International Journal of
Finance and Accounting
(IJFA)

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International Journal of Finance and Accounting
ISSN 2518-4113 (Online)
Vol.2, Issue 6, No.3, pp 20 - 33, 2017

IPRJB
INTERNATIONAL PEER REVIEWED JOURNAL AND BOOK PUBLISHING
www.iprjb.org

EFFECTS OF MOBILE BANKING ON CAPITAL STRUCTURE OF COMMERCIAL BANKS IN KENYA

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Abstract

Purpose: The aim of this study was to explore the effects of mobile banking on the capital structure of commercial banks in Kenya.

Materials and methods: The study adopted descriptive cross sectional survey. The study population was 43 commercial banks in Kenya as at December 2015. The study adopted a descriptive survey research design that is cross-sectional in approach. The study covered the period 2010 to 2015. Secondary data set was gathered from the Audited Financial statements of the Banks, those deposited at the Nairobi Securities Exchange and CBK annual banking survey reports. A survey of all the 43 commercial banks was undertaken banks. A census of all the 43 banks was done. Statistical Package for Social Sciences (SPSS) version 21.0 complimented by STATA software was used to aid in data analysis.

Results: The study revealed that amount of loans issued, amount of withdrawals, amount of deposits and number of mobile bank users were satisfactory variables in explaining capital structure of commercial banks in Kenya. This is supported by coefficient of determination of 59.41%. Result findings revealed that amount of deposits was positively and significantly related to capital structure of the commercial banks. Result further revealed that the amount of withdrawals was positively and significantly related to capital structure of the commercial banks, amount of loans issued was negatively and significantly related to capital structure of the commercial banks while the number of users was positively and significantly related to capital structure of the commercial banks.

Recommendations: It is therefore recommended that commercial banks focus on building a strong relationship with customers. Further, it is recommended that commercial banks expand the mobile banking through adoption of mobile technology. The study used secondary data to determine the relationship between mobile banking and capital structure of commercial banks in Kenya.

Keywords: *Mobile banking, capital structures, commercial banks, Kenya*

1.0 INTRODUCTION

1.1Background of the study

According to World Bank report released on 31st of March 2016, Kenya is recognized as one of the fastest growing economy in Africa and ranked the top in east Africa. The report further estimates the economy of the country to improve to 5.9% in 2016 down from 5.6 % in 2015 and the trend is expected to continue to 6% in 2017. Mobile money transfer technology is perhaps one of the driving forces behind this achievement. Most commercial banks in Kenya are now moving towards branchless banking system by allowing low value transactions to be done outside the banking halls into locally selected shops. Some of these services include deposits, withdrawals, and balance enquiries among other services that can be accessed by use of the client mobile phone then communicates transaction information back to the mobile service provider or the respective bank. Clients can therefore send and receive electronic money wherever there is cell coverage by simply paying a visit to a nearest retail agent (Kithaka, 2014). It is said that nearly 93% of households in Kenya had access to mobile phone services by the year 2012, a gradual increase from 3% of Kenyans who could access mobile phones back in the late 1990s (Dembyness & Thegeya, 2012).

The same study further indicated that of these mobile phone owners over 70% of them had registered for mobile money transfer services within the same year. Mobile banking (m-banking) is a term used for performing banking transaction via mobile phones (Anyasi & Otubu, 2009). It can also be defined as any transaction involving the transfer of ownership or right to use goods and services which is initiated and / or completed by use of money mobile access to computer – mediated networks with the help of an electronic device (Tiwari, Buse & Herstat, 2006). A high number of financial institutions have continuously adopted the mobile banking technology in partnership with the mobile phone providers to offer these services to their customers. Mobile banking technology in Kenya can be said to have originated from M-pesa innovation which was launched by Safaricom Ltd, the current leading mobile service provider in the country in the year 2007. This was a process that took about two years in development (Bonface & Ambrose, 2015).

In that regard mobile banking has an effect on firms' capital structure. Capital structure basically includes equities and only the long term liabilities. It refers to the makeup of the company's underlying value, in particular the relative balance between funding from equities and funding from long term debt (Brigham & Ehrdhardt, 2002)

Equity capital includes paid up share capital, share premiums and retained earnings. An "unlevered firm" uses only equity capital. A levered firm uses a mix of equity and various forms of liabilities. Aside from deciding on a target capital structure, a firm must also make decision on how to manage its capital structure (Brigham & Ehrdhard (2002). The capital structure influences the shareholders return and risk (Panday, 2011). An efficient mixture of capital reduces the price of capital. Lowering the cost of capital increases net economic returns which, ultimately, increases firm value (Brigham & Ehrdhardt, 2002).

According to Panday (2011), a company will have to plan its capital structure initially at the time of its promotion. Subsequently whenever funds have to be raised to finance investment, a capital structure decision is involved. A demand for raising funds generates a new capital structure since

a decision has to be made as to the quantity and form of financing. This decision will involve an analysis of existing structure and the factors which will govern the decision at the present. The companies' policy to retain or distribute earning affects the owners' claims. Shareholder equity position is strengthened by retention of earnings. Thus dividend decision has a bearing on the capital structure of the company. The new financing decision of the company may affect its debt equity ratio. The debt to equity mix has implication on the shareholders earning and risk which in turn will affect the cost of capital and the market value of the firm.

Commercial banks just like other firms have to ensure an optimal capital structure. Optimal capital structure is that combination of debt and equity that leads to maximization of the value of the firm and minimizes the overall cost of capital (Panday, 2011).The use of debt increases the EPS as the interest of debt is tax deductible which leads to increase in share price. However higher levels of debt results to greater financial risk. This could result into high cost of capital and depress the share price. The firm should therefore seek to achieve and maintain the optimum capital structure.

1.2 Research problem

Currently mobile banking technology is being rolled out by most commercial banks in Kenya. Most commercial banks are in talks with their customers to register for mobile banking perhaps as a way of cutting down the costs of operations and maximize on their returns. When the cost of operations is minimized, the returns will be maximized to avail internal source of finance (retained earnings) to finance the potential needs and expand other viable areas of investments (Kithaka, 2014). With the emergence of mobile banking technology most of the Kenyans especially those with busy lives and those from remote areas can conveniently do their banking without having to travel for long distances to access banking services from their nearest banking halls. This has triggered a stiff competition in the banking industry in Kenya where each bank is keen to ensure that they maintain their competitive position and attract more potential customers by bringing the banking services next top their door steps, (Kithaka, 2014).With all this in place a question now arises on how the mobile banking technology influence the capital structure of the financial institutions and in particularly the commercial banks. Most of the studies that have been conducted both locally and internationally have largely concentrated on the effects of mobile banking on the financial performance of the commercial banks.

Kigen (2010) carried out a study by use of descriptive survey on the effect of mobile banking on the transaction costs of microfinance institutions in Kenya. He found out that the technology significantly reduced the transaction costs though they were not directly felt by banks. Bonface and Ambrose (2015) similarly evaluated the effect of mobile banking on the financial performance of commercial banks in Kenya using a descriptive survey. They sampled all the 43 commercial banks in Kenya.

Their study was guided by the cost of M-banking services, the security of the M-banking system, speed of M-banking system and skill requirement for M-banking services as the independent variables while financial performance of commercial banks as measured by profitability levels was the independent variable and incorporated in the government policies and market competition forces as the moderating variables. Their findings were that all the mentioned

independent variables had a positive and significance influence on the financial performance of commercial banks in Kenya. Mutua (2013) and Kithaka (2014) also did a study on the effects of mobile banking on the financial performance of commercial banks in Kenya. Their target population was all the 43 commercial banks in Kenya. By use of a descriptive survey Kithaka (2014) found out that the mobile banking had a significant influence on the financial performance of commercial banks while Mutua (2013) found out that the technology had a weak positive influence on the financial performance of commercial banks. Kingoo (2012) was keen to examine the influence of the wider electronic banking on the financial performance of commercial banks in Kenya whereas Munaye (2009) also did a study on mobile banking application as a strategic response using equity bank as his case study. Ndege (2006) similarly evaluated on how customers adopted mobile banking in Kenya. Both studies used descriptive survey methodologies. It is therefore clear from the above studies that a gap exists in determining the influence of mobile banking technology on the capital structure of commercial banks in Kenya, and accordingly, this study sought to fill this gap. The capital structure of the firm is usually composed of long term sources of finance which composes of equity capital (ordinary share capital, transfers to reserves and retained earnings) and long term debt capital.

1.3 Objectives of the study

1.3.1 General objective

The aim of this study was to explore the effect of mobile banking on the capital structure of commercial banks in Kenya.

1.3.2 Specific objectives

i. To establish how the number of users of mobile banking influence the capital structure of commercial banks
ii. To find out the effect of withdrawals transacted through mobile banking on the capital structure of commercial banks.
iii. To find out the influence of deposits transacted through mobile banking on the capital structure of commercial banks.
iv. To find out the effect of mobile banking loans on the capital structure of commercial banks in Kenya.

2.0 LITERATURE REVIEW

2.1 Introduction

This chapter presents a review of literature related to the study variables. It explains the theoretical review which entails the theories that surrounds mobile banking and its effects on the capital structure of commercial banks in Kenya. The chapter also explains the empirical review which includes studies done by other researchers both locally and elsewhere, the methodologies used, the conceptual framework which identifies the variables under investigation and the summary of the literature.

2.2 Theoretical review

Generally, this section discussed based on various theories that exist which pertain to the capital structure of the firms.

2.2.1 The Modigliani and miller Theorem

The theory was first proposed by Modigliani and Miller in (1958). The celebrated Modigliani-Miller theory proposes that the value of the firm depends on its profitability and not on its capital structure. A firm's cost of equity increases with its debt-equity ratio (Modigliani & Miller, 1958). Modigliani and Miller start by assuming that the firm has a particular set of expected cash flows. When the firm chooses a certain proportion of debt and equity to finance its assets, all that it does is to divide up the cash flows among investors. Investors and firms are assumed to have equal access to financial markets, which allows for homemade leverage. The investor can create any leverage that was wanted but not offered, or the investor can get rid of any leverage that the firm took on but was not wanted. As a result, the leverage of the firm has no effect on the market value of the firm (Luigi & Sorin, 2009).

The Theory initially came up with three propositions; Where the first Proposition I stated that; the market value of any firm is independent of its capital structure, changing the gearing ratio cannot have any effect on the company's annual cash flow (Kishore, 2009).The second Proposition II stated that; the rate of return required by shareholders increases linearly as the debt/ equity ratio is increased i.e. the cost of equity rises exactly in line with any increase in gearing to precisely offset any benefits conferred by use of apparently cheap debt.

They went on to argue that the expected return on equity of a geared company is equal to the return on a pure equity stream plus a risk premium dependent on the level of capital structure. Finally, the Proposition III asserts that; the cut-off rate for new investments will in all cases be average cost of capital and will be unaffected by the type of security used to finance the investment. The cut-off rate for investments purposes is completely independent of the way in which an investment is financed. This implies a complete separation of investment and financing decisions of the firm (Kishore, 2009).

The limitation Modigliani-Miller theory is that Modigliani-Miller irrelevance proposition is not easy to test. With debt and firm value both plausibly endogenous and driven by other factors such as profits, collateral, and growth opportunities, we cannot establish a structural test of the theory by regressing value on debt. Further, Modigliani-Miller theory does not provide a realistic description of how firms finance their operations; it provides a means of finding reasons why financing may matter

2.2.2 The Trade-off theory

The trade-off theory of capital structure set forth by Kraus and Litzenberger in 1973 is an important framework for understanding how firms choose to finance their assets. Trade-Off theory was further coined by Myers (1984) who emphasized the balance between tax saving arising from debt, decrease in agent cost and bankruptcy and financial distress costs (Oruç, 2009). The Trade-Off theory is connected to the theory from Miller and Modigliani on capital structure that emphasize on optimal capital structure by explaining firm‘s overall use of debt and

equity. When the irrelevance theorem was added with the corporate income tax, this favored benefit for debt, i-e; it shields the earnings from taxes (Ahmadimousaabad, Bajuri, Jahanzeb, Karami & Rehman, 2013). The original trade-off theory of capital structure maintains that firms balance the deadweight costs of bankruptcy and tax benefits of debt Kraus and (Litzenberger, 1973).

Trade-Off Theory claims that firms have an incentive to turn to debt as the generation of annual profits allows benefiting from the debt tax shields. According to Trade-Off Theory, there is an optimal debt ratio, which is the ratio where tax benefits are equal to the bankruptcy and agency costs associated with debt (Serrasqueiro &Caetano, 2015).

Whenever firms deviate from their debt ratio, the existence of adjustment costs prevents firms from making a total adjustment to that ratio, and so Trade-Off Theory forecasts that firms make a partial adjustment of debt towards the optimal debt ratio (López-Gracia, Sogorb-Mira, 2008).

This theory is relevant to the study because a firm is able to maintain an optimum capital structure where the marginal benefit of debt equals the marginal cost. The implication of these trade-off models is that firms have target leverage and they adjust their leverage toward the target over time.

2.3 Conceptual framework

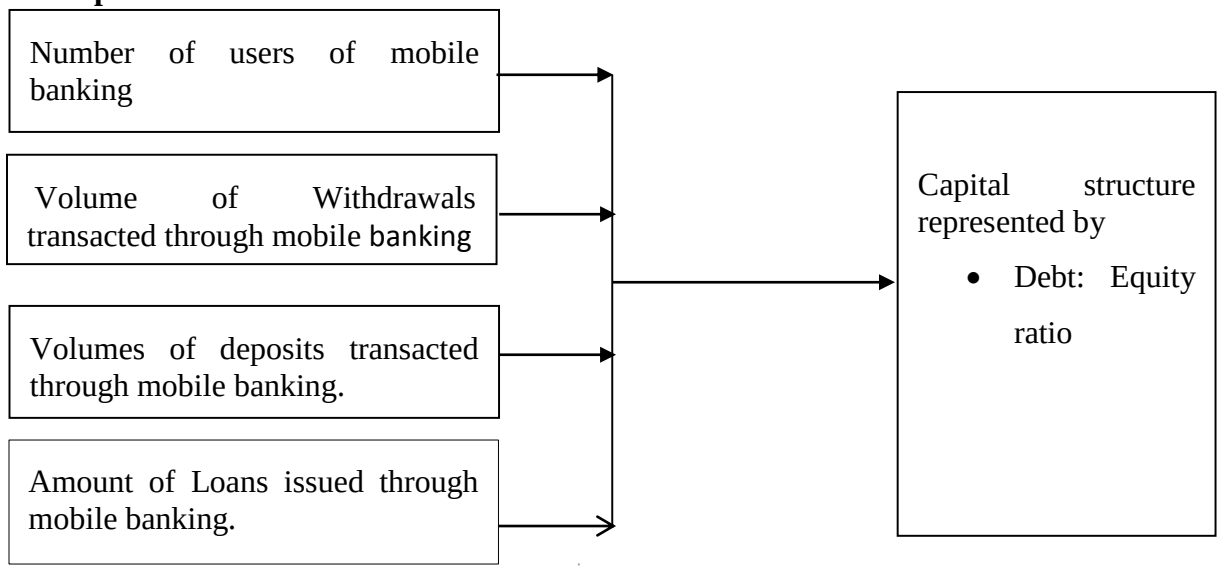

Figure 1 Conceptual framework

The conceptual framework as depicted in figure 1 is based on four independent variables; volumes of deposits transferred via mobile banking, number of users of mobile banking, amount of loans issued out through mobile banking, amount of withdrawal made through mobile banking and their influence on the dependent variable: capital structure of commercial banks in Kenya. The study acknowledge that there may be other factors that influence capital structure of

commercial banks as far as mobile banking is concerned but for the purpose of maintaining a practical scope of study in line with the limitations of the study, it will only be confined to the four independent variables above.

3.0 RESEARCH METHODOLOGY

The study adopted a descriptive survey research design that is cross-sectional in approach. The target population for this study was 43 commercial banks in Kenya. Census technique was used to select the sample. Secondary data were collated from the financial statements. The data was analyzed using the Statistical Package for Social Sciences (SPSS) version 21.0. Multiple regression was conducted to illustrate the relationship between variables.

4.0 RESEARCH RESULTS AND DISCUSSION

4.1 Descriptive Statistics

This section provides results on measures of central tendency of independent variables. Table 1 shows the results of the study. The results show that the overall mean of the number of mobile banking users was 36799 which indicated the average number of mobile baking users from the year 2010 to 2015. The minimum and the maximum number of banking users in all the 43 banks was 518394 for the year 2010 and 1041843 for the year 2015 respectively. Its standard deviation was 214261 users which indicate that the total number of mobile banking users varied across the banks.

Table 1: Descriptive Statistics

Variable	Observations	Minimum	Maximum	Mean	Std. Deviation
Number of mobile banking users	43	518394	1041843	836799	214261.3
Amount of mobile deposits	43	4.47E+10	8.71E+10	6.31E+10	1.73E+10
Amount of mobile withdrawals	43	3.67E+10	4.62E+10	4.09E+10	3.09E+09
Amount of loans issued	43	1.97E+08	3.35E+08	2.68E+08	49018441
Debt - Equity Ratio	43	0.087776	0.314437	0.166667	0.0796256

The overall mean of mobile deposits for all the banks listed was Ksh 63139102. The minimum total amount of mobile deposits for all the banks was ksh 44708702 for the year 2010 while the maximum total amount of mobile deposits was ksh 87108789 for the year 2015. Its standard deviation was ksh 17290747 which indicates that the amount of deposits varies across the banks.

Further, the results showed that the overall mean of the total amount of mobile withdrawals was ksh 40943537 which indicates the average amount of mobile withdrawals from the year 2010 the year 2015. The minimum and the maximum total amount of withdrawals in all the 43 banks were ksh 36698194 for the year 2010 and ksh 46217582 for the year 2015 respectively. Its standard

deviation was ksh 3094152 total amounts of mobile withdrawals which indicate that the total amounts of mobile withdrawals vary across the banks.

The results also showed that the overall mean of the total amount of loans issued was ksh 267882 which indicates the average amount of loans issued from the year 2010 to 2015. The minimum and the maximum amount of loans issued across all the 43 banks was ksh 197455 for the year 2011 and 3352723 for the year 2015 respectively. Its standard deviation was ksh 49018 total amounts of deposits which indicated that the amount of loans issued varied across the banks. The results from the descriptive agree with those of Mutua (2013) who found that the amount of money transacted through the mobile money transfers has increased steadily from inception to date.

Finally, the results also showed that the overall mean for debt - equity ratio was 0.166667 which indicates the average debt - equity ratio from the year 2010 to 2015. The minimum and the maximum debt - equity ratio across all the 43 banks was 0.087776 for the year 2010 and 0.314437 for the year 2014 respectively. Its standard deviation was 0.0796256 which indicated that debt - equity ratio varied across the banks.

4.2 Correlation Analysis

The study sought to establish the association among the study variables. The results are as presented in Table 2

Table 2: Correlation matrix of research variables

Variable		Capital structure	Loans ratio	Withdrawals ratio	Deposits ratio	Customers ratio
Capital structure	Pearson Correlation	1	.			
	Sig. (2-tailed)					
Loans ratio	Pearson Correlation	-.5732	1			
	Sig. (2-tailed)	0.000				
Withdrawals ratio	Pearson Correlation	0.4834	0.3960	1		
	Sig. (2-tailed)	0.001	0.038			
Deposits ratio	Pearson Correlation	0.5374	0.5024	0.5740	1	
	Sig. (2-tailed)	0.001	0.017	0.048		
Customers ratio	Pearson Correlation	0.6681	0.3921	0.3605	0.4016	1
	Sig. (2-tailed)	0.000	0.051	0.007	0.001	

The results in Table 2 indicated that amount of loans issued and capital structure of the commercial banks (debt-equity ratio) are negatively related (r= -.5732, p=0.000). Results indicated that amount of mobile withdrawals (r= .4834, p=0.001) and amount of deposits (r= .5374, p=0.001) are significantly and positively related to the capital structure of the commercial banks. Results further indicated that number of mobile bank users (r= .66681, p=0.000) is positively and significantly related to capital structure of the commercial banks.

An increase in the amount of withdrawals, amount of deposits and number of mobile bank users leads to increased capital structure of the commercial banks. The increase in the amount of loans issued reduces the capital structure. The study agree with Donner and Tellez (2008) who did a study on mobile banking and economic development where they sought to link adoption, impact, and use. The study established that through offering a way to lower the costs of moving money from place to place and offering a way to bring more users into contact with formal financial systems, mbanking/ m-payments systems could prove to be an important innovation for the developing world. The study also agree with that of Chinget al (2011) who studied the factors affecting Malaysian mobile banking adoption from the point of an empirical analysis and perceived usefulness, perceived ease of use, relative advantages, perceived risks and personal innovativeness were the factors affecting the behavioral intention of mobile users to adopt mobile banking services in Malaysia.

4.3 Model summary

The results presented in table 3 present the fitness of model used of the regression model in explaining the study phenomena. Amount of loans issued, amount of mobile withdrawals, amount of deposits and number of mobile bank users were found to be satisfactory variables in explaining capital structure of commercial banks in Kenya. This is supported by coefficient of determination also known as the R square of 59.41%.

Table 3 Model Fitness

Indicator	Coefficient
R	0.6005
R Square	0.5941

This means that amount of loans issued, amount of withdrawals, amount of deposits and number of mobile bank users explains 59.41% of the variations in the dependent variable which is the capital structure measured in terms of debt-equity ratio. This means that we have other factors which affect capital structure of the banks that are not included in the model.

The results further indicate that the model applied to link the relationship of the variables was satisfactory. The results agree with the study by Kithaka (2015) who found that mobile banking positively and significantly affects the financial performance of commercial banks in Kenya. The study found that annual amount of money moved through mobile banking, number of users of mobile banking, capital adequacy, asset quality, bank liquidity and management efficiency explained a substantial 75.1% of financial performance of commercial banks in Kenya

4.4 Analysis of Variance

Table 4 provides the results on the analysis of the variance (ANOVA). This was to establish whether there was any significant difference among the variables means. Independent variables were explored to determine whether their existed any significance difference with the dependent variable (capital structure of commercial banks).

Table 4 Analysis of Variance

Indicator	Sum of Squares	df	Mean Square	F	Sig.
Regression	.352855814	4	.088213954	95.06	.000
Residual	.234781702	253	.000927991		
Total	.587637516	257			

The results indicate that the overall model was statistically significant. Further, the results imply that the independent variables are good predictors of capital structure. This was supported by an F statistic of 95.06 and the reported p value (0.000) which was less than the conventional 0.05 significance level. Therefore, the result findings from the ANOVA showed that there exist a significant difference between the independent variables and the dependent variable.

The results agree with that of Ngango, Mbabazize and Shukla (2015) who established that Electronic banking system like ATM, Pay direct, electronic check conversion, mobile telephone banking and E transact has a great impact on bank performance because they increase profitability, reduce bank cost of operations, and increase bank asset and bank efficiency. The study agree also with Wahome (2009) who established that through a partnership with the leading mobile service provider in the country Safaricom improved financial performance of commercial banks.

4.5 Regression of Coefficients

Regression of coefficients results in table 5 shows amount of loans issued and capital structure of commercial banks is negatively and significantly related (r=.61012, p=0.000), amount of mobile withdrawals and capital structure of the commercial banks are positively and significantly related (r= .105049, p=0.010), amount of deposits and capital structure are positively and significantly related (.95144, 0.007), number of mobile bank users was positively and significantly related to capital structure of the commercial banks (.426375, 0.000). The results agree with that of Tiwari, Buse and Herstatt (2006) who studied mobile banking as business strategy, impact of mobile technologies on customer behavior and its implications for banks and found that innovative mobile financial services improved financial performance of banks.

Table 5 Regression of Coefficients

Variable	B	Std. Error	t	Sig.	[95% Conf. Interval]
(Constant)	-.7272357	.0625691	-11.62	0.000	-.8504583 .604013
Loans ratio	-.61012	.107486	-5.68	0.000	.0398438 .0821803
Withdrawals ratio	.105049	.040508	2.59	0.010	.0025274 .0184824
Deposits ratio	.95144	.35019	2.72	0.007	.0026178 .0164109
Customer ratio	.426375	.042049	10.14	0.000	.0343565 .0509185

Results findings show that there is a negative p and significant relationship between amount of loans issued and capital structure of the commercial banks. These results show that an increase in the unit change of loans issued would result to a decrease in capital structure of the commercial bank by .61012 units. These results also show that an increase in the unit change of the amount of withdrawals would result to an increase in capital structure of the commercial bank by .105049 units.

Further, these results show that an increase in the unit change of the amount of deposits would result to a decrease in capital structure of the commercial bank by -.95144units while a unit increase in the number of mobile bank users will result to .426375 units increase in capital structure of the commercial bank. The results agree with that of Bonface and Ambrose (2015) who found that M-banking services had a high positive influence on the financial performance of commercial banks in Kenya.

The results also agree with study by Muiruri and Ngari (2014) who found that some banks in Kenya had adopted some financial innovations such as credit cards, mobile, internet and agency banking. The financial innovations had great impact on the financial performance of the banks. Finally, the study agree with that of Martin (2012), survey of online banking customers in the US found that 60% of members thought their banks were doing great job at providing innovative technology. They keep customers happy by providing access to mobile and online banking services. Kithaka (2015) who found that mobile banking positively and significantly affects the financial performance of commercial banks in Kenya.

The optimal model for the study is therefore;

Capital structure of commercial banks

***CS,*= -0.7272357 + 0.94144No + 0.105049Wo + 0.95144Do -0.61012Lo**

5.0 SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Summary

The study revealed that amount of loans issued, amount of withdrawals, amount of deposits and number of mobile bank users were satisfactory variables in explaining capital structure of commercial banks in Kenya. Result findings revealed that amount of deposits was positively and significantly related to capital structure of the commercial. Further result findings revealed that the amount of withdrawals was positively and significantly related to capital structure of the commercial banks. The amount of loans issued was negatively and significantly related to capital structure of the commercial banks. Finally, results revealed that the number of users was positively and significantly related to capital structure of the commercial banks.

5.2 Conclusions

Based on the findings the study concluded that amount of loans issued, amount of withdrawals, amount of deposits and number of mobile bank users influences the capital structure of the commercial banks. The amount of loans issued was found to have an inverse relationship with capital structure of the bank.

5.3 Recommendations for Policy and Practice

This study found that amount of withdrawals, amount of deposits and number of mobile bank users has an effect on the capital structure of the bank. It is therefore recommended that commercial banks focus on building a strong relationship with customers.

Further, it is recommended that commercial banks expand the mobile banking through adoption of mobile technology.

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