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# EFFECTS OF INTERNET BANKING ON FINANCIAL PERFORMANCE OF LISTED COMMERCIAL BANKS IN KENYA

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# EFFECTS OF INTERNET BANKING ON FINANCIAL PERFORMANCE OF LISTED COMMERCIAL BANKS IN KENYA

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**Abstract**

***Purpose***: The purpose of this study was to establish the effect of Internet Banking on the financial performance of listed commercial banks in Kenya.

***Methodology:*** This study used descriptive survey design. The target population was all employees of listed commercial banks in Kenya. Simple random sampling method was used to identify the study respondents. Primary sources of information were used and were gathered using questionnaires. Finally data from the questionnaires was sorted, coded and input into a software for analysis. Data was analysed using statistical package for the social sciences (SPSS) to generate diagrams, frequencies, descriptive statistics and inferential statistics.

***Results:*** The key finding of the study revealed that internet backing has positive influence on bank incomes, operating costs, loan book and customer deposits.

***Unique contribution to theory, practice and policy:*** Due to the growing demand for the internet as a key service delivery, it is recommended to bank management to ensure that there is tight security of data and information being operated on the internet bank platform. The study also recommends that the bank managers should emphasize on training their clients on use of internet banking via advertisements as this will make ease on communication. Commercial banks need to emphasize the use of internet banking as this will enhance banks growth and customers saving on much time which they could have wasted on queues to be attended the traditional way.

***Keywords:*** *Internet banking, fee income, operating costs, growth on loan book and customer deposits mobilization.*

## 1.0 INTRODUCTION

### 1.1 Background of the Study

Internet Banking (IB) or e-banking refers to systems that enable bank customers to get access to their accounts and general information on bank products and services through the use of bank's website, without the intervention or inconvenience of sending letters, faxes, original signatures

and telephone confirmations (Panida & Sunsern, 2012). It is the types of services through which bank customers can request information and carry out most retail banking services such as balance reporting, inter-account transfers and bill-payment via telecommunication network without leaving their home/organization (Thulani, Tofara & Langton, 2009). Electronic banking system has become the main technology driven revolution in conducting financial transactions. Banks have made huge investments in telecommunication and electronic systems, whereas users have also been validated to accept electronic banking system as useful and easy to use. At the Basel Committee banking supervision, electronic banking is defined to include the provision of retail and small value banking products and services through electronic channels as well as a large value electronic payment and other wholesale banking services delivered electronically (Basel Committee on Banking Supervision, 2003).

Information technology has revolutionized banking, transforming the once quiescent industry into a vibrant enterprise. The transformation implies that the banking industry, which is dominated by commercial banks, has continued to invest heavily in IT product and services such as hardware, software, telecommunication, training, consulting, and outsourcing. The development of Internet Banking has motivated many banks to lay emphasis on information technology strategies in order to stay ahead. Internet Banking now forms a significant element of the bank in terms of cost, customer service, and profit (Manoranjan, Bhusan, Kanta & Suryakanta, 2012).

Internet Banking has been deployed more frequently over the past few decades to support and improve the operational and managerial performance within the banking industry. The development of internet technologies has positively changed the traditional delivery channel of banking services to customer, and banks are determined to find out more on the magnetism of using these substitute channels to consumers at large (Agboola, 2004)

User adoption of a technology has become a crucial or significant measure of the success or effectiveness of that technology. Revolutionary development in Information and Communication Technology (ICT) in the past 20 years has impacted individuals as well as businesses in a profound way. Internet Banking is a radical technological innovation with potential to change the structure and nature of banking. To sustain business competitiveness, more and more banks are transforming from their traditional approach of “bricks and mortar” into a “clicks and mortar” one under the recent emergence of electronic commerce and business (Chau & Lai, 2003). Customer satisfaction and customer retention are increasingly developing into key success factors in e-banking (Bauer, Hammerschmidt & Falk, 2005). However, not enough is known regarding how customers perceive and evaluate electronically delivered services. Lee and Lin (2005) have also recently highlighted the need for further research to measure the influence of e-service on customer perceived service quality and satisfaction (Ibrahim, Joseph & Ibeh, 2006).

### 1.2 Problem Statement

Recent changes within the banking sector are fostering a different view of banks as Internet Banking continues to expand. The completion of banking deregulation, cost reductions in lending applications, innovative use of electronic banking products and a shift in competitive focus beyond geographically isolated financial markets have set the stage for a changing structure of banks. This has increased the competition in the small business lending markets.

This technological shift has definitely had an impact on the performance of banks (Beck, 2001; Foster, 2001).

While Internet Banking (IB) has grown rapidly, there is not enough evidence of its impact on the performance of banks, particularly within the Kenyan banking industry. IB is the latest in the series of technological wonders of the recent past. ATMs, Tele-Banking, Internet Banking, Credit Cards and Debit Cards have emerged as effective delivery channels for traditional banking products. Banks know that the Internet opens up new horizons for them and moves them from local to global frontiers (Qureshi, Zafar & Khan, 2008). Simpson (2002) suggests that e-banking is driven largely by the prospects of operating costs minimization and operating revenues maximization. A comparison of online banking in developed and emerging markets reveal that in developed markets lower costs and higher revenues are more noticeable.

While Sullivan (2000) finds no systematic evidence of a benefit of Internet Banking in US click and mortar banks, DeYoung (2005) analyzes the performance of Internet-only banks versus the brick and mortars in the US market and find strong evidence of general experience effects available to all start-ups. Yet there is little evidence that technology-based learning accelerates the financial performance of Internet-only start-ups (DeYoung, 2005). Therefore the above studies produce mixed results in relation to the effect of Internet Banking of bank performance.

As Ogunsola (2005) observed, a wide gap in IT development and research exists between developed nations and developing countries. Through inference, this could also be the case in Kenya which is also a developing country. In spite of the gap in evidence-based literature, Kenyan commercial banks continue to substantially invest in IT, seeking competitive advantages in a rapidly expanding and globalized market. The banks rightly expect improved performance and a rise in profitability as IT and internet spending increases. However, only a handful of academic literature exists that defines clearly the relationship between Internet Banking and bank financial performance in the Kenya banking industry. Studies done in Kenya include Misati, Njoroge, Kamau & Ouma (2010) who looked at financial innovation and monetary mechanism, Marion (2010) and Ndungu (2011) looked at the mobile usage; while they all encourage further research on Internet Banking in Kenya and especially its relationship to performance.

This research extends the emerging literature on Internet Banking as well as contemporaneous studies that focus on Kenya. The studies conducted have attempted to identify the impact of Internet Banking through experiments based on randomized controlled trials (RCTs). For example, by adopting an explanatory approach by using panel data research design, Tobias and Themba (2011) explore the bank-specific factors of the performance of commercial banks. While panel data represent an important approaching the study of bank perfomance, they may carry some limitations: sample sizes are small, contexts differ, and small variations in data collected can affect results (Ravallion, 2009). It is, therefore, important to conduct a study specific to Kenya and have empirical evidence of the effect of Internet Banking on financial performance of commercial banks. The aim of this study then will be to close the gap in knowledge by investigating the effect of internet banking on performance, within the banking sector with regard to selected commercial banks in Kenya.

### 1.3 Research Objective

The objective of this study was to establish the effect of Internet Banking on the financial performance of listed commercial banks in Kenya.

## 2.0 LITERATURE REVIEW

### 2.1 Theoretical Review

#### 2.1.1 Unified Theory of Acceptance and Use of Technology (UTAUT)

Unified Theory of Acceptance and Use of Technology (UTAUT) was developed by Venkatesh et al. (2003) through reviewing eight models which explain ICT usage, namely; Theory of Planned Behaviour (TPB), Diffusion of Innovations(DOI)**,** Theory of Reasoned Actions (TRA), Technology Acceptance Model (TAM), the motivational model, a model combining TAM and TPB, the model of PC utilization, DOI, and the social cognitive theory. It was proposed and validated in order to provide a unified theoretical basis from which to facilitate research on information system (IS)/ information technology (IT) adoption and diffusion. The theory postulates that four core constructs – *performance expectancy*, *effort expectancy*, *social influence*, and *facilitating conditions* –are direct determinants of IS/IT behavioural intention and ultimately behaviour (Venkatesh et al., 2003).

The UTAUT model aims to explain a user's intentions to use ICT and the subsequent user behaviour. It offers the manager with using tools, which the manager can use to weigh the introduction of new technology, predict, and explain the user's behavior of accepting information technology. There are four key moderating variables: gender, age, experience, and voluntariness of use. Scholars and researchers have established that UTAUT provides the ability to assess the likelihood of success of technology introductions and to understand the drivers of acceptance in order to design interventions, which include, for instance training or marketing. UTAUT focuses on users who may be less willing to adopt and use new systems.

The UTAUT model has been criticized by various scholars citing its inadequacies, while others have embraced its propositions. Bagozzi (2007) critiqued the model and its subsequent extensions, citing that it presents a model with 41independent variables for predicting intentions and at least 8 independent variables for predicting behaviour, and that it contributed to the study of technology adoption "reaching a stage of chaos. On the contrary, he proposed a unified theory which consolidated the many splinters of knowledge to explain decision making. On the other hand, Van Raaij (2008) criticized the UTAUT as being less thrifty than the previous Technology Acceptance Model and TAM2 because its high determination coefficient, which is only achieved when moderating key relationships with up to four variables. They also called the grouping and labeling of items and constructs problematic because varieties of disparate items were combined to reflect a single psychometric construct.

### 2.2 Empirical Review

A few empirical studies exist in the literature, which have examined the relative performance of banks offering Internet banking services. These studies vary from analyzing differences in the performance of banks with an internet banking portfolio. Such studies have shown a range in the level of profitability in relation to internet banking. England *et al*. (1998) was the first important

study, which estimated the number of US banks offering Internet banking and analyzed the structure and performance characteristics of these banks. It found no evidence of major differences in the performance of the group of banks offering Internet banking activities compared to those that do not offer such services in terms of profitability, efficiency or credit quality. However, transactional Internet banks differed from other banks primarily by size.

In contrast to the results of Egland *et al.* (1998), Furst *et al.* (2002) found that banks in all size categories offering Internet banking were generally more profitable and tended to rely less heavily on traditional banking activities in comparison to non-Internet banks. An exception to the superior performance of Internet banks was the de novo (new start-ups) Internet banks, which were less profitable and less efficient than non-Internet de novo. The authors concluded that Internet banking was too small a factor to have affected banks' profitability.

Federal Reserve District incurred somewhat higher operating expenses but offset these expenses with somewhat higher fee income. On average, this study found no systematic evidence that banks were either helped or harmed by offering the Internet delivery channel. Onay, Emre and Asli (2008) in their research on Turkish banks concluded that online banking has a positive impact on the profits of banks. According to their study, online banking has changed the dimensions of competition in the retail banking sector. It has also provided opportunities for emerging a gradual process. The online banking variable has had a positive effect on the performance of the banking system in Turkey. Siam (2006) examined the impact of online banking on Jordanian banks and concluded that majority of the banks are providing services on internet through their websites and his findings show that the attention is more to achieving e-banking as satisfying and fulfilling customers' needs. He also concluded that there should be a well articulated strategy to achieve success and profits in the long run.

DeYoung *et al.* (2006) observed the change in financial performance of Internet community banks in U.S. during 1999-2001. The results found that Internet adoption improved community banks' profitability, particularly through increased revenues from deposit service charges. Internet adoption was also associated with movements of deposits from checking accounts to money market deposit accounts, increased use of brokered deposits and higher average wage rates for bank employees. It found little evidence of changes in loan portfolio mix. The findings suggested that Internet adoption was associated with an economically and statistically significant improvement in bank profitability. DeYoung (2001a, 2001b, 2001c and 2005) analyzed systematically the financial performance of pure-play Internet banks in U.S. The study found relatively lower profits at the Internet-only institutions than the branching banks, caused in part by high labor costs, low fee based revenues and difficulty in generating deposit funding. However, consistent with the standard Internet banking model, the results indicated that Internet-only banks tended to grow faster than traditional branching banks.

## 3.0 RESEARCH METHODOLOGY

This study used descriptive survey design. The target population was all employees of listed commercial banks in Kenya. Due to the location of the researcher, time and budgetary limitations, the accessible population of the study was only employees based within Nairobi

County. Simple random sampling method was used to identify the study respondents. Primary sources of information were used and were gathered using questionnaires. Finally data from the questionnaires was sorted, coded and input into a software for analysis. Data was analysed using statistical package for the social sciences (SPSS) to generate diagrams, frequencies, descriptive statistics and inferential statistics.

## 4.0 RESULTS AND DISCUSSIONS

### 4.1 Response Rate

The findings were collected using questionnaires distributed to the accessible population in which one twenty (124) questionnaires out of one hundred eighty two (182) were responded to. The response rate was 68% which according to Babbie (2004) is appropriate for a descriptive study given that a response rate above 50% is acceptable.

### 4.2 Demographic Characteristics of Respondents who participated in the Primary Study.

#### 4.2.1 Gender of Respondents

Figure 1 presents the results.

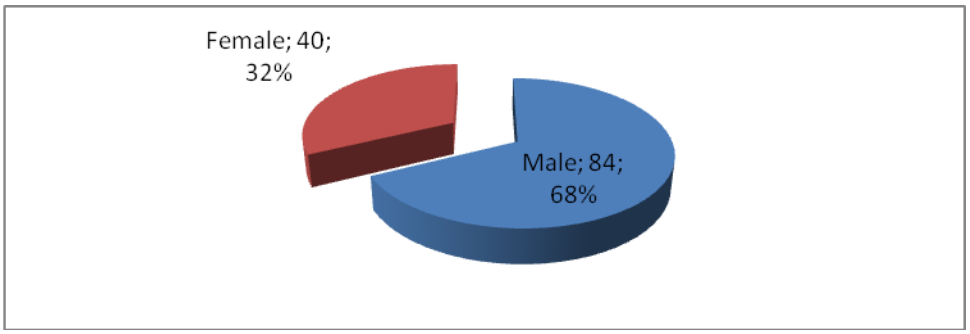


**Figure 1: Respondents' Gender**

Respondents of this study were 84 male's s and 40 female who constituted 68 percent and 32 percent respectively. The differences in gender representation indicate the population ratio of bank employee's where there are more male employees than female in the banking sector.

#### 4.2.2 Age of Respondents

Figure 2 presents results on age of the respondents.

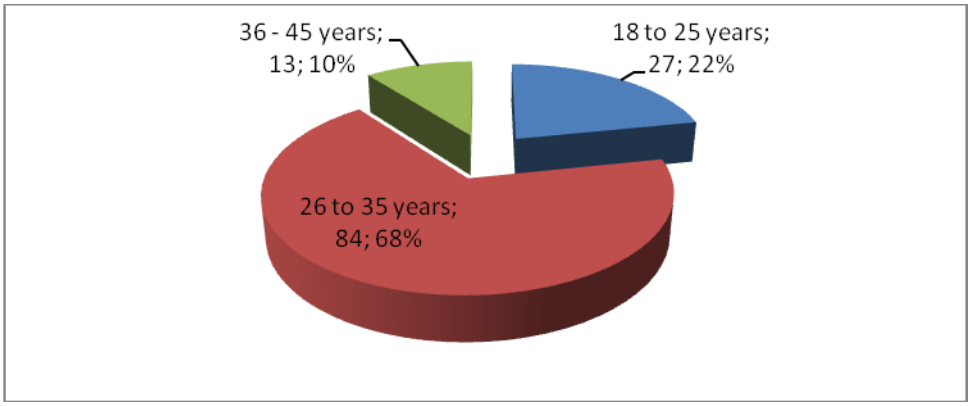


**Figure 2: Respondents' Age**

According to study findings, the majority of the respondents (68 %) were aged between 26-35 years, as shown by Figure 2. Twenty two percent of the respondents were aged between 36-45 years and 22% were aged between 18 to 25 years. The finding implies that those working in banks are the youth.

### 4.2.3 Years of Service in Banking Sector

Results are presented in Figure 3.

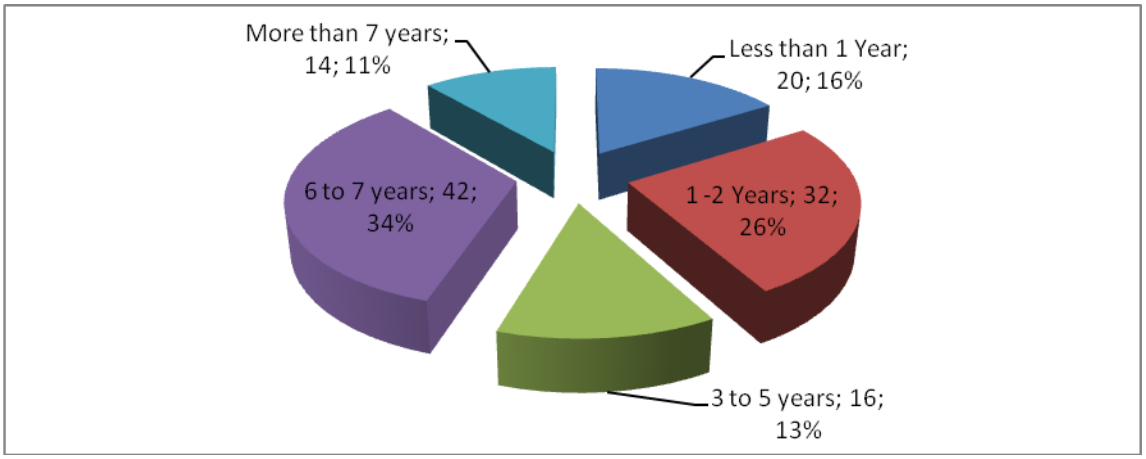


**Figure 1: Years worked in Banking Sector**

The study findings indicate that majority of the respondents, 34% had worked in the banking sector for 6 to 7 years while 26% of the respondents had been in the banking sector for 1-2 years. Sixteen percent of the respondents indicated less than one year and only 11% had worked in the banking sector for more than 7 years.

### 4.3 Internet Banking

The key independent variable of the study was internet banking and the results are presented on Table 1.

**Table 1: Internet Banking**

| Statement | strongly disagree | disagree | Neutral | agree | strongly agree | mean |
|---|---|---|---|---|---|---|
| Our bank has invested heavily in internet banking | 13.7% | 9.7% | 8.9% | 34.7% | 33.1% | 3.64 |
| All our corporate clients use internet banking | 4.0% | 16.1% | 13.7% | 41.9% | 24.2% | 3.66 |
| All our retail clients use internet banking | 0.0% | 0.8% | 3.2% | 38.7% | 57.3% | 4.52 |
| Internet banking has improved the image of our bank among its customers | 0.0% | 21.0% | 9.7% | 37.1% | 32.3% | 3.81 |
| Our bank always ensures security of data and information that is operated on the internet banking platform | 12.1% | 18.5% | 16.9% | 30.6% | 21.8% | 3.31 |
| Customers fear internet banking due to fear of hacking of their accounts by web hackers | 5.6% | 24.2% | 8.9% | 25.0% | 36.3% | 3.62 |
| Customers are provided with encrypted passwords in order to protect their information and transactions | 11.3% | 11.3% | 11.3% | 45.2% | 21.0% | 3.53 |
| Internet service is operated in a restricted and controlled environment in order to safe guard customer information | 8.1% | 8.9% | 5.6% | 46.0% | 31.5% | 3.84 |

(for each of these likert type summaries, you need a column at the end for TOTALS!!)

Sixty seven point eight percent of the respondents agreed that their bank has invested heavily in internet banking, while 66.1% of the respondents agreed that all their corporate clients use internet banking and 96% of the respondents agreed that all their retail clients use internet banking. Majority of the respondents (69.4%) agreed that Internet banking has improved the image of our bank among its customers and 52.4% agreed that their bank always ensures security of data and information that is operated on the internet banking platform. Sixty one point three percent of the respondents agreed that customers fear internet banking due to fear of hacking of their accounts by web hackers. In addition, results also indicated that 66.2% of the respondents agreed that customers are provided with encrypted passwords in order to protect their information and transactions and 77.5% agreed that internet service was operated in a restricted

and controlled environment in order to safe guard customer information. The mean score of the responses were all above 3.0 which indicate that all statements have more respondents agreeing than disagreeing. The overall mean score of the responses for this section was 3.77 which show that there was more agreement than disagreement with the statements in the questionnaire

### 4.3.1 Internet Banking and Income

The respondents were asked to indicate the effects of internet banking on income of commercial banks.

**Table 2: Internet Banking and Bank Income**

| Statement | strongly disagree | disagree | neutral | Agree | strongly agree | Mean |
|---|---|---|---|---|---|---|
| Internet banking has led to increase of bank income | 8.1% | 8.9% | 7.3% | 40.3% | 35.5% | 3.86 |
| Internet banking is a key revenue stream for the bank | 11.3% | 10.5% | 11.3% | 57.3% | 9.7% | 3.44 |
| Internet banking is provided free to customers | 4.0% | 5.6% | 4.0% | 54.0% | 32.3% | 4.05 |
| Internet banking has led to more commission income than our previous traditional delivery channels | 0.8% | 4.0% | 4.8% | 58.9% | 31.5% | 4.16 |
| Internet banking has created avenue for more indirect revenue streams for the bank | 9.7% | 3.2% | 8.1% | 50.8% | 28.2% | 3.85 |

The study findings on Table 2 indicate that 40.3% of the respondents agreed and 35.5% strongly agreed with the statement that internet banking has led to increase of bank income. Furthermore, 57.3% of the respondents agreed and another 9.7% strongly agreed with the statement that internet banking is a key revenue stream for the bank. In addition, results indicated that majority 54% of the respondents agreed and another 32.3% strongly agreed with the statement that internet banking is provided free to customers. Meanwhile, 5.6% of the respondents disagreed, 4% strongly disagreed and another 4% were neutral.

Findings also indicate that majority (58.9%) of the respondents agreed and another 31.5% strongly agreed with the statement that Internet banking has led to more commission income than our previous traditional delivery channel. Four point eight percent were neutral while 4% disagreed with the statement. Finally, results revealed that majority (50.8%) agreed and another 28.2% strongly agreed with the statement that Internet banking has created avenue for more indirect revenue streams for the bank. Meanwhile 8.1% of the respondents were neutral and 9.7% strongly disagreed with the statement. The mean score of the responses for this section was 3.87 which show that there was more agreement than disagreement with the statements in the

questionnaire. The mean scores for the responses for each statement were above 3.0 indicating that the respondents agreed with the statements in support of the influence of internet banking on income of commercial banks.

### 4.3.2 Regression for internet banking and Income

Regression analysis was conducted to empirically determine whether internet banking was a statistically significant determinant of income. The equation took the form of $Y_1 = \beta_0 + \beta_1 X_1 + \mu$ where $Y_1$ bank income, $\beta_0$ represents constant or the intercept, $X_1$ represents internet banking and $\beta_1$ represents the beta/change coefficient for internet banking. $\mu$ represents the error term. Regression results in Table 3 indicate the goodness of fit for the regression between internet banking and income is satisfactory. An R squared of 0.550 indicates that holding other factors constant, 55% of the variations in income are explained by the variations in internet banking.

**Table 3: Regressions model fitness for Internet Banking and Income**

| Indicator | Coefficient |
|---|---|
| R | 0.742 |
| $R^2$ | 0.550 |
| Std. Error of the Estimate | .41482 |

**Table 4: ANOVA Results for Internet Banking and Income**

| Indicator | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|
| Regression | 25.663 | 1 | 25.663 | 149.139 | 0.000 |
| Residual | 20.993 | 122 | 0.172 | | |
| Total | 46.655 | 123 | | | |

ANOVA statistics in Table 4 indicate that the overall model was significant. This was supported by an F statistic of 149.139 and p value of 0.000. The reported probability was less than the conventional probability of 0.05 (5%) significance level. This shows that internet banking has a statistically significant influence on bank incomes.

Regression coefficients in Table 5 indicate that the relationship between income and internet banking is positive and significant (beta=0.896, p value 0.000). The findings imply that internet banking has significant effect on income

**Table 5: Regression Output for Internet Banking and Income**

| Variable | Beta | Std. Error | t | Sig. |
|---|---|---|---|---|
| Constant | 0.515 | 0.277 | 1.858 | 0.066 |
| Internet Banking | 0.896 | 0.073 | 12.212 | 0.000 |

### 4.3.3 Internet Banking and Operating costs

The other objective of the study was to establish the extent to which internet banking influences management of operating costs of listed commercial banks in Kenya. The results are presented on Table 6.

**Table 6: Internet Banking and Operating costs**

| Statement | strongly disagree | disagree | neutral | agree | strongly agree | mean |
|---|---|---|---|---|---|---|
| Internet banking has helped to reduce HR costs | 0.0% | 8.1% | 7.3% | 48.4% | 36.3% | 4.13 |
| Internet banking has helped to reduced stationery and printing costs | 0.0% | 15.3% | 16.1% | 33.9% | 34.7% | 3.88 |
| Internet banking has been key in monitoring bank costs | 0.0% | 9.7% | 8.9% | 58.1% | 23.4% | 3.95 |
| Internet banking has minimal operating and maintenance costs | 5.6% | 7.3% | 10.5% | 47.6% | 29.0% | 3.87 |
| Internet banking is key in recruiting Diaspora customers in cost effective manner | 8.1% | 5.6% | 12.1% | 45.2% | 29.0% | 3.81 |

The objective was assessed using statements on a likert scale questionnaire. The results on Table 6 reveal that 84.7% of the respondents felt that Internet banking has helped to reduce HR costs while 78.6% appreciated that Internet banking has helped to reduced stationery and printing costs. In regard to whether Internet banking has been key in monitoring bank costs, 81.5% agreed and only 9.7% disagreed. The study findings also revealed that 76.6% of the respondents agreed that internet banking has minimal operating and maintenance costs while 74.2% of the respondents Internet banking is key in recruiting Diaspora customers in cost effective manner. The mean score for each statement was above 3.0 which is the mark for a neutral. This shows that there was more agreement than disagreement on the influence of internet banking on operating costs of banks. The mean score of the responses for this section was 3.92 which show that there was more agreement than disagreement with the statements in the questionnaire.

### 4.3.4 Regression for Internet Banking and Operating Costs

Regression analysis was conducted to empirically determine whether internet banking was a significant determinant of operating costs. The equation took the form of $Y_2 = \beta_0 + \beta_1 X_1 + \mu$ where $Y_2$ operating costs, $\beta_0$ represents constant or the intercept, $X_1$ represents internet banking and $\beta_1$ represents the beta/change coefficient for internet banking. $\mu$ represents the error term.

**Table7: Regressions model fitness for Operating Costs**

| Indicator | Coefficient |
|---|---|
| R | .672 |
| $R^2$ | .452 |
| Std. Error of the Estimate | .47100 |

Regression results on Table 7 indicate the goodness of fit for the regression between internet banking and operating costs is satisfactory. An R squared of 0.452 indicates that holding other factors constant 45.2% of the variances in operating costs are explained by the variations in internet banking.

ANOVA results are as shown in table 8.

**Table 8: ANOVA Results for Internet Banking and Operating Costs**

| Indicator | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|
| Regression | 22.311 | 1 | 22.311 | 100.570 | .000 |
| Residual | 27.065 | 122 | .222 | | |
| Total | 49.375 | 123 | | | |

ANOVA statistics in Table 8 indicate that the overall model was significant. This was supported by an F statistic of 100.570 and p value of 0.000. The reported probability was less than the conventional probability of 0.05 (5%) significance level.

Table 9 presents the regression output results.

**Table 9: Regression Output for Operating Costs**

| Variable | Beta | Std. Error | t | Sig. |
|---|---|---|---|---|
| Constant | .800 | .315 | 2.541 | .012 |
| Internet Banking | .836 | .083 | 10.028 | .000 |

Regression coefficients in Table 9 indicate that the relationship between operating costs and internet banking is positive and significant (beta=0.836 p value 0.000). The findings imply that internet banking has significant effect on operating costs.

### 4.3.5 Internet Banking and Loan book

Table 10 presents results on the effect internet banking on the growth on loan book of listed commercial banks in Kenya.

**Table 10: Internet Banking and Loan book**

| | strongly | disagree | neutral | agree | strongly | mean |
|---|---|---|---|---|---|---|

| Statement | disagree | | | | agree | |
|---|---|---|---|---|---|---|
| Internet banking has led to increase of loans to customers | 6.5% | 8.9% | 6.5% | 37.1% | 41.1% | 3.98 |
| Internet banking is a key channel for marketing the bank loan products | 0.0% | 4.8% | 13.7% | 40.3% | 41.1% | 4.18 |
| Internet banking is provided able to provide simple loan interest calculation tools to customers | 5.6% | 13.7% | 4.8% | 28.2% | 47.6% | 3.98 |
| Internet banking has led to more growth of the loan book than our previous traditional delivery channels | 4.8% | 11.3% | 8.1% | 39.5% | 36.3% | 3.91 |
| Internet banking has created avenue for more loan customers and hence more interest income to the bank | 10.5% | 8.1% | 4.8% | 33.1% | 43.5% | 3.91 |

Seventy eight percent of the respondents agreed that Internet banking has led to increase of loans to customers, while 81.4% agreed that Internet banking is a key channel for marketing the bank loan products. The study findings further indicate that 75.8% of the respondents agreed that Internet banking is provided able to provide simple loan interest calculation tools to customers. Majority 75.8% of the respondents agreed that Internet banking has led to more growth of the loan book than our previous traditional delivery channels and 76.6% of the respondents agreed with the statement that Internet banking has created avenue for more loan customers and hence more interest income to the bank. The mean score of the responses for this section was 3.99 which show that there was more agreement than disagreement with the statements in the questionnaire.

### 4.3.6 Regression for internet banking and Loan Book

Regression analysis was conducted to empirically determine whether internet banking was a significant determinant of loan book. The equation took the form of $Y_3 = \beta_0 + \beta_1 X_1 + \mu$ where $Y_3$ loan book, $\beta_0$ represents constant or the intercept, $X_1$ represents internet banking and $\beta_1$ represents the beta/change coefficient for internet banking. $\mu$ represents the error term.

**Table 111: Model Fitness for Internet Banking and Loan book**

| Indicator | Coefficient |
|---|---|
| R | .675 |
| $R^2$ | .456 |

| | |
|---|---|
| Std. Error of the Estimate | .60788 |

Regression results in Table 11 indicate the goodness of fit for the regression between internet banking and loan book is satisfactory. An R squared of 0.456 indicates that holding other factors constant, 45.6% of the variances in loan book are explained by the variations in internet banking.

ANOVA statistics in Table 12 indicate that the overall model was significant. This was supported by an F statistic of 102.163 and p value of 0.000. The reported probability was less than the conventional probability of 0.05 (5%) significance level.

**Table 12: ANOVA Results for Internet Banking and Loan Book**

| Indicator | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|
| Regression | 37.751 | 1 | 37.751 | 102.163 | .000 |
| Residual | 45.081 | 122 | .370 | | |
| Total | 82.832 | 123 | | | |

Regression coefficients in Table 13 indicate that the relationship between loan book and internet banking is positive and significant (beta=1.087 p value 0.000). The findings imply that internet banking has significant effect on loan book.

**Table 13: Regression Output for Internet Banking and Loan book**

| Variable | Beta | Std. Error | t | Sig. |
|---|---|---|---|---|
| Constant | -.078 | .406 | -.192 | .848 |
| Internet Banking | 1.087 | .108 | 10.108 | .000 |

### 4.3.7 Internet Banking and Customer deposits

The study sought to determine the influence internet banking has on customer deposits mobilization of listed commercial banks in Kenya. Results are presented in Table 14.

**Table 14: Internet Banking and Customer deposits**

| Statement | strongly disagree | disagree | neutral | agree | strongly agree | mean |
|---|---|---|---|---|---|---|
| Internet banking has enabled the bank to recruit more customers | 8.1% | 8.1% | 4.0% | 36.3% | 43.5% | 3.99 |
| Due to efficient service delivery through internet banking, the bank is able to retain its customers | 2.4% | 6.5% | 4.8% | 58.1% | 28.2% | 4.03 |
| Corporate customers are attracted to our bank due to our internet banking service delivery channel | 0.0% | 11.3% | 6.5% | 58.9% | 23.4% | 3.94 |
| Internet banking has enabled the bank to have ease of communication with customers | 8.9% | 6.5% | 10.5% | 41.1% | 33.1% | 3.83 |
| Due to internet banking the bank is able to attract additional business from the customers on top of deposit maintenance | 4.0% | 11.3% | 10.5% | 37.9% | 36.3% | 3.91 |

According to the study findings in Table 14, majority 79.8% of the respondents agreed that Internet banking has enabled the bank to recruit more customers, while 86.3% agreed that due to efficient service delivery through internet banking, the bank is able to retain its customers and 82.3% of the respondents agreed that corporate customers are attracted to our bank due to our internet banking service delivery channel. Majority of the respondents (74.2%), agreed that Internet banking has enabled the bank to have ease of communication with customers meanwhile 74.2% of the respondents agreed that due to internet banking the bank is able to attract additional business from the customers on top of deposit maintenance. The mean score of the responses for this section was 3.94 which show that there was more disagreement than agreement with the statements in the questionnaire

### 4.3.8 Regression for internet banking and Customer Deposits

Regression analysis was conducted to empirically determine whether internet banking was a significant determinant of customer deposits. The equation took the form of $Y_4 = \beta_0 + \beta_1 X_1 + \mu$ where $Y_4$ customer deposits , $\beta_0$ represents constant or the intercept, $X_1$ represents internet banking and $\beta_1$ represents the beta/change coefficient for internet banking. $\mu$ represents the error term.

**Table 4.15: Model fitness for Internet Banking and customer deposits**

| Indicator | coefficient |
|---|---|
| R | .651 |
| $R^2$ | .424 |
| Std. Error of the Estimate | .49847 |

Regression results in table 15 indicate the goodness of fit for the regression between internet banking and customer deposits is satisfactory. An R squared of 0.424 indicates that 42.4% of the variances in customer deposits are explained by the variations in internet banking.

**Table 16: ANOVA Results for Internet Banking and Customer Deposits**

| Indicator | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|
| Regression | 22.308 | 1 | 22.308 | 89.781 | .000 |
| Residual | 30.314 | 122 | .248 | | |
| Total | 52.622 | 123 | | | |

ANOVA statistics in Table 16 indicate that the overall model was significant. This was supported by an F statistic of 89.781 and p value of 0.000. The reported probability was less than the conventional probability of 0.05 (5%) significance level.

**Table 17: Regression Output for Customer Deposits**

| Variable | Beta | Std. Error | t | Sig. |
|---|---|---|---|---|
| Constant | .813 | .333 | 2.440 | .016 |
| Internet Banking | .836 | .088 | 9.475 | .000 |

Regression coefficients in Table 17 indicate that the relationship between customer deposits and internet banking is positive and significant (beta=0.836 p value 0.000). The findings imply that internet banking has significant effect on loan book

**Table 18: Summary of Key Results Indicators**

| Variable | Likert Mean Score | $R^2$ | P-value |
|---|---|---|---|
| Income | 3.87 | 55.0% | 0.000 |
| Operating costs | 3.92 | 45.2% | 0.000 |
| Loan book | 3.99 | 45.6% | 0.000 |
| Customer deposit | 3.94 | 42.4% | 0.000 |

| | | | |
|---|---|---|---|
| Average | 3.93 | 47.1% | 0.000 |

Results on the analysis show that internet banking has positive influence on all the four variables for the study. This is demonstrated by the key influence indicators shown on Table18. The summary results show that internet banking has had significant influence on bank incomes, operating costs, loan book and customer deposits. The mean R square of 47% indicates that internet banking has a weighted average influence of 47% of the variations in the three dependent variables.

## 5.0 CONCLUSIONS AND RECOMMENDATIONS

### 5.1 Conclusions

The study concluded that the influence of internet banking on income has been occasioned by the ease that internet has offer to both retail and corporate customers and hence making it easy, convenient and faster to make transactions. Therefore internet banking is a key driver of cost management in banks. The study also concluded that internet banking is capable of growing the loan book of banks and even monitor how the loan accounts are behaving and be able to send electronic reminders and advice to customers. The study further concluded that internet banking had positive influence on customer deposits especially mobilization.

### 5.2 Recommendations

Due to the growing demand for the internet as a key service delivery, it is recommended to bank management to ensure that there is tight security of data and information being operated on the internet bank platform. The study also recommends that the bank managers should emphasize on training their clients on use of internet banking via advertisements as this will make ease on communication. Commercial banks need to emphasize the use of internet banking as this will enhance banks growth and customers saving on much time which they could have wasted on queues to be attended the traditional way.

## REFERENCES

Bauer, H., Hammerschmidt, M., & Falk, T., (2005). Measuring the Quality of E-Banking

Chau, P & Lai, V.(2003). An Empirical Investigation of the Determinants of User

*Commerce*, vol. 13, no. 2, pp. 123-145.

Consumers' Risks Perception For Banking On The Internet. I.J.E.M.S., Vol.3 (2) 2012: 146 - 150 ISSN 2229-600X 146

Delivery in the Uk Retail Banking Sector. *International Journal of Bank Marketing*, vol. 24, no. 7, pp. 475-493.

Developing Economies. *Journal of Internet Banking and Commerce*, vol. 13, no. 1.

DeYoung, R. (2005). The performance of Internet-based business models: Evidence from the banking industry. Journal of Business 78 (3), 893–947.

DeYoung, R., Lang, W.W. & Nolle, D.L. (2007). How the Internet affects output and performance at community banks, Journal of Banking & Finance 31 1033–1060

Federal Reserve Bank of Kansas City. *Financial Industry Perspectives* (December), 1–16.

Globalization: Twenty-First Century "Digital Slavery" for Developing Countries--

Ibrahim, E., Joseph, M. & Ibeh, K. (2006). Customers' Perception of Electronic Service

Manoranjan, D. Bhusan, M.B., Kanta, B.S., & Suryakanta. M. (2012). Understanding

Mobile Pay Tangaza E-Commerce and Money Transfer Service on 24th January 2011.

Myth or Reality? *Electronic Journal of Academic and Special Librarianship*, 6, 1-2.

Ndung'u, N. (2011), Governor Central Bank of Kenya in his speech during the Launch of the

Ogunsola, L.A. (2005) Information and Communication Technologies and the Effects of

Onay, C., Ozsoz, E. & Helvacıoğlu, A. D. (2008). The impact of Internet-Banking on Bank Profitability- The Case of Turkey. 2008 Oxford Business &Economics Conference Program.

Panida, S. and Sunsern, L. (2012). An Analysis of Internet Banking Security of Foreign

Portals," *International Journal of Bank Marketing*, vol. 23,no. 2, pp. 153-175.

Qureshi, T., Zafar, M. & Khan, M.,(2008). Customer Acceptance of Online Banking in

Siam, A. Z. (2006). *Role of the Electronic Banking Services on the Profits of Jordanian*

Simpson, J. (2002). The Impact of the Internet in Banking: Observations and Evidence from Developed and Emerging Markets. *Telematics and Informatics, 19*, pp. 315-330

Subsidiary Banks in Australia: A Customer Perspective. International Journal of Computer Science Issues, Vol. 9, Issue 2, No 2, ISSN (Online): 1694-0814 www.IJCSI.org

Sullivan, Richard J., (2000). How has the adoption of Internet banking affected performance

Thulani, D, Tofara, C & Langton, R., (2009) "Adoption and Use of Internet Banking in

Zimbabwe: An Exploratory Study," *Journal of Internet Banking and Commerce*, vol. 14, no. 1. 2009.