

An Empirical Investigation on The Effect of Mobile Banking Services on Financial Performance of Deposit-Taking SACCOS in Kenya

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ABSTRACT

The rapid advances in mobile technologies and the increased coverage of mobile networks present new opportunities for integrating mobile technology services into existing financial services delivery models as well as driving innovations leading to new financial solutions' delivery channels. Most financial institutions have now embraced mobile banking services in order to address their financial challenges. Like their other financial institution's counterparts, Deposit-Taking Savings and Credit Cooperative Societies (SACCOs) have embraced mobile banking services to address efficiency challenges (characterized by poor information delivery channels and high operational costs) and to enhance their financial performance. However, the effect of mobile banking services on the financial performance of Deposit-Taking SACCOs has not been well studied. Even though some studies have indicated the potential of mobile banking services towards improving organizational performance, other studies have indicated the converse. Given these contradictions, this study sought to investigate the effect of mobile banking services on the financial performance of Deposit-Taking SACCOs in Kenya. Descriptive and explanatory research designs were adopted using a quantitative approach to data collection, analysis and reporting. Using simple random sampling, the study was based on a sample of 86 Deposit-Taking SACCOs drawn from a target population of 110 Deposit-Taking SACCOs that were licensed by SACCO Societies Regulatory Authority as at 31st December 2011.

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I. Introduction

Rapid advances witnessed in the mobile computing and mobile technological devices have led to mobile banking which allows financial institutions to deliver their products and allow for transactions from the clients' mobile devices that include mobile phones, tablets, laptops, and personal digital assistants and other mobile devices such as point of sale (POS) terminals. [29] assert that mobile banking has facilitated the spread of banking services in developing countries, where it is little or no access to internet connections and the existence of poor infrastructure has crippled developments in reaching the unbanked populations particularly those living in rural areas. Mobile banking offers a distinct alternative to conventional branch-based banking in that customers conduct all financial transactions through mobile phones instead of through physical presence in bank branches or through bank employees which allows more convenience to customers [4; 25].

[1] noted that mobile banking allows users to conveniently perform banking transactions at any time from any place using their mobile devices particularly their mobile phones. [2] indicated that with mobile banking, users can open accounts, check account balances, receive their bank statements, trade stock and manage a portfolio of assets, pay for goods and services and transfer

money from one account to another conveniently using their mobile devices regardless of where they are located. This is also supported by [13], who noted that a number of mobile banking services could be performed at anytime and anyplace via mobile devices particularly mobile phones enabled to connect to physical banks. Additionally, using several applications that are currently downloadable on mobile devices it is possible to inform mobile devices' users on the nearest ATMs making it possible for financial institutions to provide distinctive services that enhance their performance [13].

A. Deposit-Taking SACCOs in Kenya

The SACCO subsector in Kenya comprises of Deposit-Taking and non-Deposit-Taking SACCOs. Deposit-Taking SACCOs are licensed, supervised and regulated by SACCO Societies Regulatory Authority (SASRA) under the SACCO Societies Act of 2008 [26]. Deposit-Taking SACCOs, unlike non Deposit-Taking SACCOs, offer front office services activities (FOSA) which allow them to provide simple banking services to their members/customers (such as taking deposits, payment services, automated teller machines and other quasi banking services) thus improving their working capital.

Based on their membership, Deposit-Taking SACCOs are categorized into teacher based, government-based, farmers based, private institutions based and community-based SACCOs [35]. The majority of the members of government based SACCOs comprise employees of government ministries, departments, state corporations, public universities and colleges and county governments. For farmer-based SACCOs, the majority of the members are farmers engaged in different agricultural activities (both direct and indirect activities) in various parts of the country while private institutions based SACCOs have members who are mainly employees of private organizations including Non-Governmental Organizations (NGOs) operating in Kenya. Community-based SACCOs have members who are mainly residents of a given geographical area engaged in a productive economic activity while teacher based SACCOs have membership mainly drawn from employees of public/private schools, colleges and universities (both public and private).

The Deposit-Taking SACCOs account for three-quarters of the SACCO subsector's assets, deposits, and membership [35]. Sub-Saharan Africa remains the region with the lowest deposit-taking institutions penetration in the world which stands at an average of 16.6 percent compared to 63.5 percent in developed countries and therefore the need to have Deposit-Taking SACCOs to fill this gap [38]. In line with the Kenya's Vision 2030 strategy (that requires financial organizations to increase savings and to mobilize more investments for economic growth and development of the country) Deposit-Taking SACCOs' role in the Kenyan economy remains paramount [10]. By the year 2009, out of the 20 million adult people in Kenya, 22.5 percent were served by commercial banks and microfinance institutions (MFIs) while 17.6 percent were served by SACCOs making SACCOs a key player in Kenya's financial sector [21].

B. Statement of the problem

Kenya's Vision 2030 under the economic pillar requires a vibrant and stable financial system to mobilize savings and to allocate resources more efficiently in the economy [10]. Deposit-Taking SACCOs are expected to play a key role towards the realization of this vision especially by connecting people who have been financially excluded by major banks to financial services. Despite their role in the economy, Deposit-Taking SACCOs continue to face a number of performance challenges. They face stiff competition for membership from other deposit-taking institutions particularly commercial banks [21; 35]. They also experience efficiency challenges characterized by poor information delivery channels and high operational costs due to inadequate information and communication technologies [22]. In addition, they also face high demands for loans which they are unable to meet due to liquidity shortages hence compromising their profitability especially given that they cannot seek credit from the Central Bank of Kenya (CBK) like other commercial banks [36; 22].

[35;36] noted that many SACCOs had not yet managed to comply with capital adequacy ratios including core capital to total assets and core capital to total deposits liabilities. [5] established that low capital adequacy can negatively impact on organizational profitability. Deposit-Taking

SACCOs additionally experience the challenge of non-performing loans which were recorded at 4.7 percent in 2013 and 5.73 percent in 2014 and this can negatively affect their liquidity and eventually their profitability [36].

Challenges faced by SACCOs have necessitated them to adopt and utilize mobile banking services. Although various scholars have asserted that mobile banking services have the potential to enhance organizational performance [14; 19; 28] these benefits are yet to be confirmed in studies covering Deposit-Taking SACCOs in Kenya. Further, despite the potential of mobile banking services, [33] raised concerns in regard to increased incidences of fraud among Deposit-Taking SACCOs raising questions on the role of mobile banking towards the performance of this sector. It is at the center of these mixed conclusions of effects of mobile banking services that necessitated the need to carry out a study from a Kenyan context to establish the effect of mobile banking services on performance of Deposit-Taking SACCOs in Kenya.

C. Research objectives

The following were the specific objectives of the study:

- i. To establish the effect of mobile money transfer services on the performance of Deposit-Taking SACCOs in Kenya
- ii. To establish the effect of mobile deposits services on performance of Deposit-Taking SACCOs in Kenya
- iii. To determine the effect of mobile bill payments services on performance of Deposit-Taking SACCOs in Kenya
- iv. To determine the effect of mobile statements services on performance of Deposit-Taking SACCOs in Kenya
- v. To determine the effect of mobile balance inquiry services on performance of Deposit-Taking SACCOs in Kenya

D. Research hypotheses

Based on the specific research objectives, the following five null hypotheses were tested in this study.

- i. There exists no effect of mobile money transfer services on the performance of Deposit-Taking SACCOs in Kenya
- ii. There exists no effect of mobile deposits services on performance of Deposit-Taking SACCOs in Kenya
- iii. There exists no effect of mobile bill payments services on performance of Deposit-Taking SACCOs in Kenya
- iv. There exists no effect of mobile statements services on performance of Deposit-Taking SACCOs in Kenya
- v. There exists no effect of mobile balance inquiry services on performance of Deposit-Taking SACCOs in Kenya

II. Literature Review

[9] in his study found that mobile money services significantly improved freedom and sense of belonging for Kenyans. Through the ability to send and receive money conveniently using mobile devices from friends and family members, a form of power that acts on all Kenyans both users and non-users of mobile money services emerges [9]. In another related study, [27] assert that mobile banking services can lead to poverty reduction and financial inclusiveness by increasing savings rates, creating jobs, and increasing access to various financial products offered by microfinance institutions. It would be important to conduct a similar study indicating how mobile banking services would affect the performance of SACCOs, especially given performance challenges in the SACCO sector [32].

According to [16] who conducted another study found that mobile money transfer services help to resolve an idiosyncratic market failure experienced by farmers. Mobile money transfer was also found to greatly enable farmers to access financial services, which otherwise would not be accessible to them. Their study employed a propensity score matching technique to examine the impacts of mobile money services and used cross-sectional data collected from 379 multistage randomly selected households in Central, Western and Nyanza regions in Kenya. Similar studies

need to be conducted to validate the findings within organizational contexts to evaluate whether organizational performance challenges can benefit from mobile-based money transfer services, a gap this study sought to fill.

[17] found that ICT infrastructure remains inadequate which is linked to low customer satisfaction. The study investigated the current ICT infrastructural situation on which mobile money transfer and mobile payment systems run and the level of customer satisfaction using a survey design. The study indicated that customers continue to embrace mobile banking services for paying bills and for money transfer despite there being not satisfied. The implication of this study was that customers perceived that mobile banking services had benefits to warrant their use despite issues affecting their dissatisfaction. In an organizational context, it would be important to conduct studies relating to the benefits of mobile banking services, a gap this study sought to fill.

[8] in their study found that awareness of local m-banking services was quite high and usage level was reasonable. Their study involved an online survey using a convenience sampling method where the sample size was 211 people with 169 people responding to the survey. Convenience sampling had a limitation on the generalization of findings to the entire population in Mauritius. According to this study, an individual's perceived benefits motivated the adoption and usage of mobile banking amongst citizens. However, the study failed to establish whether indeed these individual benefits were realized after mobile banking was adopted and used. Organizations also adopt and use mobile banking based on perceived benefits, and as such, investigations need to be done to establish whether the perceived benefits are actually realized so that mobile banking is not just a cost for organizations but rather a driver towards enhanced performance.

[30] established in their study that commercial banks had the highest usage of mobile banking followed by SACCOs and lastly MFIs. This study was based on descriptive design where 30 financial institutions were investigated including two MFIs, 11 SACCOs and 17 commercial banks on their use of mobile and internet banking services. The study found that the most prevalent internet banking service was balance inquiry while the least was online bill payment. Additionally, the study established that cash withdrawal was the most commonly used mobile banking service whereas purchasing commodities was the least commonly used. Although the study focused on how mobile and internet banking provides various capabilities to both clients and employees of these organizations, performance outcomes arising from use of mobile and internet banking to organizations were not addressed, an area this study sought to address.

In their study, [31] revealed that a wide network of agents was the most important factor for access to mobile phone money services in Uganda. The study also concluded that mobile phone money had improved financial inclusion in Uganda as previously unbanked citizens could now access financial services via their mobile phones. However, this study narrowly focused on factors influencing access to the mobile phone money in Uganda without providing a detailed account of the effects of these mobile phone money transfer services on organizations that had adopted them. Additionally, given that the study was based on a qualitative phenomenological research design, it would be crucial to also conduct studies using other research designs.

[14] found a positive relationship between the adoption of mobile banking and the performance of commercial banks. The setting of their study was Kakamega town where a census of the nine commercial banks operating in the town was conducted and the study was based on correlational survey design. Following the findings of the study, it was concluded that banks need to take more interest in mobile banking. They also need to address the issues that lead to low uptake of this service by customers, optimize on the enormous potential of mobile banking and synchronize their systems with those of mobile banking to ensure full integration of this service and thus enjoy the benefits brought about by mobile banking [14]. Due to organizational differences between SACCOs and commercial banks, this study looked into Deposit-Taking SACCOs using a different research design, explanatory design.

Using the descriptive survey method, [19] in their study found that mobile money transfer services improved the market performance of small and medium enterprises and the development of markets. The study also found that mobile money transfer services enhanced the SMEs' sales growth and also helped in expanding SMEs' market share. In addition, the study found that the majority of the respondents indicated that mobile money transfer services enhanced efficiency in service delivery, that mobile money transfer services enhanced service quality in business and that

mobile money transfer services helped in the enlightening of customers on technology issues. However, the study failed to describe how mobile money transfer services translate into the performance of organizations using them, a gap addressed by this study. In addition, the descriptive survey is a weak research design necessitating similar studies involving other superior research designs such as explanatory research design that was used in this study.

[24] noted that mobile banking services enhanced the financial performance of commercial banks in Kenya. Based on the descriptive research design, their study involved a sample of 16 commercial banks with the respondents being members of banks' management. The study recommended commercial banks in Kenya to do more investments in terms of mobile banking and other innovations to enable banks to survive the prevailing stiff competition and the turbulent business environment. The effect of mobile banking services ought to be investigated within Deposit-Taking SACCOs to appropriately make necessary investment decisions and hence the reason why this study was conducted.

[28] noted that mobile banking services enhanced the profitability of co-operative societies in Nyeri County, Kenya. Their study which was based on the descriptive design with a sample of 30 co-operative societies in Nyeri County concluded that other than mobile banking services, internet banking also enhanced the financial performance of co-operative societies and therefore management boards of these societies should invest more on these innovations. The study also recommended the value addition of mobile banking to include services such as the provision of loans which would increase the number of transactions conducted via mobile devices and hence more income for co-operative societies. The study however, employed a weak research design, descriptive design, and therefore the findings need to be confirmed by the use of superior research designs such as explanatory research design.

A. Conceptual framework

The study proposed that the performance of Deposit-Taking SACCOs is affected by mobile banking services that included mobile money transfer services, mobile deposits services, mobile bill payments services, mobile statement services and mobile inquiry services as captured in the conceptual framework shown in Figure 1. Mobile money transfer service is the use of mobile devices to transfer money from a SACCO member account to another account (within the same SACCO, another SACCO or any other financial institution). Mobile deposits service is the use of a mobile device to load money into a member's account within the SACCO. Mobile bill payments services are the payments for utilities, goods, and services including settlement of bills using mobile devices enabled to access money from a member's account. Mobile statement service is the use of mobile devices to receive statements about members' account activities while mobile balance inquiry services entail checking customers' account balances through mobile devices. Return on assets was used to evaluate the financial performance of Deposit-Taking SACCOs as depicted in the conceptual framework.

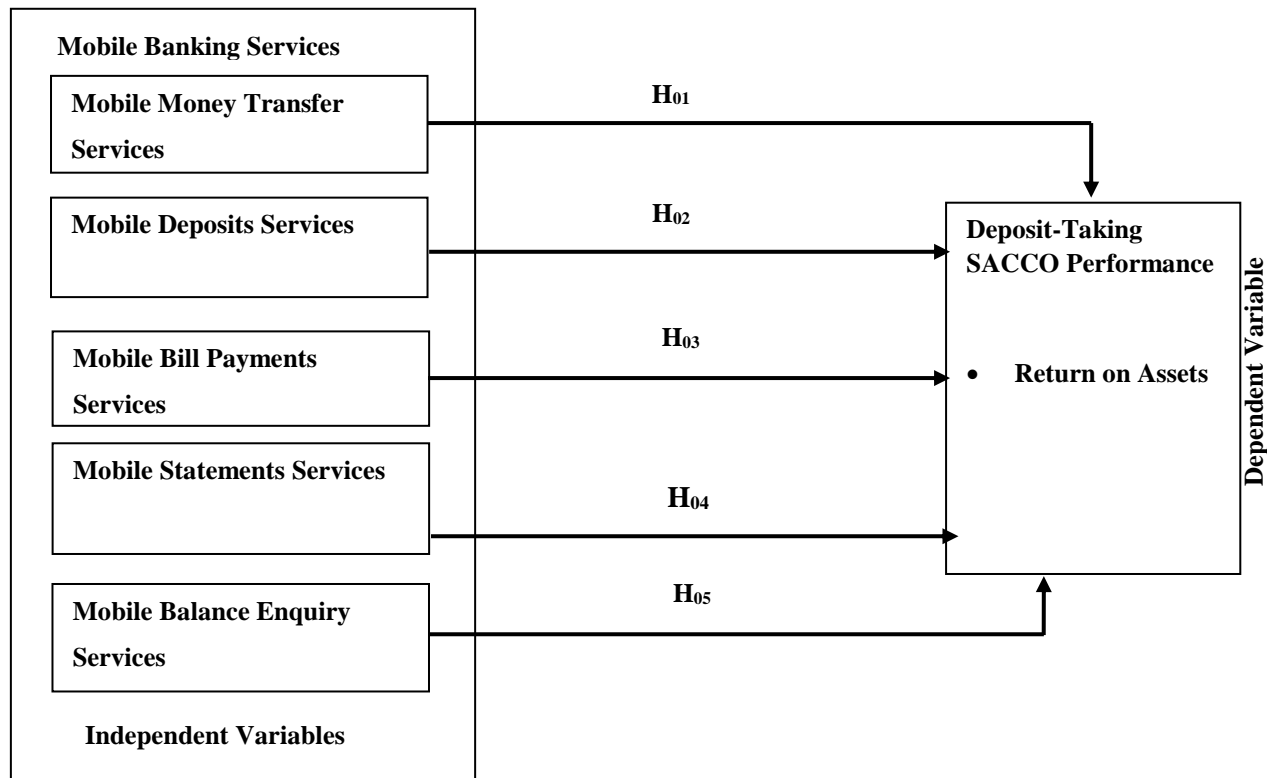


Fig 1: Conceptual Framework

III. Methodology

This study was guided by the positivism paradigm. It was an ideal philosophy for this study as scientific processes were followed in the formulation of the hypotheses and deductions of the observations in order to determine whether to reject or not to reject the formulated hypotheses as recommended by [20]. According to [39] there is no single perfect research design, hence the researcher used both descriptive survey and explanatory research designs to achieve optimal results.

In order to obtain data necessary to draw inferences, the target population included those Deposit-Taking SACCOs that had existed for at least three years since their being licensed. Therefore, the target population was the 110 Deposit-Taking SACCOs that were licensed as at 31st December 2011 in Kenya. To select an optimum sample of 86 Deposit-Taking SACCOs from where data was collected, a simple random sampling method was used. Simple random sampling ensured that each Deposit-Taking SACCO had an equal chance of being selected as suggested by [23]. Random sampling was also found suitable by [3] who conducted a study to establish website usability impacts on the performance of banks.

From each Deposit-Taking SACCO, two managers (from information technology and finance departments) were purposively sampled as the respondents of the study who were issued with a self-administered structured questionnaire. [23] contend that a researcher can purposefully select respondents he/she considers to have the required information or with the capability to provide credible responses. The respondents selected were believed to be conversant with the utilization of mobile banking services within the SACCO and their effect on SACCO's performance. They were, therefore in a position to provide credible responses necessary to make valid conclusions regarding the study objectives.

A. Empirical Model

Multiple linear regression analysis was conducted to establish the effect of independent variables (mobile money transfer services, mobile deposits services, mobile bill payments services, mobile statement services and mobile balance inquiry services) on the dependent variable (financial performance) as recommended by [12]. According to [10; 7] multiple linear regression analysis is

chosen when the dependent model is continuous and when independent variables are more than one. It was therefore relevant in testing the effect of mobile technology services (independent variables) on performance of SACCOs (dependent variable) in this study as the dependent variable was continuous. This is depicted by the model shown below:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \varepsilon$$

Where,

Y= Performance of the Deposit-Taking SACCO based on return on assets

X₁= Mobile money transfer services

X₂= Mobile deposits services

X₃= Mobile bill payments services

X₄= Mobile statements services

X₅= Mobile balance inquiry services

ε=error term (accounting for variables other than those specified in the model that explains changes in the dependent variable)

β₀ = constant term

β₁- β₅ = coefficients of the independent variables

The empirical model above was used to generate coefficients and t-statistics for each independent variable and their corresponding p-values. To determine whether each independent variable had a significant effect on the performance of SACCOs, its corresponding coefficient was tested to check whether it was statistically different from zero by checking its p-value. If p-value of a given coefficient was less than the chosen significance level (0.05) the null hypothesis was rejected and a conclusion drawn that the corresponding variable significantly affected the performance of SACCOs.

IV. Results And Discussion

A. Response Rate

After checking the completeness and non-response cases of questionnaires, 68 questionnaires were correctly filled representing a response rate of 79.1 percent. Unreturned questionnaires were 10 representing 11.6 percent while the disqualified questionnaires due to incompleteness and inconsistencies were 8 representing 9.3 percent of the total number of issued questionnaires as shown in Table 1. According to [6;23;37], a response rate of 50 percent is adequate, a response rate of 60 percent is good, and a response rate of 70 percent is very good. The response rate of 79.1 percent observed in this study was therefore very good and as such sufficient for further analysis and for drawing conclusions based on the stipulated research objectives. Furthermore, the study's response rate was acceptable as it compared well with similar studies conducted in Kenya such as [15] who achieved a response rate of 64.0 percent, [18] who had a response rate of 75 percent and [40] who had a response rate of 69 percent.

Table 1: Questionnaire Response Rate

Responses	Values	Percentage
Administered questionnaires	86	100 percent
Unreturned Questionnaires	10	11.6 percent
Disqualified questionnaires	8	9.3 percent
Returned and correctly filled questionnaires	68	79.1 percent

B. Regression Results

Tables 2, 3 and 4 summarize the regression analysis results.

Table 2: Summary Results of the Regression Model

Model Summary					
Model	R	R Square	Adjusted Square	R	Std. An error of the Estimate
1	.648 ^a	.420	.373		.50033

a. Predictors: (Constant), Balance Enquiries, Mobile Bill Payments, Mobile Deposits, Mobile Statements, Mobile Money Transfer Services

As shown in Table 2, R^2 was 0.420 indicating that the five independent variables (mobile money transfer services, mobile deposits services, mobile bill payments services, mobile statement services and mobile inquiry services) explained 42 percent of variations in the financial performance of SACCOs. This implied that 58 percent of variations in financial performance of SACCOs were explained by other variables outside the model.

Table 3: Anova Results for Model Significance

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	11.224	5	2.245	8.967	.000 ^b
	Residual	15.521	62	.250		
	Total	26.745	67			

a. Dependent Variable: Sacco Performance Composite

b. Predictors: (Constant), Balance Enquiries, Mobile Bill Payments, Mobile Deposits, Mobile Statements, Mobile Money Transfer Services

To check the statistical significance of the overall regression model, ANOVA test was used as shown in Table 3. From Table 3, the overall model was statistically significant ($F_{(5,62)}=8.967$, $p=0.000$) implying that the study's independent variables (mobile money transfer services, mobile deposits services, mobile bill payments services, mobile statements services and mobile balance inquiry services) explained the variations in the dependent variable (financial performance of Deposit-Taking SACCOs) and therefore the model was adequate for further hypotheses testing.

Table 4: Regression Coefficients

Independent Variables	Beta (Coefficients)	T-Statistic	P- Values	Decision
Constant	2.516	11.454	.000	
Mobile Money Transfer Services	.011	.122	.640	Do not reject null hypothesis
Mobile Deposits Services	.161	1.986	.031	Reject null hypothesis
Mobile Bill Payments Services	.076	1.053	.041	Reject null hypothesis
Mobile Statements Services	.092	1.375	.039	Reject null hypothesis
Mobile Balance Enquiries Services	.043	.572	.570	Do not reject the null hypothesis

From the regression analysis shown in Table 4, it was found that mobile deposits services, mobile bill payments services and mobile statement services had a positive statistically significant effect on the financial performance of Deposit-Taking SACCOs in Kenya (p-values were less than 0.05 indicating the null hypotheses had been rejected). However, mobile money transfer services and mobile balance enquires services were found to have no statistically significant effect on the financial performance of Deposit-Taking SACCOs. Therefore SACCOs' financial performance was a function of utilization of the three mobile banking services (mobile deposits services, mobile bill payments services and mobile statements services).

V. Recommendations Of The Study

The study recommends that the management boards of Deposit-Taking SACCOs in Kenya should formulate strategies aimed at increasing the utilization of mobile banking services particularly mobile deposits services, mobile bill payments services and mobile statement services as they have been shown to contribute positively towards enhancing SACCOs' performance. Creating awareness of mobile banking services by SACCOs' management should be conducted to encourage buy-in by SACCO members. In addition, management boards of Deposit-Taking SACCOs should lower costs for accessing mobile banking services to increase the utilization of these services by Deposit-Taking SACCO members.

A. Contribution of the study to knowledge

Overall, the study builds on the existing body of knowledge by contributing empirically to the existing literature on the use of mobile banking services and their effect on organizational performance. The study has also developed a conceptual framework that is relevant to academicians interested in undertaking similar studies in other sectors of the economy. The conceptual framework can be adopted as it is or adapted to suit distinct issues in other financial institutions in future studies of mobile banking services. On practical contributions, the study has shown how various mobile banking services contribute towards enhancing the financial performance of Deposit-Taking SACCOs. This knowledge is paramount to the management boards of the SACCOs to make investment decisions geared towards enhancing the performance of their SACCOs.

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