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The Effects of Mobile Money Services on the Performance of the Banking Institutions: A Case of Kakamega Town

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----------ABSTRACT----------

The introduction of a myriad of mobile money services (MMS) by various mobile money service providers to customers has become common in the recent years as a way of gaining competitive advantage through diversification, maintaining customer loyalty and increasing market share in order to grow their profitability and improve their financial position. The roll out of these services in developing countries has generated a lot of interest among various players in the financial sector of the economy. Such services include person to person (P2P) mobile money transfer (MMT), pay bill services, loan to customers and access to a wide range of banking services e.g. a/c balances, mini statements, transfer of money from one's mobile line a/c to one's own bank a/c. This provides both an opportunity and a challenge to the banking industry, one of the leading industries in the financial sector. However, the impact of MMS on the performance of banking institutions in Kakamega town has not been documented. The main purpose of this study is to assess effect of MMS on the performance of the banking institutions: a case of Kakamega town. It will objectively seek to examine how various mobile money services transactions' impact on the performance of banking institutions in Kakamega town; establish the effect of accessibility to mobile money services on the performance of banking institutions in Kakamega town and finally the effect of efficiency and proficiency of mobile money services on the performance of banking institutions in Kakamega town. A sample of 115 respondents will be used to gather data from 13 financial institutions in Kakamega town. Data collection will be basically through self administered questionnaires, both structured and semi-structure; interviews and observation. The data collected will be analyzed qualitatively and quantitatively. The study will be backed by literature review on mobile money services utilized by banks, MMS provided by various service providers and customers' preference on the use of MMS over financial services provided by banks. The study may be used to help bank's policy makers in Kakamega town, Kenya and world at large to identify areas of co-operation with MMS providers as well as to make necessary policies aimed at mitigation of negative effects of the adoption and use of mobile money services on their businesses. It will also contribute to the growth in scholarly understanding and knowledge on the effect of provision of mobile money services on the performance of banking institutions and recommend areas of further research in mobile money services.

KEY WORDS: Mobile money services (MMSs); Mobile money transfers (MMTs), M-pesa, and Banking institutions.

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I. INTRODUCTION

1.1 Background of the study

According to the Bill and Melinda Gates Foundation, Kenyans using M-Pesa, a mobile phone-based money payments service, undertook more transactions in three years than the total number of worldwide remittance transfers recorded by the global money transfer agency Western Union.

In a recent survey published by GSMA entitled '2011 Global Mobile Money Adoption Survey', the association provides a unique detailed analysis of global customer adoption of mobile money services. The data suggests that in early 2009, only 17 mobile money service deployments existed, however as of April 2012, this has increased to 123 with a further 93 set to be launched. In addition, in 2009 an estimated 45 million unbanked citizens used mobile money services and this is set to rise to as many as 360 million by the end of 2012 (Neil Davidson and Claire Pénicaud, 2011).

Banks play a very important role in the economy. More precisely, banks have a two-fold role to fulfil: (i) accept deposits and make investments on behalf of investors, and (ii) bank liabilities, or claims on said deposits, facilitate exchange with other parties (Gu et al., 2012). These two basic functions apart, putting money in a bank almost eliminates the risk that it will get lost or stolen. The importance of agents having access to banking services (broadly, financial services) has been emphasized repeatedly in the literature, across various strands of economics.

In March of 2007 M-PESA was introduced into the market by Safaricom, Kenya's largest mobile operator (MO) according to Donner, 2007). The application facilitates a variety of financial transactions through the mobile phone. This includes account balance checks, deposits and withdrawals, bill and merchant payments, airtime purchases, and money transfers (Hughes & Lonie, 2007; Vaughan, 2007). The growth of the application has been impressive. In July 2007, there were just over 268,000 registered users. Two years later, the number increased to 7.5 million, or 34% of the adult population (CIA, 2010). This represents a growth rate of over 2,600%. Over 90% of these users are reported to be active. The frequency and value of transactions has also increased rapidly; the former by 4600% and the latter by 3700%. A cumulative value of over $535 million USD has been transferred through the system since launch.

The significance of these figures is made clear when transaction volumes are compared against commercial bank deposits and GDP figures. In July 2007, the value of M-PESA transactions was about 2% of commercial bank deposits. In two years, this increased to 4.4%. In 2008, Kenya's GDP was estimated at US $30 Billion. M-PESA transactions in the month of July 2008 accounted for US$535 Million, or 2% of the year's GDP. Such rapid growth is illustrated in Table 1.1.

Table 1. 1: M-Pesa growth rate

	July 2007	July 2009	Increase
Registered users	268,000	7,500,000	2,600%
Number of monthly	354,000	16,700,000	4,600%
Value of M-PESA transactions to commercial	.2%	4.4%	95%

Source: M-Pesa (2009)

The growth of M-PESA has also surpassed most other technologies in the country. This even includes the mobile phone, which has been hailed as the fastest growing ICT in Africa. In the case of Kenya, the current subscriber base is just over 16 million. However, it took the MOs over a decade to reach this number. As is shown in Table 2, the internet and telephone growth rates have also been much slower. There are currently 3.36 million internet users in Kenya, and just over 252, 000 fixed line subscribers (CIA, 2010).

Table 1. 2: ICT rates in Kenya for 2008-2009

ICT	Total Number	Per 100[3]
Mobile phone	16,000,000	41
M-PESA	7,500,000	19
Internet	3,360,000	9
Fixed line telephony	252,000	.8

Source: (CIA, 2010)

These rates are further impressive because they have exceeded those in Northern countries. Several mobile payment initiatives were launched in the early 2000 but very few of them have been successful. Gartner Group found that only 1% of all cellular users had mobile payment services in 2008 (Shen, 2009). However, they predicted that this number would increase to 3% by 2012. The report also predicted that the majority of the growth will be in Southern countries. Many mobile money services have been pulled off the market in Europe and North America mainly because they failed to attract a sufficient number of customers. The evidence of this is in the Electronic Payment Systems Observatory (EPSO) database Sending or receiving money for either payment of salaries, settlement of business transactions, payment of school fees, or for family support is a common phenomenon for both businesses and individuals. It requires efficient, reliable and affordable money transfer services whereby money can be deposited in one location and withdrawn in another in both urban and rural areas (Kim et al., 2010, and Contini et al. 2011).

Stiff competition in Kenya's financial sector is forcing institutions into adopting new forms of technology to reduce the costs of doing business and widen customer outreach for enhanced profitability. Use of MMT technology in the banking industry has become usual in recent years as a way of maintaining customer loyalty and increasing market share. The new innovative systems (such as mobile banking) are especially targeting the earning but unbanked population in rural and hard to reach areas.

According to Nasikye (2009), Mobile banking (m-banking) involves the use of a mobile phone or another mobile device to undertake financial transaction linked to a client account. According to (Owen, 2008) m-banking refers to provision and availing of banking and financial service with the help of mobile telecommunication device. Services include performing balance checks, account transactions, payments, credit applications and other banking transactions through a mobile device such as a mobile phone which is most used in developing countries or Personal Digital Assistant (PDA).

Financial performance refers to the financial soundness where depositors' funds are safe in a stable banking system. (BOU, 2002)The financial soundness of a financial institution may be strong or unsatisfactory varying from one bank to another. According to Mugembe (2008), external factors such as: deregulation, lack of information among bank customers and homogeneity of the services bank offer do cause bank failure. The activities undertaken in m-banking contribute to the financial soundness of the commercial banks in Kenya. Some useful measures of financial performance are coined into what is referred to as CAMELS (Capital adequacy, Asset quality, and Management, Earning, Liquidity and Sensitivity analysis) which guide the banking sector Madhyam, Stichele (2010).

The technology innovations have influenced the banking sector in one way or another. Kassim 2005 explains that the technological revolution has produced new development in the banking industry. According to Oryiek (2008) the first ATM in Uganda was brought by SCI for Standard Chartered Bank in 1997 and SCI has been an active catalyst in the rapid growth and development of electronic banking in the country hence the introduction of m-banking few years ago and this explains why Standard Chartered Bank is ranked as one of the performing banks in Uganda.

Mobile banking has transformed the way people in the developing world transfer money and now it is poised to offer more sophisticated banking services which could make a real difference to people's lives. This type of banking can offer a wide variety of services ranging from account information, which has to do with alerting the customers on the updates and transactions on their account through their mobile phones. People receive short messages on their phones informing them of their immediate transactions in their bank accounts. Also, they help in payments (utility bills), deposits, withdrawals, transfers, purchase airtime, request bank statements and perform 13 other crucial banking tasks, all in real time over their mobile phones.
Banks including Standard Chartered Bank (Uganda) (Buyer and lenders, 2001) have largely implemented service delivery technology as a way of augmenting the services traditionally provided by personnel, Howcraft, Bacett, (1996).

According to IDG News Service 4 Sep, 2008 Equity bank pioneered the first m- banking technology in the world to reach out to the unbanked, and for championed the empowerment of ordinary people through inclusive finance. Nasikye (2009) the m- banking technology is similar to that of MTN (mobile money) Warid (warid-pesa), Airtel money, Safaricom's MPESA (in Kenya), among others that has made banks uncomfortable given the shift of most transactions from banks to mobile phone kiosks In the banking sector in our world today, mobile money transfer services is a fast growing phenomenon. This has come to improve the level of banking system and can be described as the provision of banking or financial services with the aid of mobile telecommunication devices. M-banking has come to stay, providing its customers with an expedient way of banking. This is not however without challenges, but they are minimal and can be handled without much stress.

1.2 Statement of the Problem

Mobile money transfer service, designed to help institutions streamline their operations (Omwansa 2009), has received overwhelming uptake in Kenya since its introduction in 2007. This success is attributed to the service being affordable and accessible to both high and low income earners (Mbogo 2010). The technological invention is considered easy to use yet efficient and reliable with the potential to extend financial services to the unbanked or those preferring cheaper financial services. It is an appropriate technological invention for clients that continue to face challenges related to limited affordable and accessible financial services to support their business operations.

Needs for payment and transactional services are not always well served by conventional banks since they do not always find it easy or cost effective to adopt a full- feature package for banking services (Higgins, Kendall & Lyon, 2012). Mobile Money Transfer services can be used to raise efficiency and boost business growth through cheap, efficient and reliable money service support systems that reduce the need for cash transaction and the risks associated.

Literature reveals that the mobile money transfer service is faster, cheaper, more reliable, and safer (Jack & Suri 2011). The benefits of cashless transaction including less opportunity for fraudulent and criminal activities, and mobile money technology (Wishart 2006) have increased adoption rates, (Mbogo 2010). The main literature gap exists in revealing how mobile money technology has affected the performance of the banking industry in Kakamega town.

1.3. General Objective

To examine the effects of mobile money services on the performance of banking institutions: a case of Kakamega town.

1.3.1 Specific Objectives

i. To examine how the various mobile money services' transactions impact the performance of banking institutions in Kakamega town;
ii. To establish the effect of the accessibility to mobile money services on the performance of banking institutions in Kakamega town ;
iii. To assess the effect of efficiency and proficiency of mobile money services on the performance of banking institutions in Kakamega town

1.4 Research Questions

i. How do the various mobile money services' transactions impact the performance of the banking institutions in Kakamega town?
ii. What is the effect of accessibility to mobile money services on the performance of banking institutions in Kakamega town?
iii. How does the efficiency and proficiency of mobile money services impact on the performance of banking institutions in Kakamega town?

1.5 Justifications

i. The study may be used to help bank's policy makers in Kakamega town, Kenya and world at large to identify areas of co-operation with MMS providers as well as to make necessary policies aimed at mitigation of negative effects of the adoption and use of mobile money services on their businesses.
ii. It will contribute to the growth in scholarly understanding and knowledge on the effect of provision of mobile money services on the performance of banking institutions as well as recommend areas of further research in mobile money services.
iii. It's also a requirement for award of Masters of Business Administration, Jomo Kenyatta University of Agriculture and Technology

1.6 Conceptual and geographical scope

The study will concentrate on assessing the effect of mobile money services on the performance of banking institutions: a case of Kakamega central district. The study focuses on the mobile money services which is the independent variable with several indicators considered which include; subscriptions to MMS, Mobile Money Transfer Services transactions, efficiency, reliability and financial accessibility. The banking institutions in Kakamega town will be involved. The performance of the banking institutions is the dependent variable having the following measures; Non-funded income, deposits base and accounts base (sales).

1.7 study limitations

The study may be limited on the mobile money transfer services on the banking industry within Kakamega town. However, since this is the head quarter of Kakamega County, the second largest county in Kenya, its findings will be of great importance to other counties. The findings from this study may, therefore, not be open to generalization unless similarities can be identified in other regions. There may be situation where the respondents may be hesitant to participate. The researcher is a resident of the town and will use his inter personal skills and familiarity with the bank staff to ensure that the questionnaires are fully filled and returned. The study may require lot of money. The researcher has set some money to facilitate in the carrying out of the research.

Confidentiality of information; the selected respondents may be selective with their answers due to fear of realizing important information to competitors.

Most of the respondent may use a lot of technical terminologies language which may be a bit hard for the researcher to understand, thus the researcher may require additional time to study and understand the language.

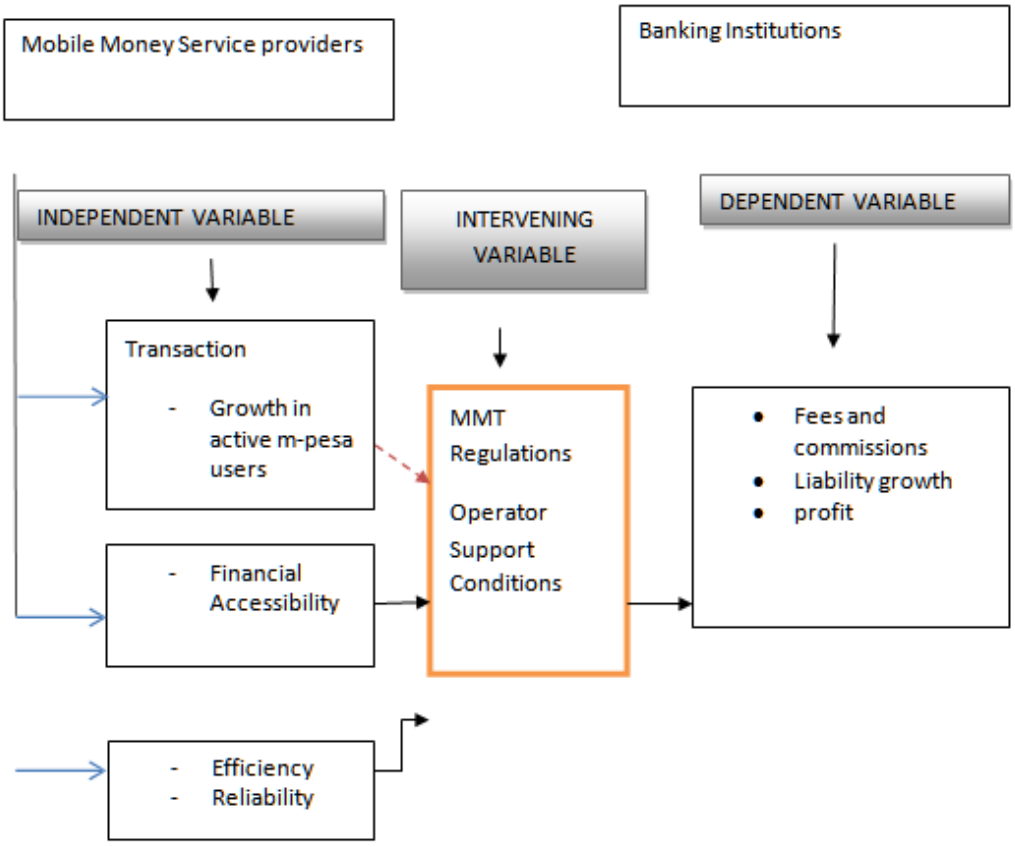
The researcher may face a problem of scarce resource especially finance in term of transport and printing cost.

Time; the respondent may be busy with routine work so they may not answer the questionnaires in the required time. The research will be also carried out during the working period hence the time may be against the researcher.

1.8 Theoretical and Conceptual Framework

The impact of mobile money transfer service is presented in the conceptual framework below. The usage behaviour adopted in this study includes the range of services preferred by clients and the reason why they prefer those services. The conceptual framework model adapted for this study, as depicted in the figure below, highlights that mobile money transfer service will influence some important pillars of bank operations due to reduced transactional costs, reduced time to complete transactions, increased financial accessibility, and increased efficiency of mobile money services.

Figure 1. 1: Conceptual Framework, Effect of Mobile Money Transfer service



1.9 Summary findings, conclusions and recommendations:

1.9.1: Objective one: To examine how mobile money services transactions impact on the banking institutions in Kakamega town.

1.9.2: correlation analysis

Correlation analysis between the independent variable, i.e. growth in active M-Pesa users over time, x_1, and the dependent variable, y_1, i.e. changes in fees and commissions over time, a case of equity bank ltd

Table 1.3

YEAR	X_1	Y_1	X^2	Y_1^2	$X_1 Y_1$
2006	-	-	-	-	-
2007	1.1	1,948	1.21	3,794,704	2,142.8
2008	5.0	3,154	25	9,947,716	15,770
2009	8.2	3,791	67.24	14,371,681	31,086.2
2010	11.4	4,078	129.96	16,630,084	46,489.2
2011	13	5,923	169	35,081,929	76,999
2012	15.1	6,309	228.01	39,803,481	95,265.9
Σ Summation	53.8	25,203	620.42	119,629,595	267,753.1

Source: author 2014

NB: the r value generated using statistical package, SPSS, is 0.99 for the data shown under table 1.3 above. The p value, i.e. the lowest value at which the null hypothesis can be rejected, is 0.0001. The null hypothesis, H_0, is that mobile money services have had a negative impact on the performance of the banking institutions. H_0 will be tested, using t-test, at 95% confidence level or $\alpha = 0.05$ (the standard value for social statistics). If $p \leq 0.05$ then H_0 will be accepted and vice versa.

WORKINGS

$$\text{Means} = \frac{\Sigma X1}{n}$$

$$\bar{X}_1 = \frac{53.8}{6} = 8.97$$

$$\bar{Y}_2 = \frac{25,203}{6} = 4,200.5$$

Variances

$$s^2_x = \left(\frac{\Sigma x1}{n} - (\bar{x}1)^2\right)$$

$$= \left(\frac{620.42}{6} - (8.97)^2\right)$$

$$=103.40-80.46$$

$$=22.94$$

$$s^2y = \left(\frac{\Sigma y1}{n} - (\bar{y}1)^2\right)$$

$$=\left(\frac{119,629,595}{6} (4,2000.5)^2\right)$$

$$=19,938,265.83-17,644,200.25$$

$$=2,294,065.58$$

Standard Deviations

$$s_{x1} = \sqrt{5^2 X^2}$$

$$= \sqrt{22.94}$$

$$=4.79$$

$$s_{y1} = \sqrt{5^2 y^2}$$

$$= \sqrt{2,294,065.58}$$

$$=1,514.62$$

Pearson's moment of correlationship 'r'

$$r = \frac{\frac{\Sigma y_1 x_1}{n} - (\bar{x}1)(\bar{y}1)}{5x.5y}$$

$$= \frac{\left(\frac{267,758.1}{6}\right) - (8.97 \times 4200.5)}{4.79 \times 1,514.62}$$

$$= \frac{6,947.03}{7,255.03}$$

$$= 0.96$$

Table 1.4: Pearson Correlations

		FEES AND COMMISIONS, A CASE OF EQUITY BANK.	ACTIVE MPESA USERS; A CASE OF SAFARICOM
FEES AND COMMISIONS; A CASE OF EQUITY BANK.	Pearson Correlation	1	
	Sig. (2-tailed)		
	N	40	
ACTIVE MPESA USERS; A CASE OF SAFARICOM	Pearson Correlation	.96**	1
	Sig. (2-tailed)	.000	
	N	40	40

Findings:

The r value is 0.96 which implies that 96% of the variations in the response variable y_2, (fees and commissions, a case of equity bank) can be explained by or provided for by the predictor variable x (growth in active m-pesa users. The p-value, defined as the lowest value at which the null hypothesis can be rejected, is 0.0001. This figure approaches zero, therefore since 0.0001 is less than 0.05, we reject the null hypothesis, H_0 and conclude that mobile money service has had no negative impact on the performance of the banking institutions at 95% confidence level.

Conclusion on objective one:

Provision of mobile money services by various service providers has had a positive impact on the performance of the banking institutions. Although it's true that MMS have cut into the banking institutions market, such institutions have come up with counter strategies like agency banking, m-banking and internet banking among others in order to neutralize the negative impact of mobile money on their services.

1.9.3: objective two: To establish the effect of accessibility to mobile money services on banking institutions in Kakamega town

Findings:

1.9.3: (a) Accessibility and understandability of mobile money services

The analysis shows that the entire respondents 115 (100%) agreed that one needs not to register with the bank to get access to mobile money services hence uncertain and not necessary response were 0% each.

1.9.3: (b) Responses on whether one can access mobile money services any time 24 hours

The analysis reveals that majority of the respondents 73 (63%) strongly agree while 42 (37%) agree that mobile money services can be accessed any time 24 hours. No respondent disagreed, strongly disagreed or were not sure hence 0%. This reveals that mobile money is a 24hrs service.

1.9.3: (c) Payments of utility bills can done through mobile money service technology

The study shows that the majority of the respondents, 87% strongly agree that payment of utility bills can be made using mobile money services technology and the remaining 13% also agree while none of the respondents disagree, strongly disagree or is uncertain (0%).

Conclusion on objective two

It was revealed that mobile money services can be accessed any time 24 hours where one need not to register with the financial institutions to access mobile money services but to access mobile m-banking one ought to register with the banking institution i.e. be an account holder, and also register with the mobile service provider, i.e. be a mobile line subscriber. Majority of the respondents agreed that payment of bills can be made through mobile money services technology

1.9.4: Objective Three: To assess the effect of efficiency and proficiency of mobile money services to the banking institutions in Kakamega town.

Findings:

1.9.4 (a) **Mobile money service is one way of coping with the ever changing customer expectations**

The study shows that majority of the respondent 63% agree and also 37% strongly agree that mobile money service is a way of coping with the ever changing customer expectations, the uncertain, those who disagree and strongly disagree were 0% meaning that no one was uncertain, disagreed or strongly disagreed

1.9.4: (b) Mobile money service increase customer access to the financial services as well as convenience
The study shows that majority of the respondent 77% strongly agrees,
23% also agrees that mobile money service increase convenience to customer, uncertain/ not sure 0% disagree and strongly disagree 0% each.

1.9.4: (c) Mobile money transfer (e-payment) as a mode of payment is more secure, reliable and confidential

Out of 115 respondents, 87% (101) strongly consider e-payment confidential, secure and reliable. Those who agree are 13% (14). None of the respondents, who are uncertain, disagrees or strongly disagrees.

1.9.4: (d) Mobile money service was introduced to gain competitive advantage
The findings shows that in the question whether mobile money service was introduced to gain competitive advantage, 53% agreed, 43% strongly agree while the remaining 3% were uncertain and no one disagreed or strongly disagreed

Conclusion on objective three:

Through m-banking platform customers can enjoy a wide range of services without necessarily having to visit their domicile branches or ATMs. Such services include: money transfer across accounts, balance inquiry, making payments (utility bills), phone banking and buying airtime which according to the respondents, strongly agrees that the bank has the ability to keep customers transaction secure and confidential. Majority of the respondents agreed that mobile money services are one way of coping with the changing customer expectations.

1.9.5: Overall Conclusion

From the findings of the study; it can be inferred that the introduction of mobile money services has contributed positively to the financial performance of the banking institutions. Convenience and reliability of various mobile money services has largely led to increased customer satisfaction and loyalty despite occasional technical itches that prove disappointing to the customers. The interface between mobile money service providers and banking institutions has proven to be of great use to the Kenyans socio-economic life and thus one cannot envisage a future without mobile money. The future of the Kenyan banking industry remains electronic banking and the going concern of certain banking institutions will largely be determined on how well they are going to invest in technology infrastructure to make electronic banking more reliable to the ever growing middle class.

1.9.6: Recommendations

Basing on the study findings, the following recommendations are forwarded;
The bank should conduct research on other possible mobile money services packages that are user friendly and develop them so as to enable deposit/withdraw of money using mobile phone which will meet different customer requirements and capture market niches that competitors have not identified hence expand on the market share leading to improved financial performance.

Free training and refreshing training should be provided to staff of the financial institution and if possible to customers to equip them with skills in the ever changing technology. The bank should provide toll free line to enable customers who want to use the system and also in case of any problem that deserve attention of the banking institution.

Agency banking should now take a centre stage in the banking institutions short term strategic plans to deepen financial services further and ensure inclusion of the unbanked and the under banked as this is a huge market that remains a priority focus of the mobile money service providers. If possible banks should target to recruit as many agents as mobile money service providers have done as well as reduce agency banking fees to make their services affordable to both the rich and the have-nots.

1.9.7: Area of further study

A case by case study should be done to examine how mobile money services have impacted traditional income streams in as far as fees and commissions of each institution within the banking industry and the financial sector at large.

There is also a need to make an inquiry on the impact of mobile money on the bank assets, especially, non-performing loans.

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