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INFLUENCE OF MOBILE-BASED LENDING ON THE FINANCIAL PERFORMANCE OF MICROFINANCE BANKS IN NAIROBI COUNTY, KENYA

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Abstract

The microfinance banks face challenges in their financial performance which include profitability, loan processing costs, and number of non-performing loans. This study sought to examine the influence of loan disbursement, loan appraisal process, loan repayment terms and convenience associated with mobile-based lending on the financial performance of microfinance banks. The target population for the study was employees working in the department of finance from the 13 registered microfinance banks in Kenya which comprised 130 employees. A sample of 98 respondents were utilized which was derived through Taro Yamane formula. The results found that loan disbursement had a regression coefficient of 0.202. This indicated that a unit increase in the loan disbursement led to 0.202 increase in financial performance of microfinance banks in Nairobi county Kenya with the other variables kept constant. The study concluded that there was a statistically significant influence of loan disbursement through mobile-based lending on financial performance at 5% level of significance. The study found that loan appraisal process had a regression coefficient of 0.227. This indicated that a unit increase in the loan appraisal process led to 0.227 increase in financial performance of microfinance banks in Nairobi county Kenya with the other variables kept constant. The study concluded that there was a statistically significant influence of loan appraisal process through mobile-based lending on financial performance at 5% level of significance. The results found that loan repayment terms of mobile banking had a regression coefficient of 0.205. This indicated that a unit increase in the loan repayment terms led to 0.205 increase in financial performance of microfinance banks in Nairobi county Kenya with the other variables kept constant. The study concluded that there was a statistically significant influence of loan repayment terms of mobile-based lending on financial performance at 5% level of significance. The results found that convenience associated with mobile-based lending a regression coefficient of 0.167. The study concluded that there was a statistically significant influence of convenience associated with mobile-based lending on financial performance at 5% level of significance. The study recommends that the management of the microfinance bank should put an emphasis on the mobile based lending as it was found to have an influence of the financial performance of microfinance banks in Nairobi County, Kenya. Thus the management should place an emphasis on loan disbursement through mobile based lending, loan appraisal system through mobile based lending, loan repayment terms of mobile based lending and convenience associated with mobile based lending.

Key Words: *Loan Appraisal Process, Loan Disbursement, Loan Repayment Terms, Mobile-Based Lending, Financial Performance*

I.INTRODUCTION

Microfinance banks play a critical role in the economic development of diverse countries across the world especially amongst the developing countries (Brau & Woller, 2004; Durgavanshi, 2015; Pessina, 2013; Sultakeev, Karymshakov, & Sulaimanova, 2018; Wediawati, Effendi, Herwany, & Masyita, 2018). Sarah-Halim *et al*., (2015) defined the microfinance banks or institutions as financial institutions that seek to offer financial services to those members of populations that are excluded from conventional financial service providers. Their basis of exclusion is normally lack of collaterals and inability to pay the financial service providers fees making them an unattractive to these conventional financial service providers (Gwasi & Ngambi, 2014).

Similar to Sarah-Halim *et al*., (2015), Sultakeev *et al*., (2018) conceptualize the microfinance as provision of credit facilities in small amounts to poor people who often lack collateral requirements. In further concurrence to Sarah-Halim *et al*., (2015) and Sultakeev *et al*., (2018), Postelnicu & Hermes (2015) also conceptualized microfinance institutions as financial service providers focusing on providing financial services to poor people who are often excluded from formal financial systems. The microfinance institutions play an important role in economic development of countries as well as social-economic development of the very poor persons. According to Bashir (2012) microfinance banks (MFB) improve access to the financial services of the poor who are often excluded from accessing formal financial services from established commercial banks. This is often due to the stringent operational conditions of these commercial banks as well as the financial costs of their services (Samer *et al*., 2015). The MFBs also enable the poor to access credit facilities that they wouldn't otherwise access from mainstream commercial banks. This is because these poor people often lack assets to serve as collaterals for credit access (Maroua, 2015). The poor are also often employed in the informal establishments and thus often lack pay slips that they can use to access credit facilities(Beck, Levine, Cull, & Morduch, 2018).

Given the importance of the microfinance banks or institutions to the economic development of the country and the social-economic wellbeing of poor persons, the financial performance of these institutions are critical. According to Kosgey & Njiru (2016), financial performance refers to the measurement of the results of a firm's operations through monetary terms. On the other hand, Samhan (2015) indicates that financial performance is the overall financial health of the organization over a period of time. Different from Kosgey & Njiru (2016), and Samhan (2015) conceptualizations of financial performance, Omar (2016) considers the financial performance as an indication of how a firm can utilize its current assets from the firm's main business mode and operations to generate revenues for the business.

The MFBs continue to face challenges of financial performance across the globe (Abrar, 2018; Durgavanshi, 2015; Gwasi & Ngambi, 2014; Imai & Annim, 2012; Nawaz & Iqbal, 2015; Ofeh & Jeanne, 2017; Reddy, Locke, &Thrikawala, 2018; Spina, 2013). Amongst the aspects that have been noted as a challenge to the financial performance include profitability, Return on Assets (ROA), Return on Equity (ROE), Portfolio yield (PY) and operating expense ratio (OER), and levels of Non-Performing Loans (NPL) (Nawaz & Iqbal ,2015). While these factors are due to various issues as such as management, the use of mobile based lending is one of the ways of addressing these challenges.

There has been an emergence and use of mobile based lending by commercial banks, microfinance banks, financial technology firms and diverse financial services providers across the globe (Alphonsine, 2017; Manship, 2014). The term mobile-based lending has also been referred to as mobile lending, digital credit products, mobile credits, and mobile cash lending. Owens *et al*., (2018) views mobile-based lending as the loans provided through a mobile device without visiting a financial services provider and filling loan application paperwork. Anderson *et al*., (2017) offers a broader examination of mobile based lending. In this context, Anderson *et al*., (2017) indicates that mobile based lending refers to the provision of credit facilities to borrowers that can be applied for, approved, and disbursed remotely (often without any brick-and-mortar infrastructure), automatically (generally minimizing or eliminating person-to-person interaction), and instantly (often in less than 72 hours).
The use and growth of mobile-based lending has been attributed to the need to minimize costs associated with the loan processes such as loan appraisals, and disbursements for small

amounts of credit facilities to a geographically disbursed target market (Alphonsine, 2017). The presence, distribution and wide-spread use of mobile phones across the world has enabled the provision of credit facilities remotely. The use of these mobile phones and associated products such as mobile banking leads to creation of financial history through purchases of airtime and loading of mobile cash into the mobile wallet. Such information can then be used together with data analytics to be able to create a credit profile of the user that can then be used for the purposes of mobile based lending.

In Sri Lanka, Reddy *et al*., (2018) notes presence of financial performance challenges of microfinance institutions in the country. Amongst the noted issues for the microfinance sector in the country included reduced financial performance due to poor laws governing the sector.(Reddy *et al*., 2018) further noted microfinance financial performance challenges indicated by an average portfolio yield and average operating cost ratio for asset value that is higher comparatively to other countries.

Financial related performance challenges have also been noted in microfinance institutions in India. Amongst the noted challenges in financial performance of Microfinance institutions in India included low asset sizes and returns, lower than the world average on the Return on Assets (ROA) for the Microfinance institutions, and low Return on Equity (ROE)(Durgavanshi, 2015). In Cameroon, Ofeh and Jeanne (2017) documents the challenges of financial performance of microfinance banks in the country. Amongst the financial performance metrics that were used by Ofeh and Jeanne (2017) in Cameroon Microfinance institution include deposits, loan periods, interest rates, and liquidity ratios. In this context, Ofeh & Jeanne (2017) noted that a majority of the loans were short term in nature thus leading low income from such loans, there was a n extremely high interest rates charged on the microfinance products stood up to a high of 33% of loaned amount, and a majority of the microfinance institutions were struggling with their liquidity ratios.

Yenesew (2014) documents an increasing improvement in the financial performance of microfinance banks in Ethiopia. Amongst the noted financial performance indicators that were improving were outstanding loan portfolio indicating an increase in loan uptake, improvement in saving balances, and increase in the number of active borrowers(Yenesew, 2014).Zambia also continue to face financial performance challenges in respect to its microfinance sector. In this context, Ndonji (2013) notes that Zambian Microfinance Institutions have financial performance that is below that of its African counterparts. Amongst the challenging financial performance aspects included number of borrowers, return on assets, operating expense ration and portfolio at risk aspects. Nigeria similar to other African countries also face similar financial performance challenges in its microfinance institutions (Mahmood & Abbas, 2011). These are challenges of return on assets for its microfinance sector.

Kenya is feted across the world for its pioneering technological innovation Mpesa product by Safaricom that marked the start of use of mobile phones for financial transactions into the country (Kinyanjui, Achoki, & Kiriri, 2018). The use of this product enabled the development of mobile banking platforms by diverse commercial banks and thereafter collaboration between Safaricom and diverse financial services providers to create lending platforms. Amongst the earliest mobile based lending was Mshwari product which was a collaboration between Safaricom and Commercial Bank of Africa (CBA) (Ngugi, 2017). Commercial banks joined with Safaricom in partnerships through use of their mobile technology to come up with similar mobile based lending products. These products included Barclays bank Timiza app and KCB

bank's KCB Na Mpesa product amongst others (Kinyanjui *et al*., 2018). Standalone non-bank financial institutions such as fintech came up with products that similarly utilized Mpesa's financial history as a basis for lending. Such products include Tala and Branch amongst others (Alphonsine, 2017). The microfinance banks have adopted mobile banking solutions that enable mobile lending aspects.

II.STATEMENT OF THE PROBLEM

Microfinance banks offer financial services to those members of populations that are excluded from accessing these services from conventional financial services providers due to lack of collaterals and inability to pay the financial services providers' fees (Gwasi & Ngambi, 2014). However, the microfinance banks continue to face challenges in their financial performance which include profitability, Return on Assets (ROA), Return on Equity (ROE), Portfolio yield (PY) and operating expense ratio (OER), and levels of Non-Performing Loans (NPL) (Nawaz & Iqbal ,2015).According to the annual supervision report by Central Bank of Kenya (2018), the microfinance banks pretax losses increased to Sh935 million by end of June 2018, compared to a loss of Sh171 million in June 2017. This was a decline of 450 per cent that stretched the loss-making streak by CBK-regulated micro-lenders to three consecutive financial years. By the end of 2017, the Central Bank of Kenya had noted that about 70 per cent of MFBs recorded losses .During this period, Kenya Women Microfinance Bank, the biggest MFB and one of those which did not slide into the loss-making zone, however, saw its profit decline by 92 per cent to Sh18.7 million from Sh224 million in December 2016. In response to these challenges, there has been emergence and adoption of mobile based lending by commercial banks, and microfinance banks. The study sought to examine the influence of the influence of loan disbursement, loan appraisal process, loan repayment terms and convenience associated with mobile-based lending on the financial performance of microfinance banks as the variables of the study. The mobile based lending in Kenya has been examined in respect to commercial banks (Alphonsine, 2017;Wainaina, 2017;Murunga & Kibati, 2017;Kinyanjui, 2018); performance (Kinyanjui, 2018)and in respect to Non-Performing Loans (NPL) (Murunga, 2017). In filling this research gap, the current study sought to examine the influence of mobile based lending on financial performance focusing on microfinance banks in Nairobi County, Kenya.

III.RESEARCH OBJECTIVES

The study was based on the following objectives of the study;

(i) To examine the influence of loan disbursement through mobile-based lending on the financial performance of microfinance banks in Nairobi county, Kenya
(ii) To establish the influence of loan appraisal process through mobile-based lending on the financial performance of microfinance banks in Nairobi county, Kenya
(iii) To examine the effect of the loan repayment terms of mobile-based lending on the financial performance of microfinance banks in Nairobi county, Kenya
(iv) To examine effect of the convenience associated with mobile-based lending on the financial performance of microfinance banks in Nairobi county, Kenya

IV.RESEARCH HYPOTHESES

The study was based on the following research hypotheses;

(i) **H_{01}:** There is no statistically significant influence of loan disbursement through mobile-based lending on the financial performance of microfinance banks in Nairobi County, Kenya

(ii) **H_{02}:** There is no statistically significant influence of loan appraisal process through mobile-based lending on the financial performance of microfinance banks in Nairobi County, Kenya

(iii) **H_{03}:** There is no statistically significant influence of loan repayment terms of mobile-based lending on the financial performance of microfinance banks in Nairobi County, Kenya

(iv) **H_{04}:** There is no statistically significant influence of convenience associated with mobile-based lending on the financial performance of microfinance banks in Nairobi County, Kenya

V.LITERATURE REVIEW

Loan Disbursement through Mobile-Based Lending and Financial Performance

Loan disbursement refers to the act of releasing money to loan applicant or towards a specified transaction. Loan disbursement has been associated with different financial performance aspects of organizations in diverse contexts (Abdul Rahman, Hameed Memon, & Sheda Mohd Zulkiffli, 2014; Pinto & Alves, 2016). A study carried out by Ymenu (2018) sought to examine the effect of loan disbursement on financial performance of commercial of banks in Ethiopia. The study employed an explanatory survey design with a quantitative approach. Secondary data was collected by reviewing audited financial statements for 13 banks for the period 2010 to 2016. Noted that loan was a major source of income and affected performance of commercial banks. In respect to this, the study concluded that there was a positive and significant relationship between amount of loan disbursed and financial performance of commercial banks. These findings are in line with those by Bhatt (2016) in a study on adoptions rates of mobile banking in India. The study found out that the amount of loan that customers were able to access through mobile banking improved their satisfaction levels leading to better financial performance of banks. However, the two studies were done on commercial banks while the current study was done on microfinance institutions, which are regulated differently from commercial banks.

The timeliness of loan disbursement has also been focused as a predictor of financial performance of financial institutions. In respect to this, Ajiambo (2013) carried out a study to investigated among other aspects how loan disbursement affects the performance of Sacco's in Nairobi. The study used a sample size of 36 Sacco's from a total number of 1247 registered SACCOS in Nairobi County. The study established that the loans were disbursed immediately after the loan processing was done. The study concluded that the time taken to disburse loans negatively affected the financial performance of SACCOS in Nairobi County. The study noted that the longer the loan disbursement, the lower the loan is attractive and therefore negatively affecting the loan uptake and financial performance of the SACCOS. Sungwacha, Wanyama, and Kirathi (2014) in a study on factors affecting repayment of loans agreed these findings by noting that the time taken for applied loans to be disbursed affected the attractiveness of loans and hence financial performance of lending micro-finance institutions in Bungoma County. Sungwacha, Wanyama, and Kirathi (2014) recommended loan officers to speed up the loan disbursement in order to make the loan facilities more attractive.

Loan characteristics such as interest rate, size and period of the loan disbursement are some of the metrics that have been linked with performance aspects of financial institutions (Muchiri, 2017). The study sampled 180 respondents who were borrowers of loans from microfinance institutions in Machakos County. The study concluded that there was a positive relationship between the period that was taken before a loan is disbursed to users and the loan uptake. The

loan uptake on the other was found to significantly affect the financial performance of microfinance institutions in Machakos County. In agreement to these findings, Nyasaka (2017) Carried out a study on Kenya Commercial bank group to determine among other objectives the effect of loan disbursement on loan performance of KCB group at Nairobi headquarters. The study established that to a large extent, the banks reduced the loan processing period in order to timely disburse loan to applicants. Nyasaka(2017) concluded that timeliness loan disbursement has a negative relationship with financial performance of loan and hence affecting loan bank performance negatively. These studies were done outside Nairobi and since business environment of financial institutions may differ from place to place, carrying out a study in Nairobi County can help improve generalization of study results.

Loan Appraisal Process through Mobile-Based Lending and Financial Performance
Loan appraisal refers to the process of evaluating the capacity of loan applicant to repay the loan facility applied for (Ajiambo, 2013). Focusing of loan appraisal factors such as credit history, cash flow, capital, income levels, borrowing frequencies and loan amount, Murunga (2018) sought to find out the relationship between loan appraisal process through mobile banking and financial performance of commercial banks in Nakuru County. Sampling 64 credit offers using structured questionnaires, the study found out that there was a positive and significant relationship between loan appraisal process and financial performance of the commercial banks. The study recommended commercial banks to use factual credit history of loan applicants through mobile platform in order to establish creditworthiness of the applicants. This resonates well with a study by Wainaina (2017) on a study on mobile loan management practices and performance of commercial banks in Kenya. The study noted that loans credit scoring was positively related with mobile loan performance in commercial banks. The study recommended development of credit scoring systems that is able to capture more personal and business details of mobile loan applicants. There exists a research gap in both of the studies reviewed in this paragraph since they were done in commercial banks while the current study was done in microfinance institutions. Commercial banks are bigger in size and may have loan appraisal mechanism that are absent in microfinance.

Number of loan approvals has been used as an indicator of the loan appraisal process. In this context, Jafari (2013) carried out a study to examine the effectiveness of mobile loan approval process on the performance on performance of commercial banks in Tanzania. The study achieved its objectives by sampling 10 loan officers and 30 customers using study questionnaires. The study concluded that there was a positive relationship between loan appraisal process and loan recover and hence performance of commercial banks issuing mobile loans. These findings concur with results established by Munguti (2013) on factors determining the performance of Small and Micro Enterprise Programme (SMEP) DTM at Machakos County. The study specifically focused on how loan appraisal process affects financial performance of the MFI. The study revealed that there was a positive relationship between loan appraisal process and performance of loans. In respect to this, the study recommended evaluation of applicants' education level, and financial capacity to repay loans in order to improve on loan recovery. The study by Jafari (2013) was done in Tanzania while that by Munguti (2013) was done in Machakos County while the current study was done on Nairobi county and therefore there is difference in business environment. This therefore opens a contextual research gap for the study.

The time taken to approve a loan after an application has been made has been seen as a dominant of adoption rate of mobile loan facilities. For example, Mostafa and Eneizan(2018)

investigated the influence of loan appraisal process on mobile loan uptake in developing countries. The study used a sample of 319 existing customers in Libya. Using research questionnaire, Mostafa and Eneizan(2018) established that mobile loan appraisal process was quicker as compared to appraisal process in traditional banks halls. I respect to this, the study concluded that there was a positive relationship between mobile loan appraisal period and loan uptake and financial inclusion leading to better financial performance. In line to these findings, Taleghani and Taleghani (2017) carried out a study to examine factors affecting decision making process of customers to use mobile loan facilities in Iran. The study revealed that majority of the respondents preferred the use of mobile loan since the loan took a short time to be approved and therefore could be used in cases of emergencies. The high loan preference through mobile banking led to better financial performance of commercial banks in Iran. These studies however presented a research gap since they were done outside Kenya and therefore by carrying out a study in Kenya that experience technological improvements in banking industry would help in filling this contextual research gap.

Loan Repayment Terms of Mobile-Based Lending and Financial Performance

There are policies that area put in place to guide lending of money from financial institutions. Loan repayment terms of one of those policies that guide the repayment of loan. Loan repayment term may be in terms of interest rates, amount of loan repayment installments and period of loan repayment (Ogolla, 2017). Using descriptive research design, Ong'era and Onditi (2016) examined how lending policies influence the repayment of loans in commercial banks in Kenya. The study sampled 18 commercial banks in Kisii County and whereby financial reports and statements were reviewed. The study noted that lending policies were positively related to financial performance of commercial banks in Kisii County. In respect to this, it was noted that there was elaborate loan repayment polices availed and explained to loan applicants before loan approval. It was further noted that the loan repayment terms improved loan recovery and hence financial performance of firms. On the same context, Sungwacha, Wanyama and Kirathi (2014) investigated the factors affecting performance of loan repayment among borrowers in Bungoma County. The study observed that there was a negative relationship between strict loan repayment schedule and loan default. It was also found out that policies on loan repayment had a significant and negative influence on non-performing loans. The study concluded that loan repayment terms predicts the level of financial performance of lending institution. Since the two studies were done outside Nairobi County, there exists a contextual research gap for a study to be carried out in Nairobi County that experiences different business environment issues.

Lending policies on interest rates charged on loans can determine the level of loan recovery. In regard to this, Ndegwa (2014) carried out a study to examine the influence mobile money on non-performing loans in Kenyan commercial banks. The study collected data from 43 commercial banks using secondary data collecting guide from the Central Bank of Kenya. Ndegwa (2014) revealed that the interest rates charged on mobile money loans affected the repayment of loans. In respect to this, the study revealed that high interest rates on loans reduced loan recovery rate and hence resulting to high volumes non-performing loans. The findings are in line with findings by Maranga and Nyakundi (2017) in a study on the effect of loan interest rates on the financial performance of commercial Banks in Kisii County. Targeting credit officers, branch managers and head of unis, the study established that the amount of interest rates charged on loans affected the level of loan repayment and hence the financial performance of commercial banks. In respect to this, the study established that loan that required less security had the highest interest rate and also were the most likely to be non-

performing loans. It was concluded that loan repayment terms was positively related to loan repayment. The two reviewed studies in this paragraph focused on commercial banks while the current study will focus on micro-finance institutions, which are run and governed different from commercial banks, and therefore a contextual research gap.

Credit risk management aspects such as credit policies, credit scoring, risk identification process and debt collection process have been associated with loan repayment performance (Kinyanjui, Achoki, & Kiriri, 2018; Oromo, 2015; Roy, 2017). Mwangi and Muturi (2016) carried out a study to examine the effect of credit risk management on performance of loan repayment in commercial banks in Kenya. The study employed descriptive research design and targeted the registered 43 commercial banks in Kenya. It concluded that credit policies, credit scoring, risk identification process and debt collection process had a significant and positive relationship with loan repayment performance. This is echoed by Mugambi, Njeru, Member and Tirimba (2015) on a study on the effect of credit policy on the financial performance of deposit taking SACCOS in Mount Kenya region. Using 94 research questionnaires, the researchers established that there was a positive relationship between loan repayment terms and financial performance of deposit taking Sacco from Mount Kenya Region of Kenya. The two studies however focused on all loans while the current study focuses on mobile-based loans and therefore a contextual gap since the loan repayment terms may differ from loan books.

Convenience Associated with Mobile-Based Lending and Financial Performance

The ease of access of mobile loan has been indicated to improve financial inclusion in different contexts. Specifically, the conveniences of accessing loan through mobile platforms have increased the number of customers seeking loans and therefore implying financial performance of financial institutions. Atieno (2018) carried out a study to examine the effect of mobile banking and organizational performance. The study targeted banking institutions in Uasin Gishu County in Kenya and whereby 100 employees and 130 customers were sampled. The study revealed the flexibility, transaction security, service delivery speed and cost of operation associated with mobile-based lending improved financial performance of banking institutions in Uasin Gishu County. These findings are in agreement to those by Makori (2015) who carried out a study to examine the level of customer satisfaction in use of mobile banking to obtain loan from commercial banks in Kenya. The study noted that mobile banking required minimum of information to access loans and loan disbursement information were simple to understand. It was also noted that it was easy for users to enquire about loan balances using mobile banking services. A study by Atieno (2018) was done outside Nairobi County and a study by Makori (2015) was done among commercial banks in Kenya and therefore presenting contextual research gaps to be filled by the current study.

Convenience in accessing loan through mobile platforms can also determine the number of loan applications and hence performance of lending institutions. Examining internet banking in India, Bhatt (2016) carried out a study to examine the influence of mobile banking on organizational performance. Using 200 respondents sampled using purposive sampling; the study revealed that convenience of using mobile platforms to access loan positively affected financial performance of the lending institutions. In respect to this, the study noted that convenience was in time-effectiveness, safety, ease of navigation and operational simplicity of mobile-based loans. Alsamydai (2014) in a study to examine the influence of mobile banking on uptake of loan in financial institutions in Jordan concurred with the findings established by Bhatt (2016). The study established that the ease of use and speed of loan application among other convenience factors affected the uptake of loan and therefore improving financial

performance of financial institutions in Jordan. The study concluded that convenience associated with mobile-based lending positively related to financial performance. It was recommended that financial institutions to carry out awareness programs to the public in order to change customers attitudes towards the use of mobile-based lending platforms. The two studies reviewed in this paragraph were done outside Kenya and therefore by carrying out a study in Kenya will fill this contextual gas since there are unique financial market characteristics in Kenya as compared to India and Jordan.

Mobile banking convenience aspects such as reduction of time and access barriers as well as improved customer experience in accessing financial services has been associated to better performance indicators (Alsamydai, 2014; Chukwumah, 2017; Karma, Ibrahim, & Ali, 2014; Muiruri, Richu, & Karanja, 2015). In this context, Pankomera and Van Greunen (2018) carried out a study to examine the challenges, benefits and dynamics in adoption of mobile banking in South Africa. The authors used meta-analysis research design whereby studies carried out from the 2007 to 2018 were systematically reviewed. The study found out that accessing loan through mobile apps was convenience since it saved time instead of travelling to bank, saved on transport cost to the bank and loan applicants could apply loans at any time and place. The study concluded that there was improved loan uptake through mobile banking leading to better financial performance if financial institutions in Africa. This is in support to findings by Sundara and Perera (2018) in Sri-Lanka on the factors contributing to acceptance of mobile banking. The study revealed that mobile banking provided a convenient way of obtaining credit facilities from financial institutions in Sri-Lanka. The convenience was in terms of ease of use of the banking apps, low cost of access of loans and reduced paper work. Since reviewed studies were done outside Kenya, there is need to establish how the convenience associated with mobile-based lending affects performance of MFI in Kenya. This is because Kenya has different level of technology and economy from that of South Africa and Sri-Lank.

VI.RESEARCH METHODOLOGY

Correlational research design was employed since the study sought to examine the influence of mobile-based lending on the financial performance of microfinance banks in Nairobi county, Kenya (Kothari, 2004). The study investigated the influence of loan disbursement, loan appraisal process, loan repayment terms and convenience associated with mobile-based lending and financial performance of micro-finance banks without manipulation. The unit of analysis is the thirteen registered microfinance banks in Kenya. The unit of observation was the employee was the 130 employees working within the finance department of the microfinance bank. These personnel was targeted due to their knowledge on mobile-based lending and financial performance of the microfinance banks. The sample size of this study was calculated using the Taro Yamane Formula (1967) as shown below;

$$n = \frac{N}{1+N(e^2)} = \frac{130}{1+130(0.05^2)} = \frac{130}{1.325} = 98$$

Where;
n = sample size;
N =size of target population;
e = error margin (0.05)

The respondents was selected using stratified random sampling; whereby the microfinance at which the respondent works, formed the basis for stratification. In regard to this, there was 13 strata that correspond to the number of microfinance banks. From each microfinance bank, respondents was randomly selected according to the number of employees in the microfinance bank. Stratified random sampling ensures that there is no biasness of inclusion and that

respondents are equitable represented in the sample size (Saunder, Lews, & Thornhill, 2009). The sample size for the study was 98 respondents who comprised of employees working at the department of finance from the thirteen microfinance banks in Nairobi Town. Table 1 shows the summary of sample size.

Table 1: Sample Size

Microfinance Bank	Proportion	Sample
Caritas Microfinance Bank Limited	(9/130)*98	7
Century Microfinance Bank Limited	(11/130)*98	8
Choice Microfinance Bank Limited	(8/130)*98	6
Daraja Microfinance Bank Limited	(7/130)*98	5
Faulu Microfinance Bank	(16/130)*98	12
Kenya Women Microfinance Bank Limited	(15/130)*98	11
Maisha Microfinance Bank Ltd	(7/130)*98	5
Rafiki Microfinance Bank Limited	(12/130)*98	9
Remu Microfinance Bank Limited	(7/130)*98	5
SMEP Microfinance Bank Limited	(15/130)*98	11
Sumac Microfinance Bank Limited	(8/130)*98	6
U & I Microfinance Bank Limited	(8/130)*98	6
Uwezo Microfinance Bank Limited	(9/130)*98	7
Total		**98**

The study analysed data using Statistical Software for Social Sciences . The entire data analysis was presented using tables.

The regression model that was used is as follows;

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

Where; Y= Financial Performance

β_0 =constant;

$\beta_1 \ldots \beta 4$ = Coefficients of estimates;

X_1 = loan disbursement

X_2 = loan appraisal

X_3 = loan repayment

X_4 = convenience associated with mobile-based lending

ε is the estimated error of the model

VII.RESEARCH FINDINGS AND DISCUSSIONS

Correlational Analysis

The correlational analysis was undertaken for the study in order to determine on whether the independent variables (disbursement, appraisal, repayment terms and convenience) had correlational relationship with financial performance. The correlation analysis is a method of statistical evaluation used to study the strength of a relationship between two, numerically measured, continuous variables. The results were presented in Table 2 below.

Table 2; Correlational Analysis

		Disbursement	Appraisal	Repayment Terms	Convenience
Financial Performance	Pearson Correlation	.731**	.739**	.711**	.704**
	Sig. (2-tailed)	.000	.000	.000	.000
	N	85	85	85	85

The study revealed that loan disbursement had a positive relationship with financial performance of the microfinance banks with a Pearson correlation of 0.731. This correlational relationship between loan disbursement and financial performance was deemed statistically significant at 5% level of significance due to a p value of 0.000. The results of this study are similar to other empirical studies on the influence of loan disbursement on financial performance. Loan disbursement has been associated with different financial performance aspects of organizations in diverse contexts (Abdul Rahman et al., 2014; Pinto & Alves, 2016). The study further found that loan appraisal process had a positive correlational relationship with financial performance of the microfinance with a Pearson correlational coefficient of 0.739. This relationship was found to be statistically significant at 5% level of significance since the observed p value of 0.000 was lower than 0.05. Focusing of loan appraisal factors such as credit history, cash flow, capital, income levels, borrowing frequencies and loan amount, Murunga (2018) found a relationship between loan appraisal process through mobile banking and financial performance of commercial banks in Nakuru County. The loan repayment terms was examined in respect to its correlational influence on the financial performance of the microfinance banks. The study achieved a Pearson correlation coefficient of 0.711 indicating a strong correlation between loan repayment terms and financial performance aspects. This relationship was found to be statistically significant at 5% level of significance due to the achieved p value of 0.000 being less than 0.05.

The convenience of using the mobile based lending apps and financial performance had correlational coefficient of 0.704 and a p value of 0.000. This led to the conclusion that there was a statistically significant correlational relationship between convenience and financial performance aspects. The study is contextually similar to other studies in the subject matter. Atieno (2018) carried out a study to examine the effect of mobile banking and organizational performance The study targeted banking institutions in Uasin Gishu County in Kenya. and whereby 100 employees and 130 customers were sampled. The study revealed the flexibility, transaction security, service delivery speed and cost of operation associated with mobile-based lending improved financial performance of banking institutions in Uasin Gishu County. These findings are in agreement to those by Makori (2015) who carried out a study to examine the level of customer satisfaction in use of mobile banking to obtain loan from commercial banks in Kenya. The study noted that mobile banking required minimum of information to access loans and loan disbursement information were simple to understand.

Regression Analysis

The study undertook a multiple linear regression analysis with a view of examining on the influence of mobile based lending on the financial performance of microfinance banks in Nairobi County, Kenya. The multiple linear regression analysis were presented through the ANOVA (Table 3), and Coefficients (Table 4) results respectively.

The model summary results indicated that the correlation coefficient (R) between the correlational relationships between mobile based lending variables (convenience, loan appraisal, loan repayment terms and loan disbursement terms) had correlational coefficient of 0.861. This indicated that there was a strong correlation between the independent variables (convenience, loan appraisal, loan repayment terms and loan disbursement terms) and the dependent variable (financial performance). The study further sought to examine the coefficient of determination (R Square) which explains the variability on the financial performance that is attributable to the independent variables. The study achieved a coefficient of determination of 0.741 leading to the conclusion that 74.1% of the variance in the financial performance is due to independent variables (convenience, loan appraisal, loan repayment terms and loan disbursement terms). The study further found that 25.9% of the variance in the financial performance was due to other factors not in the model.

The study also used the one-way ANOVA to examine on whether the regression model was good fit for data and the results presented in Table 3. In this context, the f test was used at 5% significance level with the model being considered good fit for data if p value is less than 0.05. The study found that F (4, 80) =57.316 with a p value of 0.000. This led to the conclusion that the model was good fit for data since $P(F_C > 57.316) = 0.000 < 0.05$.

Table 3; ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
	Regression	4.424	4	1.106	57.316	.000[b]
1	Residual	1.544	80	0.019		
	Total	5.967	84			

R=0.861, R Square =0.741
a. Dependent Variable: Performance2
b. Predictors: (Constant), Convenience, Appraisal, Repayment Terms, Disbursement

The study having found that the regression model was good fit for data progressed towards examination of the regression coefficients of the independent variables and their influence on the financial performance. The results were presented in Table 4.

Table 4; Regression Results

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
	(Constant)	0.740	.202		3.668	0.000
	Disbursement	0.202	.046	0.293	4.425	0.000
1	Appraisal	0.227	.047	0.327	4.781	0.000
	Repayment Terms	0.205	.044	0.307	4.687	0.000
	Convenience	0.167	.042	0.255	3.970	0.000

a. Dependent Variable: Performance

To examine on whether loan disbursement through the mobile based lending had an influence on the financial performance of microfinance banks in Nairobi County, Kenya the regression coefficient was examined. The results found that loan disbursement had a regression coefficient of 0.202. This indicated that a unit increase in the loan disbursement led to 0.202 increase in financial performance of microfinance banks in Nairobi county Kenya with the other variables

kept constant. To examine on whether this relationship was statistically significant the following hypothesis was tested.

> **H_{01}:** There is no statistically significant influence of loan disbursement through mobile-based lending on the financial performance of microfinance banks in Nairobi County, Kenya

In testing null hypothesis (**H_{01}**) the study sought to use the t test as the test statistic at 5% level of significance. The study found that the t value for the loan disbursement was 4.425 with a probability value of 0.000. The study concluded that there was a statistically significant influence of loan disbursement through mobile-based lending on financial performance at 5% level of significance due to a p value of 0.000 which was less than 0.05 thus leading to the rejection of null hypothesis (**H_{01}**). The results of this study in respect to the link between loan disbursement through mobile-based lending and financial performance was similar to those of other studies. Loan disbursement has been associated with different financial performance aspects of organizations in diverse contexts (Abdul Rahman et al., 2014; Pinto & Alves, 2016). A study carried out by Ymenu (2018) sought to examine the effect of loan disbursement on financial performance of commercial of banks in Ethiopia found that there was a positive and significant relationship between amount of loan disbursed and financial performance of commercial banks. These findings are in line with those by Bhatt (2016) in a study on adoptions rates of mobile banking in India. The study found out that the amount of loan that customers were able to access through mobile banking improved their satisfaction levels leading to better financial performance of banks.

To examine on whether loan appraisal process through the mobile based lending had an influence on the financial performance of microfinance banks in Nairobi County, Kenya the regression coefficient was examined. The results found that loan appraisal process had a regression coefficient of 0.227. This indicated that a unit increase in the loan appraisal process led to 0.227 increase in financial performance of microfinance banks in Nairobi county Kenya with the other variables kept constant. To examine on whether this relationship was statistically significant the following hypothesis was tested.

> **H_{02}:** There is no statistically significant influence of loan appraisal process through mobile-based lending on the financial performance of microfinance banks in Nairobi County, Kenya

In testing null hypothesis (H_{02}) the study sought to use the t test as the test statistic at 5% level of significance. The study found that the t value for the loan appraisal process was 4.781 with a probability value of 0.000. The study concluded that there was a statistically significant influence of loan appraisal process through mobile-based lending on financial performance at 5% level of significance due to a p value of 0.000 which was less than 0.05 thus leading to the rejection of null hypothesis (H_{02}). The results of this study are concurrent with those found in other studies. In this context, Jafari (2013) carried out a study to examine the effectiveness of mobile loan approval process on the performance on performance of commercial banks in Tanzania. The study concluded that there was a positive relationship between loan appraisal process and loan recover and hence performance of commercial banks issuing mobile loans. These findings concur with results established by Munguti (2013) on factors determining the performance of Small and Micro Enterprise Programme (SMEP) DTM at Machakos County. The study specifically focused on how loan appraisal process affects financial performance of

the MFI. The study revealed that there was a positive relationship between loan appraisal process and performance of loans. In respect to this, the study recommended evaluation of applicants' education level, and financial capacity to repay loans in order to improve on loan recovery. The study by Jafari (2013) was done in Tanzania while that by Munguti (2013) was done in Machakos County while the current study was done on Nairobi county and therefore there is difference in business environment. This therefore opens a contextual research gap for the study.

To examine on whether loan repayment terms of mobile based lending had an influence on the financial performance of microfinance banks in Nairobi County, Kenya the regression coefficient was examined. The results found that loan repayment terms of mobile banking had a regression coefficient of 0.205. This indicated that a unit increase in the loan repayment terms led to 0.205 increase in financial performance of microfinance banks in Nairobi county Kenya with the other variables kept constant. To examine on whether this relationship was statistically significant the following hypothesis was tested.

> **H_{03}:** There is no statistically significant influence of loan repayment terms of mobile-based lending on the financial performance of microfinance banks in Nairobi County, Kenya

In testing null hypothesis (H_{03}) the study sought to use the t test as the test statistic at 5% level of significance. The study found that the t value for the loan repayment terms was 4.687 with a probability value of 0.000. The study concluded that there was a statistically significant influence of loan repayment terms of mobile-based lending on financial performance at 5% level of significance due to a p value of 0.000 which was less than 0.05 thus leading to the rejection of null hypothesis (H_{03}). The results of this study correlate with other studies that have been undertaken on the variable of the study. Using descriptive research design, Ong'era and Onditi (2016) examined how lending policies influence the repayment of loans in commercial banks in Kenya. The study noted that lending policies were positively related to financial performance of commercial banks in Kisii County. On the same context, Sungwacha, Wanyama and Kirathi (2014) investigated the factors affecting performance of loan repayment among borrowers in Bungoma County. The study observed that there was a negative relationship between strict loan repayment schedule and loan default. It was also found out that policies on loan repayment had a significant and negative influence on non-performing loans. The study concluded that loan repayment terms predicts the level of financial performance of lending institution. Since the two studies were done outside Nairobi County, there exists a contextual research gap for a study to be carried out in Nairobi County that experiences different business environment issues.

To examine on whether convenience associated with mobile based lending had an influence on the financial performance of microfinance banks in Nairobi County, Kenya the regression coefficient was examined. The results found that convenience associated with mobile-based lending a regression coefficient of 0.167. This indicated that a unit increase in the convenience associated with mobile-based lending led to 0.167 increase in financial performance of microfinance banks in Nairobi county Kenya with the other variables kept constant. To examine on whether this relationship was statistically significant the following hypothesis was tested.

H_{04}: There is no statistically significant influence of convenience associated with mobile-based lending on the financial performance of microfinance banks in Nairobi County, Kenya

In testing null hypothesis (H_{04}) the study sought to use the t test as the test statistic at 5% level of significance. The study found that the t value for the convenience associated with mobile-based lending was 3.970 with a probability value of 0.000. The study concluded that there was a statistically significant influence of convenience associated with mobile-based lending on financial performance at 5% level of significance due to a p value of 0.000 which was less than 0.05 thus leading to the rejection of null hypothesis (H_{04}). The current study results are consistent with those from other studies. Atieno (2018) carried out a study to examine the effect of mobile banking and organizational performance. The study revealed the flexibility, transaction security, service delivery speed and cost of operation associated with mobile-based lending improved financial performance of banking institutions in Uasin Gishu County. These findings are in agreement to those by Makori (2015) who carried out a study to examine the level of customer satisfaction in use of mobile banking to obtain loan from commercial banks in Kenya. The study noted that mobile banking required minimum of information to access loans and loan disbursement information were simple to understand. It was also noted that it was easy for users to enquire about loan balances using mobile banking services.

VII.CONCLUSION OF THE STUDY

The study revealed that loan disbursement had a statistically significant positive relationship with financial performance of the microfinance banks .The study further found that loan appraisal process had a statistically significant positive correlational relationship with financial performance of the microfinance banks. The loan repayment terms was examined in respect to its correlational influence on the financial performance of the microfinance banks. The study concluded that there was a strong positive correlational relationship between loan repayment terms and financial performance aspects that was statistically significant. The study further concluded that there was a statistically significant correlational relationship between convenience and financial performance aspects. The study further concluded that the independent variables (convenience, loan appraisal, loan repayment terms and loan disbursement terms) accounted for a huge variability in the financial performance of the microfinance banks.

The study further concluded that a unit increase in loan disbursement led to a 0.202 increase in financial performance of the microfinance banks. This result was found to be statistically significant. On the effect of the loan appraisal process through the mobile based lending had an influence on the financial performance of microfinance banks in Nairobi County, Kenya the study a unit increase in the loan appraisal process led to 0.227 increase in financial performance of microfinance banks in Nairobi county Kenya with the other variables kept constant. These results were found to be statistically significant. The study further concluded a unit increase in the loan repayment terms led to 0.205 increase in financial performance of microfinance banks in Nairobi county Kenya. This results were found to be statistically significant. Finally, the study found that a unit increase in the convenience associated with mobile-based lending would lead to a 0.167 increase in financial performance of the microfinance banks. These results were also statistically significant.

VIII.RECOMMENDATIONS OF THE STUDY

The study recommends that the management of the microfinance bank should put an emphasis

on the mobile based lending as it was found to have an influence of the financial performance of microfinance banks in Nairobi County, Kenya. Thus the management should place an emphasis on loan disbursement through mobile based lending, loan appraisal system through mobile based lending, loan repayment terms of mobile based lending and convenience associated with mobile based lending as factors influencing financial performance of the microfinance banks.

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