

INFLUENCE OF ASSET LIABILITY MANAGEMENT ON FINANCIAL PERFORMANCE OF COMMERCIAL BANKS IN KENYA: A CASE STUDY OF DIAMOND TRUST BANK

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Abstract

Asset Liability Management is critical for sound management of the finances of any organization that invest to meet its future cash flow needs and capital requirements. Efforts are required to monitor and co-ordinate the activities of asset liability management. Lack of autonomy, weak supervision by Central Bank of Kenya and non-compliance of the commercial banks leading to drop in profits, merging and collapsing of commercial banks. This study is an evaluation on the influence of asset liability on financial performance of commercial banks in Kenya with specific interest in Diamond Trust Bank. The objectives of the study were; to determine the influence of customer deposits; loans advanced to customers; management of the loans advanced to customers and management of loans from other banks influence the Net Interest Income (NII) of Diamond Trust Bank. The study adopted a case study design and made use of Secondary data which was obtained from the bank's annual audited financial statements from 2006-2013. The significance of the regression model was tested using the t-test. Analyzed data was presented in time series plots, tables and graphs. The study concludes that banks should lay more emphasis on encouraging increased customer deposits and the advancement of more loans to customers so as to increase their financial performance.

Keywords: Banks, Financial Performance, Asset Liability, Kenya

INTRODUCTION

The stability of commercial banks as whole in the economy depend on proper asset liability management structures. Better asset liability management have the tendency to absorb risks and shocks that commercial banks can face. Moreover, asset liability management is the perquisite condition for the efficiency and growth of commercial banks. Asset liability management in commercial banks is determined by the ability of the banks to retain capital, absorb loan losses, support future growth of assets and provide return to investors. The largest source of income to the bank is interest income from lending activity less interest paid on deposits and debt. For a bank to attain the same objectives then it has to ensure proper asset liability management, including liquidity risk management, interest rate risk management and credit risk management (Francis, 2007).

The Central Bank of Kenya (CBK) prudential guidelines on asset liability management stipulates that, in order to effectively monitor its liquidity risk, credit risk and interest rate risk an institution is supposed to establish an Asset Liability Committee (ALCO) with the following four key roles: First, management of the overall assets and liabilities of the commercial bank ; Second, ALCO must report directly to the Board and in the case of a foreign incorporated bank, report to the senior management of the institution in the country; Third, ALCO must facilitate, coordinate, communicate and control balance sheet planning with regards to risks inherent in managing liquidity, credit and convergences in interest rates; and; Fourth, ALCO is responsible for ensuring that a bank's operations lies within the parameters set by its Board of Directors (Central Bank of Kenya Report, 2010).

Financial distress has afflicted numerous commercial banks, many of which have been closed down by the regulatory authorities or have been restructured under their supervision. Two commercial banks were closed between 1984 and 1989. Further five commercial banks were taken over in 1993/94, and two more local banks in 1996. In 1993/94 11 per cent (11%) of the total assets of banks were held by the failed commercial banks. A statement in the Kenyan parliament in October 1995 revealed that the Central bank of Kenya(CBK) lost a total of Kshs 10.2 billion (equivalent to 3.8 per cent of 1993 GDP) from frauds involving the “political banks” (Economist Intelligence Unit, 1995, p.13).

The recent rise in non-performing loans is widely spread across commercial banks in Kenya and is evident in both public and private owned banks. The upward trend of non-performing loans started immediately with the outbreak of the financial crisis in 2008, but the sharp increase occurred two years later. In 2010 the non performing loan rate increased from 18.5% to 20.5%. The rate also increased to 22.5% in 2012 and 25.7% in 2013. The upward trend reflects in part the consequences of heightened unemployment in Kenya which, together

with depreciated currency and tight financial conditions, weakened the borrowers' repayment capacity.

Statement of the Problem

Weakness in Kenya Banking system is becoming apparent and is manifesting in the relative controlled and fragmented financial system in Kenya. This can be attributed to differences in regulations governing banking and non-banking financial intermediaries, lack of autonomy and weak supervisory capacities carried out by the central banks surveillance in enforcing banking regulations. The number of Non -Performing Loans is increasing overtime from 22% to 27.3% of the Total Loans. This can be attributed to non-compliance by the banks as per the Central Bank of Kenya regulations. Further, the level of credit risk is increasing overtime; moreover, it is observed that 20% of banks have collapsed including Charter House Bank, Trust Bank in the early 2000's and 10% of banks in Kenya merged an example is CFC Stanbic and the trend is still increasing. It is not clear the extent to which asset liability management relates to financial performance. This study seeks to assess influences of financial performance of commercial banks in Kenya with specific interest of Diamond Trust Bank.

Objectives of the Study

The general objective of this study is to determine the influence of asset liability management on financial performance of Commercial banks in Kenya with reference to Diamond Trust Bank.

Study has following specific objectives-

- i. To determine the influence of customer deposits on the financial performance of Diamond Trust Bank.
- ii. To determine the influence of loans to customers on the financial performance of Diamond Trust Bank.
- iii. To establish the influence of managing non-performing loans on the financial performance of Diamond Trust Bank.
- iv. To establish the influence of management of loans from other banks on the financial performance of Diamond Trust Bank.

Research hypotheses

H₀₁: customers' deposits have no influence on the financial performance of Diamond Trust Bank.

H₀₂: Loans to customers have no influence on the financial performance of Diamond Trust Bank.

H₀₃: Management of Non-Performing Loans to customers has no influence on financial performance of Diamond Trust Bank.

H₀₄: Management of loans from other banks has no influence on financial performance of Diamond Trust Bank.

Scope of the Study

The research was conducted on Diamond Trust Bank limited in Kenya. Secondary data was analyzed by use of time series analysis and simple linear regression was conducted for the presentation on Bank's financial statements and reports for duration of 8 year period from 2006 to 2013.

LITERATURE REVIEW

This chapter will cover the related literature on effects of asset liability management on financial performance of commercial banks in Kenya. The theoretical review will be on asset liability management concept. Empirical review will also be discussed.

Asset Liability Management Concept

The asset liability management functions extend to funding, capital planning, profit planning and growth projection. The concept of asset liability management originated from India banking industry in 1999, but started been practiced in Africa from 2000. Asset-liability management basically refers to the process by which an institution manages its balance sheet in order to allow for alternative liquidity, interest rate and credit risk scenarios.

Financial Performance of Commercial Banks

Kithinji (2010) assessed the effect of credit risk management on the financial performance of commercial banks in Kenya. Data on the amount of credit, level of non-performing loans and profits were collected for the period 2004 to 2008. The findings revealed that the bulk of the profits of commercial banks are not influenced by the amount of credit and non-performing loans, therefore suggesting that other variables other than credit and non-performing loans impact on profits.

In conclusion, the above empirical evidence does not clearly show non-performing loans, customer deposits and loans from other banks should be managed for better financial performance.

Management of Customer Loans

Loans represent one of the highest yielding assets on banks' balances sheet. It is obvious that the more banks offer loans the more it does generate revenue and more profit; Abreu and Mendes (2000). But then banks have to be courteous in offering more loans because as they offer more loans to customers they expose themselves to liquidity and default risks which impacts negatively on banks' profits and survival; Rasiah (2010).

Example is the recent financial crisis which started in the United States of America in 2007 and 2008. It is well known that most banks engaged in the offering of more loans including non-prime loans during this period. And when the housing prices fell most banks suffered large number of defaults on non-prime loans which in turn resulted in lost of profits and the collapsed of some banks; Gaurav & Kelly (2011).

Non – Performing Loans

Due to the nature of their business, commercial banks expose themselves to the risks of default from borrowers. Prudent credit risk assessment and creation of adequate provisions for bad and doubtful debts can cushion the banks risk. However, when the level of non-performing loans (NPLs) is very high, the provisions are not adequate protection. According to the CBK (July, 1999) the level of NPLs in 1998 was estimated at Shs.80 billion or 30% of advances, up from 27% in 1997 as compared to 81.3 billion or 33.4% of total loans in November 2001. This can be compared with levels of NPLs in other countries.

Abebaw and Depaack,(2011) used ratio of Nonperforming assets (loans) to total loans and advances (NPL) as an indicator of bank's asset quality. They stated that the amount of nonperforming assets has a direct implication on financial performance of the commercial bank, that is if the proportion of the non performing assets in relation to total loans increase the financial performance will be decreased and vice versa. According to access capital research (2010), in recent years, non-performing loans (a key measure of lending practices) have improved substantially. Bank loans are expected to be the main source of income and are expected to have a positive impact on commercial bank financial performance. Therefore the researcher will concentrate on non performing loans that are ninety or more days delinquent in payments of interest and/or principal.

Management of Loans from Other Banks

The commercial banks in Kenya make use of three types of loan agreements; overnight loans, term loans, and continuing contracts. Overnight loans are unwritten agreements, negotiated via wire or telephone, with the borrowed funds returned the next day. Normally these loans are not

secured by specific collateral, though where borrower and lender do not know each other well or there is doubt about the borrower's credit standing, the borrower may be required to place selected government securities in a custody account in the name of the lender until the loan is repaid. Term loans are longer-term funds contracts lasting several days, weeks, or months, often accompanied by a written contract. Continuing contracts are automatically renewed each day unless either borrower or lender decides to end this agreement (Gieseche, 2012).

The above will involve interest rate risk and can be supported by a BIS study by English (2002) who concluded that it seems unlikely that interest rate charged on the loans is an important factor for the stability of a banking system, even though English acknowledges that interest rate risk may be an important source of volatility of profits hence affecting the financial performance of the commercial bank. English supports his conclusions by an econometric analysis of annual aggregate net interest income in different countries. He only finds weak support that changes in the slope of the yield curve as well as long and short-term interest rates impact on the nature of the loan.

Green et al., (2012) studied the interbank operations in Kenya. They tested for convergence of interest rates in the interbank loans across bank sizes and ownership structures and found that interbank loan interest rates generally converge. Gatenga et al., 2010 argue that the market is fragmented, with large banks serving specific lines of credit and market niches. There is need to explore varied measures of how Kenyan interbank market can be more efficient to extent loans to both public and privately owned banks.

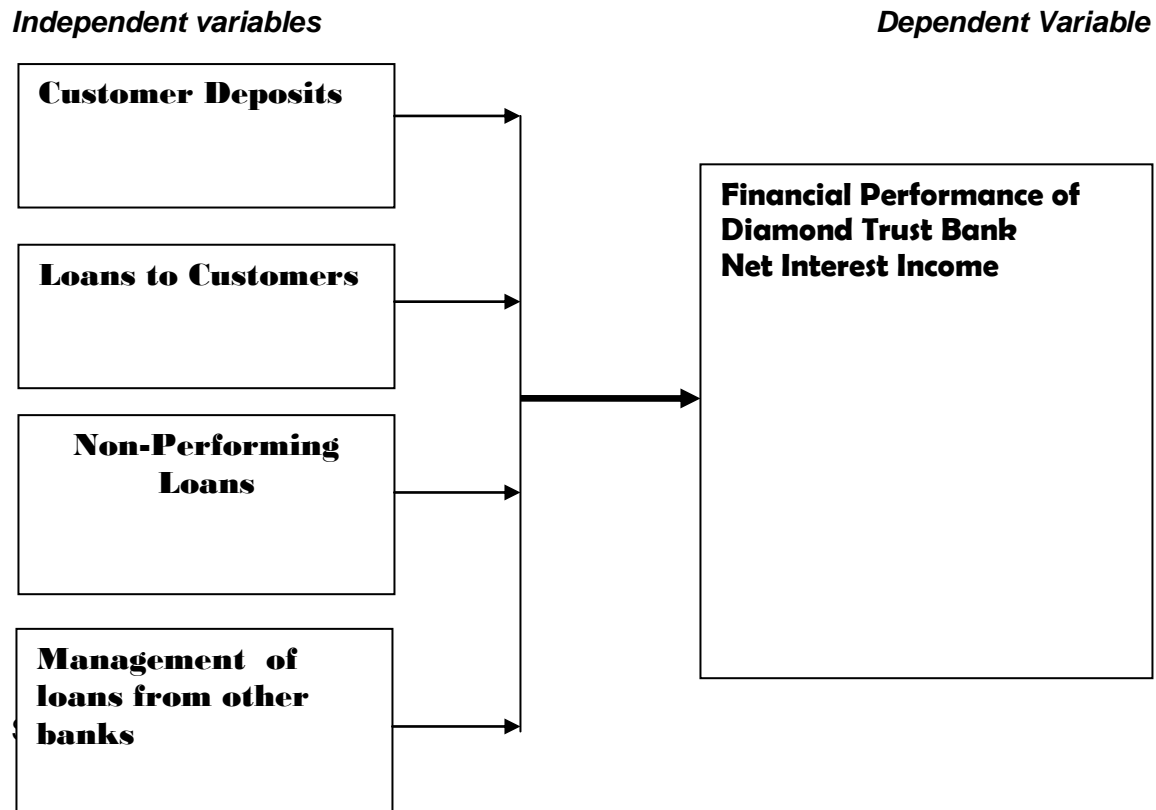
Management of Customer Deposits

Briys and Varenne, (2010) argues that as with any business, a bank has a balance sheet that is comprised of assets, liabilities, and equity. Banks fund their assets through a combination of their liabilities and equity. A bank's liabilities represent that bank's debt traditionally consist of deposits of money from people who entrust the bank to hold onto their money and return it when asked to do so. On the other side of the balance sheet are a bank's assets that, for the most part, consist of loans to its customers, from which the bank derives income in the form of interest charged to the borrowers.

Conceptual Framework

Figure 1 on the next page shows the conceptual framework that was formulated for this study

Figure 1 Conceptual Framework



Research Gap

Based on the related literature, it is clear that studies have failed to clearly determine a proper way of asset liability management in commercial banks and its effects on the financial performance. This study is therefore sought to fill this gap by studying the effects of asset liability management on financial performance of commercial banks in Kenya.

RESEARCH METHODOLOGY

Research Design

The study adopted a case study design of Diamond Trust Bank. This design enabled the researcher to have an in-depth and exhaustive account of the variables in the study.

Data Collection

The secondary data was obtained from the audited financial statements and reports of Diamond Trust Bank for the period between 2006 and 2013.

Data Analysis

Data collected was analyzed using simple linear regression analysis. The below formula was applicable in the process of carrying out the time series analysis for the respective variables under investigation.

$$Y_t = b_0 + b_1X_t + e_t$$

where:

Y_t = Net Interest Income at time t

b_0 = the intercept of the regression line

b_1 = the coefficient of the regression line

X_t = Asset liability management indicators

e_t = Random shock or error term

The significance of the influence of asset liability management indicators on the Net Interest Income was tested using the t-test at 0.05 level of significance.

The t-test statistics was given by the formula

$$T_0 = \frac{\hat{b}_1}{S_e(\hat{b}_1)}$$

Where;

\hat{b}_1 is the estimated regression coefficient

$S_e(\hat{b}_1)$ is the standard error of the estimated regression coefficient

T_0 is the calculated t-test value

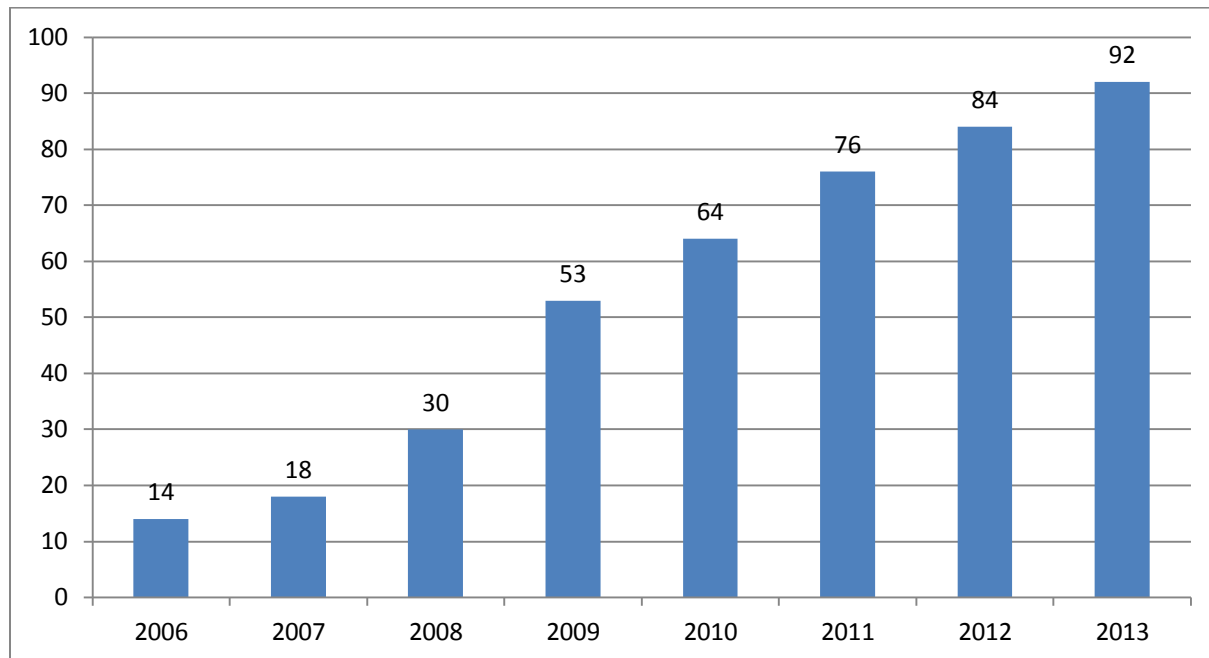
The test criterion was to reject $H_0 : b_1 = 0$ if the calculated (T_0) is greater than the table t value at $\frac{\alpha}{2} = 0.025$ level of significance and $n-p-1=8-2-1=6$ degrees of freedom.

ANALYSIS AND FINDINGS

Number of Branches

DTB has seen a steady growth from the year 2006 onwards. The graph below shows how the bank has grown for the eight years from 2006 – 2013.

Figure 2 Number of Branches Growth

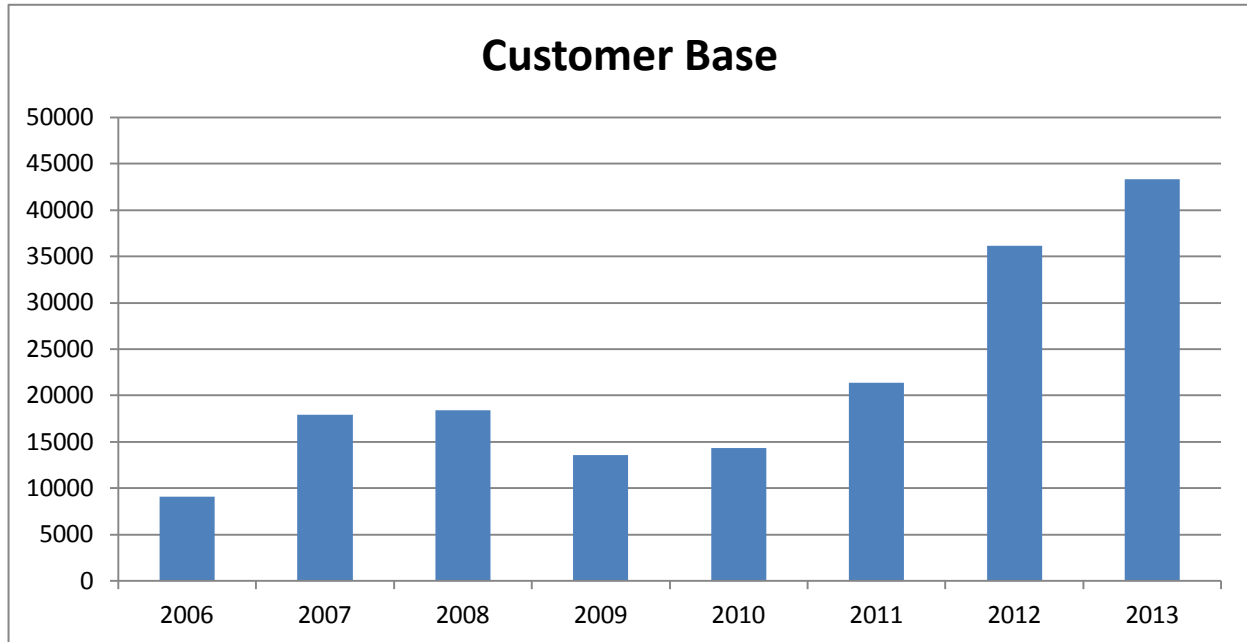


The Graph above indicates a gradual increase in the number of new branches which have opened up across Kenya since 2006 from 14 to 92 in 2013. This kind of growth is expected to raise the number of customers that the bank has, as indicated by the following factor.

Customer Base

There was a steady rise in customer base numbers from 2006 (9,088) to 2008 (18,390) then there was a sudden decrease in the numbers in 2009 (13,593). This was because DTB bank implemented the policy of closing all dormant accounts. A good number of clients liquidated the fixed deposit accounts they maintained with the bank due to unfavorable interest rates offered to them. This explanation was shared by the finance officers of the bank. As we are going to see in the later variables, the sharp decrease in customer base directly affected the banks growth. From 2010 onwards, there was a steady growth of customer base. Graph below represents these findings.

Figure 3 Customer Base



Descriptive Statistics

The results as presented in table below shows that Net Interest Income over the 8 years considered had a minimum value of Kshs 1,078,864 in 2006 and a maximum value of Kshs 7,848,316 in 2013. It had a mean of Kshs 4,119,068 with the annual NII values deviating from this mean by a standard margin of 2,388,456. This implies that the data values were scattered far away from the mean. The NII was positively Skewed with a Skewness index of 0.33. The Skewness is not very high implying the degree of deviation of the frequency distribution from the normal distribution is small.

With regard to customer deposits the results shows that the minimum customer deposits were of Kshs 16,932,462 in 2006 and the maximum was of Kshs 84,671,817 in 2013. The mean of the customer deposits was Kshs 49,282,594 with the other values deviating from this mean by a standard margin of 22,470,268. The data for customer deposits were positively Skewed with a Skewness index of 0.23 which is not high implying that the degree of deviation of the frequency distribution of customer deposits from the normal distribution is small

In respect of Loans to customers, the results shows that the minimum loan amount was Kshs 13,832,756 in 2006 and the maximum was of Kshs 75,292,211 in 2013. The mean of the loans to customers was Kshs 49,282,594 with the other values deviating from this mean by a standard margin of 19,934,787. The data for customer deposits were negatively Skewed with a Skewness index of -0.00 which implies that the frequency distribution of loans to customers was a normal distribution.

With regard to Non-Performing loans, the results shows that the minimum amount was Kshs 69,164 in 2009 and the maximum was of Kshs 972,023 in 2013. The mean of the Non-Performing loans was Kshs 538,935 with the other values deviating from this mean by a standard margin of 309,171. The data for Non-Performing Loans were negatively Skewed with a Skewness index of -0.35 which was however small hence the conclusion that the departure of the frequency distribution of non-performing loans from a normal distribution is small.

Finally, in respect of Loans from other banks, the results shows that the minimum amount was Kshs 1,002,394 in 2012 and the maximum was of Kshs 3,734,712 in 2013. The mean was Kshs 1,594,093 with the other values deviating from this mean by a standard margin of 894,955. The data for Non-Performing Loans were positively Skewed with a Skewness index of 2.47 which was very high hence the conclusion that the departure of the frequency distribution of loans other banks from a normal distribution is quite high. Also, the very high degree of Kurtosis of 6.46 indicate that the data for the loans from other banks is not a normal distribution.

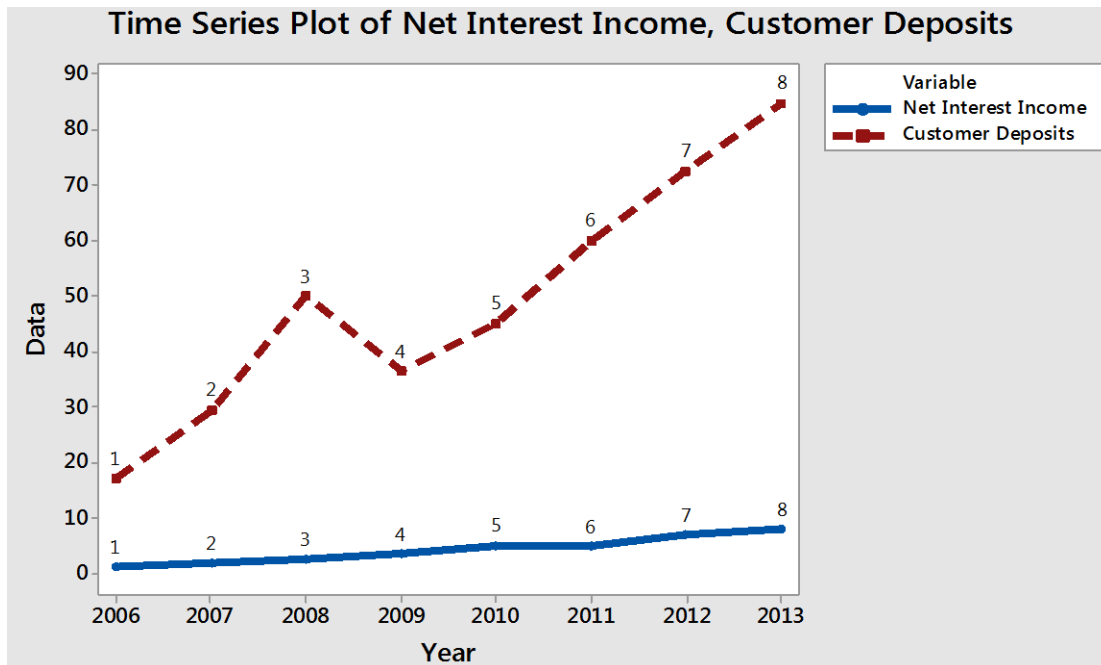
Table 1 Descriptive statistics of the study variables

Variable	N	Mean	SE Mean	StDev	Min.	Max	Skew	Kurt.
Net Interest Income	8	4119068	844447	2388456	1078864	7848316	0.33	-1.02
Customer deposits	8	49282594	7944440	22470268	16932462	84671817	0.23	-0.66
Loans to customers	8	49282594	7048012	19934787	13832756	75292211	-0.00	-0.44
Non-performing loans	8	538935	109308	309171	69164	972023	-0.35	-0.77
Loans from other banks	8	1594093	316414	894955	1002394	3734712	2.47	6.46

Influence of customer deposits on the financial performance of Diamond Trust Bank

The first objective of the study sought to investigate the extent to which customers deposits influence financial performance of Diamond Trust Bank. To achieve this objective a time series plot of customer deposits and net interest income was made. This is displayed by figure 4 below.

Figure 4 Net Interest Income & Customer Deposits



The findings indicate that both Net interest income and customer deposits had an increasing trend over time. Customer deposits had a sharp drop in 2008 but however increased steadily thereafter. On the other hand, Net interest income had a steady but low increase over time. The time series plot showed that customer deposits increased at a higher rate compared to Net interest income. The relationship between Net interest income and customer deposits was established using a simple regression analysis. The results of the analysis revealed that $Net\ Interest = -0.7451 + 0.0987\ Customer\ Deposit$. The coefficient 0.0987 in the model imply that there was a positive relationship between Customer deposits and Net Interest Income implying that an increase of customers deposits will cause an increase in the Net Interest Income.

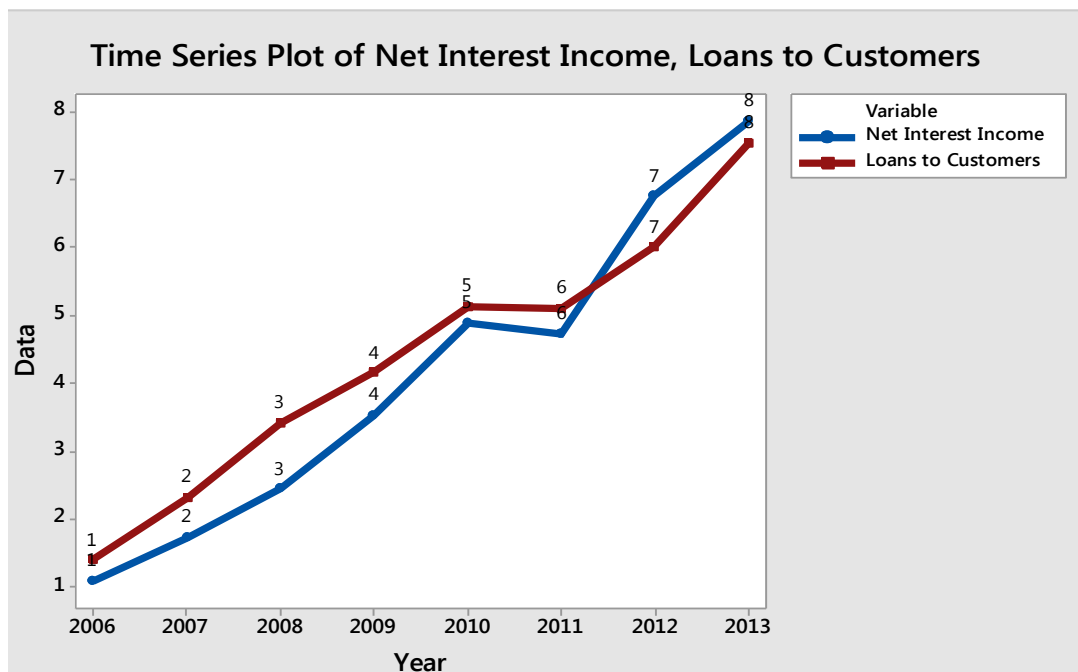
Further the study determined the significance of the influence of customer deposits on Net Interest Income, the t-test was applied. This aimed at testing for the significance of b_1 and forming the basis for accepting or rejecting the stated hypotheses; the computed $T_0(6.134) > t_{0.025,8}(2.447)$, the H_0 is rejected (H_{01} : customers' deposits have no influence on the financial performance of Diamond Trust Bank) and conclude that b_1 is significantly different from zero. This implies that customer deposits have a significant influence on the Net Interest Income. The statistics from the linear regression plot show that the regression yielded a coefficient of determination $R^2=0.863$ which implies that 86.3% of the variation in Net Interest Income is explained by changes in customer deposits. Only 13.7% remains unexplained. The adjusted R^2

(84%) indicate that the shrinkage of the model is 2.3% which is quite small indicating that the model fits the data well and can be relied on.

Influence Of Loans To Customers On Net Interest Income

The second objective sought to determine the influence of loans to customers on the Net Interest income of Diamond Trust Bank. Figure 5 below show that both Net interest income and loans to customers had an increasing trend over time. Between 2006 and 2011 loans to customers increased at a higher rate compared to Net interest Income. However, after 2011, the net interest income increases at a higher rate compared to loans to customers.

Figure 5 Net Interest Income & Loans to Customers



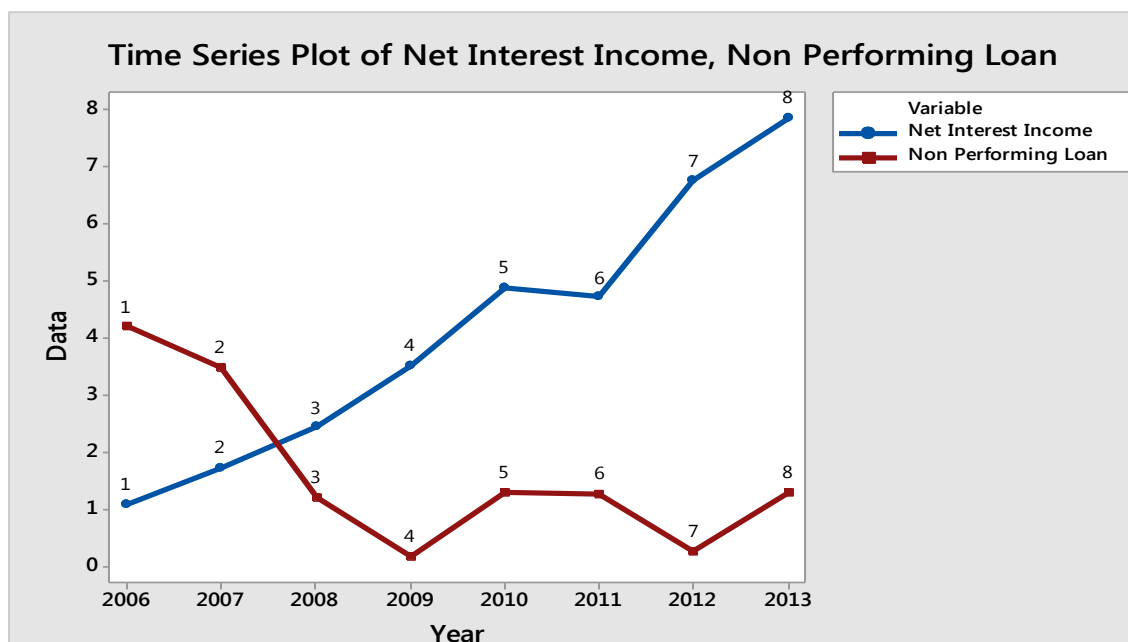
Simple linear regression analysis of the relationship between Net Interest Income and Loans to Customers indicated that $Net\ Income\ Interest = -1.0412 + 1.1794\ Customer\ Loans$. The coefficient 1.1794 in the model imply that there is a positive relationship between Loans to Customers and Net Interest Income implying that an increase of loans to customers will cause an increase in the Net Interest Income. For instance if the loans to customers increase by Kshs 1,000,000, there will be a net increase of Net Interest Income by Kshs 1,179,400. Without loans to customers the Net Interest Income will be Kshs (-1.0412) million. This implies that if the loans to customers are zero, the bank will make a loss of Kshs 1,041,200. To determine the significance of the influence of customer deposits on Net Interest Income, the t-test was applied.

This aimed at testing for the significance of b_1 and forming the basis for accepting or rejecting the stated hypotheses; the computed $T_0(13.692) > t_{0.025,8}(2.447)$, the H_0 is rejected (H_{01} : Loans to customers have no influence on the financial performance of Diamond Trust Bank) and conclude that b_1 is significantly different from zero. This implies that loans advanced to customer have a significant influence on the Net Interest Income for DTB. The statistics from the linear regression plot show that the regression yielded a coefficient of determination $R^2=0.969$ which implies that 96.9% of the variation in Net Interest Income is explained by changes in loans to customer. Only 3.1% remains unexplained. The results shows that the regression line is a good fit hence the conclusion that Diamond Trust Bank can increase Net Interest Income by increasing the amounts of loans to customers. This could also be attributed to the low amounts of Non-performing loans in proportion to the amounts lent.

Influence of Management of Non-Performing Loans to Customers on Net Interest Income

The third objective of the study sought to determine the influence of management of customer loans on the performance of DTB. Figure 6 below show that Net interest income had an increasing trend over time. The graph for the proportion of non-performing showed a decline form 4.20% in 2006 to 0.17% in 2009. The decline in the proportion of Non-Performing Loans had a corresponding increase in the net interest income as indicated by an increasing trend in the NII graph. The graphs depict a scenario in which an increase in NII would be as a result of a decline in the proportion on NPL implying better management of loans to customers.

Figure 6 Net Interest Income & Non performing Loans

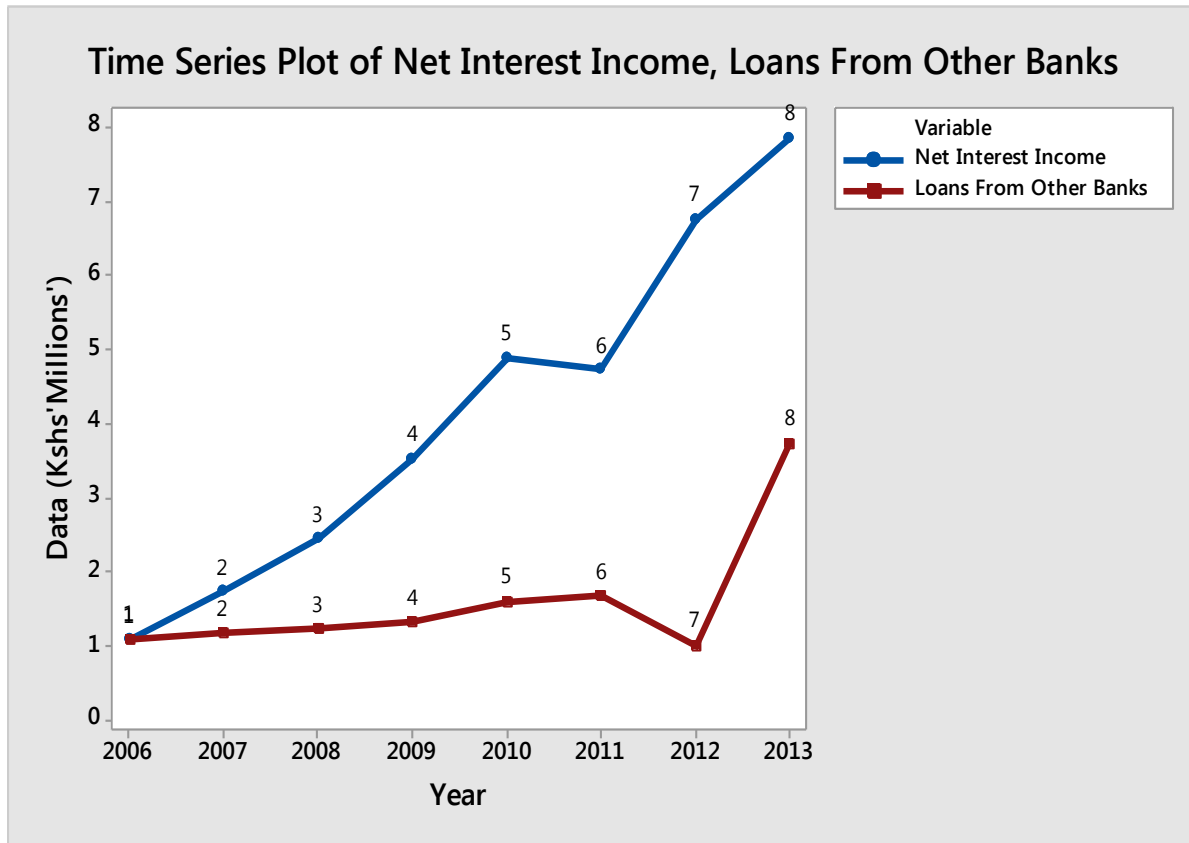


Management of customer loans was measured by the ratio of non-performing loans to the loan amounts advanced to customers. Simple linear regression analysis indicated that $Net\ Income\ Interest = 5.927 - 1.097\ Proportion\ of\ Non-performing\ loans$. The coefficient -1.097 in the model imply that there was an inverse relationship between management of Loans to Customers measured by the proportion of Non-performing loans and Net Interest Income implying that an increase of the proportion of Non-performing loans will cause a decrease in the Net Interest Income. If the percentage of Non-performing loans is zero, the net interest income of the bank will stand at Kshs 5.927 million. In determining the significance of the influence of management of customer deposits on Net Interest Income, the t-test was applied. This aimed at testing for the significance of b_1 and forming the basis for accepting or rejecting the stated hypotheses; the computed $T_0(2.176) < t_{0.025,8}(2.447)$, study failed to reject H_0 (Management of Loans to customers has no influence on financial performance of Diamond trust Bank) and concluded that b_1 is not significantly different from zero. This implies that the Management of Loans to customers as a function of non-performing loans has no significant influence on the Net Interest Income. This could be attributed to the fact that the proportion of the NPL as a percentage of loan amounts advanced to customers was relatively small since the highest value was 4.20%. The statistics from the linear regression plot showed that the regression yielded a coefficient of determination $R^2=0.439$ which implies that 43.9% of the variation in NII is explained by changes in proportion of non-performing loans. 56.1% remains unexplained.

Influence Of Loans From Other Banks On Net Interest Income

The fourth objective sought to determine the influence of management of loans from other banks on the financial performance of Diamond Trust Bank. Figure 7 below show that Net interest income had an increasing trend over time. The graph for the loans from other banks showed a small increase between 2006 and 2009. In 2010 there was a sharp decline and a sharp increase in 2012. The graphs depict a scenario in which an increase in NII would be as a result of a decline in the loans from other banks implying the less the loan amounts from other banks, the more the likelihood of increasing NII. This can be attributed to less interest that could be paid for such loans.

Figure 7 Net Interest Income & Loans from Other Banks



To establish the relationship between NII and management of loans from other banks, a simple regression analysis was used. The regression equation results indicated that Net Interest Income = 1.3184 + 1.7569 Loans from other banks. In determining the significance of the influence of management of loans from other banks on Net Interest Income, the t-test was applied. This aimed at testing for the significance of b_1 and forming the basis for accepting or rejecting the stated hypotheses; the computed $T_0(2.142) < t_{0.025,8}(2.447)$, study failed to reject H_0 (Management of loans from other banks has no influence financial performance of Diamond Trust Bank) and conclude that b_1 is not significantly different from zero. This implies that management of loans from other banks has no significant influence on the NII. The statistics from the linear regression showed that the regression yielded a coefficient of determination $R^2=0.439$ which implies that 43.9% of the variation in NII is explained by changes in proportion of non-performing loans. 56.1% remains unexplained.

RECOMMENDATIONS

Based on the above findings and discussions, the study recommends that banks should encourage customers to increase deposits such that their net interest income increases. Since the customer deposits have a significant influence on the Net Interest Income. Banks should increase loans to customers to boost their net Interest Income. Loans advanced to customer attract a lot of interest which is used to measure the banks performance. Banks should work towards minimizing the volume of non-performing loans. Non-performing loans bring a negative effect to the banks profit, therefore if not well managed and supervised, they reduce the level of net interest income. Banks may not rely on loans from other banks on boosting their Net Interest Income as a measure of financial performance. This is because loans from other banks are only needed when the customer deposits are not enough to service loans to customers. With the case of Diamond Trust Bank, the customer deposits and loans are rising highly but the good thing is that the loans can be well cushioned by the deposits from customers hence no need for loans from other banks.

List of Abbreviations used

ALCO – Asset Liability Committee, ALM – Asset and Liability Management, BIS – Bank of International Settlements, BCBS – Basel Committee on Bank Supervision, CBK – Central Bank of Kenya, DTB – Diamond Trust Bank, ERM – Enterprise Risk Management, FSR – Financial Stability Report, NPL – Non Performing Loans, SOA – Society of Actuaries

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