F-value was found to be 0.587 while P-value was 0.630 which is less that the 0.05 level of significance. This signifies that mobile banking is not a very good fit. Hence, Descriptive analysis woud equally be important in linking the two variables of interest for the study. Table 1.3 below documents beta coefficients and p-values (for purposes of hypothesis testing).

Table 1.3: Coefficients of Determination
From the results in Table 1.3 above, the following regression model is formulated from the unstandardized coefficients:

\[ Y = 26.123 + 0.012X_1 + 0.118X_2 + 0.091X_3 \]

Beta coefficient results in table 1.3 above explain the effect of a unit change in the independent variables on the profitability. The results indicate that one unit increase in transactions will lead to an increase in the profitability by 0.012 units all other factors held constant. A unit increase in electronic funds transfer services will lead to an increase in profitability by 0.118 units all other factors held constant. A unit increase in customization will lead to an increase in profitability by 0.091 units all other factors held constant.

P-value method was used to test hypotheses at a level of significance of 0.05. The study found that number of transactions, EFTs and Customization of Services all had p-values greater than the 0.05 level of significance. Hence, the three variables do not have a statistically significant effect on Profitability of the banks studied. Consequently, the study supported all the three null hypotheses.

The general objective of the study was to determine the effect of mobile banking on profitability of tier 1 commercial banks in Kenya. The study findings indicated that m-banking products provided by banks such as funds transfer between accounts have significantly affected banks’ revenue for the last five years. The findings of the study concur with Karjaluoto (2002) who indicate that by complementing services offered by the banking system, mobile banking platform offers a convenient additional method for managing money without handling cash. This has made mobile banking more efficient and improve returns of banks. AlJabri (2012) observed that with the better mobile banking system support and setting up of a variety of services leads to an increased positive customer perception on how useful mobile banking is useful to them and thus increasing their tier adoption. This in-turn significantly affects profitability of involved firms. Modupe (2010) observed that process innovation is defined as new elements introduced into the
firms’ products or into the services it provides. This is essentially introduced by the firm with a view towards improving its efficiency supporting the need for banks to improve on their banking services inorder to offer quality services to customers.

**Conclusions**
From the study findings, the study makes conclusions and subsequent recommendations to various stakeholders. Mobile banking transactions were found to have a positive relationship with profitability of tier 1 commercial banks in Kenya. This was attributed to the trends recorded in the variables where the number of users and annual transfers had a positive and significant effect on profitability. Hence, the study concludes that high transaction volumes have a strong link with bank profitability. This therefore means that the more clients a bank has (in the mobile banking platform), the higher the level of transactions carried and the subsequent better the profitability of the banks. It was noted that number of mobile banking transactions had tremendously increased in the last five years and thus concluded and improved returns on profitability. Considering that the three null hypotheses of the study were supported, the study concludes that mobile banking does not have a strong statistical effect on profitability of the banks studied.

**Areas for Further Study**
The study documents some unique findings that warrant further investigation. In view of this study, there is need for academics to do further research on the effect of mobile banking and profitability of the other commercial banks since the study concentrated on tier 1 commercial banks yet mobile banking has been adopted by all members in the banking industry. The study documents a statistically insignificant effect of the 3 independent variables of the study on profitability though empirical literature documents a significant effect in other contexts: this is a good basis for further in-depth analysis. Based on the central bank of Kenya (CBK) statistics on mobile banking, there is an increase in the tier of financial deepening in Kenya of up-to about 85%. Therefore a study ought to be conducted to ascertain the effectiveness of mobile banking in financial deepening.

**References**


