INFLUENCE OF CREDIT RISK ON INTEREST RATE MARGINS IN THE MIDST OF CAPPING AMONG COMMERCIAL BANKS IN KENYA

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ABSTRACT : Interest rate margin is one of the critical component in the lending decision process of commercial banks. Commercial banks are independent business entities that set their own interest rate margin based on the central bank base rates. The aim of this study was to analyze bank specific determinants influencing bank margins interest rates in the midst of capping among commercial banks in Kenya using secondary data for the period 2013 to 2018, a period characterized by unrestricted and restricted interest rate cap**.** The specific objectives was to analyze the influence of: credit risk, on interest rate margins. The study adopted exploratory research design. Panel data was employed using annual data over the period before interest rate, covering 2013-2015, and after capping of interest rate, covering 2016 to 2018.
Thirty-eight commercial banks in Kenya which were in normal operation as at 31st December 2018 were used giving 228 firm observations. Interest rate margins was informed by Dealership Model and its extensions while analyzing the influence of bank specific determinants, that is, credit risk, capital adequacy, operation efficiency and liquidity risk on interest rate margins. Applying STATA 13.0 employing Dynamic Stochastic General Equilibrium modeling, Generalized Method of Moments approach was used in the analysis.
Descriptive statistics in form of pie charts, graphs, and summary statistics were presented. Inferential statistics was analyzed using regression analysis to establish the influence of bank specific economic determinants on the interest rate margin. The findings would be useful to policy makers, shareholders, customers in the respective commercial banks in Kenya. The government could also utilize the findings in making policies affecting commercial banks in Kenya which could have an impact on interest rate margin.
KEY WORDS: *Credit Risk, Interest Rate Margins*

I.   BACKGROUND OF THE STUDY

The theoretical model of Ho at el (1981) indicated that there was a positive correlation between interest rate and credit risk. The model argued that when banks were faced by deterioration in credit risk, they hedged against the impending loss by transferring a portion or all of it to their borrowers. The finding was done by increasing the lending rate or decreasing interest on deposits. The study indicated that increased in lending rates compromised the ability of borrowers to repay.Stieglitz and Weiss (1981) cautioned banks against high interest rates. The two scholars point out that higher interest rate negatively affected the quality of a bank's loan mainly because of incentive and adverse selection effects. First, it raised the overall riskiness of the portfolio of assets. Rising interest rates reduced the returns on all projects and made less risky projects unprofitable. This could make firms switch to more risky projects as interest rates rise. Secondly, the banks had to screen borrowers. This was because at a high borrowing interest rate, borrowers may be less worried about the prospect of nonpayment. Banks could monitor the behavior of borrowers but information was at a cost and also, not perfect. This implied that the rational profit maximizing banks had to practice credit rationing, which defeated the assumption generally made in financial liberalization literature, that of interest rate liberalization eliminating credit rationing.

Leopold and Friiuhwirth (2001) showed ideally how to integrate interest rate on credit risk. They proposed a simple two factor model where the default intensity of borrowers was driven by interest rates and the stock index, which in turn were correlated. The study indicated that interest rate changes had an impact on the credit quality of assets, showed that in terms of hedging a bond portfolio, both credit and interest rate risk had to be taken into account.Gizycki (2001) examined the overall variability of Australian banks' credit risk taking in the 1990s and found out that the impaired asset ratios of smaller banks tend to be more variable than for the larger banks. Foreign banks with small assets bases within Australia experienced particularly high levels of impaired assets and low but variable profits between 1990 and 1992. The variance of the full panel data was

decomposed to distinguish variation across banks and variation through time. The study further argued that more capitalized banks were able to attract higher earnings because of lower expected bankruptcy costs, which enabled them to pay lower interest on unsecured debt.

A study carried out by English (2002) concluded in the research that it was unlikely that interest rate changes were an important factor for the stability of a banking system, even though English acknowledged that interest rate risk could be an important source of volatility of profits. English supports his conclusions by an econometric analysis of annual aggregate net interest income in different countries. The study carried out only found weak support that changed in the slope of the yield curve as well as long- and short-term interest rates impact on net interest income in a study on interest rate risk in the Belgian banking sector.

Maudos and de Guevara (2004) according to the findings they carried out suggested that credit risk required that banks implicitly included a risk quality in interest rates and therefore the net interest margin.In the analysis changes in monetary policy affected deposit and lending rates through the interest rate and bank lending. For instance, a monetary tightening that raises policy rate and short term interest rates made it more costly for banks to get funds and they passed these costs to borrowers through higher lending rates. The bank lending channel works through moral hazard and adverse selection. Following monetary tightening led to higher interest rates, banks tended to attract more risky customers and compensated for the higher risk hence increased lending rates. Gambacorta (2004).

Barnhill et al (2004) in their analysis attempted to measure credit and market risk for the whole portfolio of banks. They developed a simulation framework to revalue asset and liabilities depending on the state of several systematic risk factors, such as the term structure of risk-free and risky interest rates, stock indices and property prices. The activity involved integration of interest rate and credit risk for corporates by simulating the equity to debt ratio conditional on systematic risk factors and then map it into different rating classes. Also, for loans to individuals it was simulated the loan to value ratio conditional on systematic risk factors and assume that a borrower defaults if the loan to value was below a certain threshold.

Fofack (2005) the research stated that a rising interest rate could trigger the cost of investment and thereby necessitated higher possibility of failure to honor debt requirements, leading to non-performing loans. When left unsolved, nonperforming assets could compound into financial crisis, the moment these assets exceeded bank capital in a relatively large number of banks. In Sub-Saharan Africa, of which Kenya is a case, the probability of a banking crisis occurring could be even more important because non-performing asset-related risks were compounded by the structure of the banking system which was dominated by a few large banks. It was therefore hypothesized in this study that loading of the credit risk factor on creditworthy customers increases the cost of borrowing which ends up reducing borrowing appetite and increasing the risk of default.

Tennant (2006) concurred that when the macro-economic situation falters led to a decrease in solvency of the banks' customers, hence growth in credit risk. The study also found that there were more factors besides interest rate that accounted for credit risk in Kenyan commercial banks. These factors accounted for up to 31.7 percent of all non-performing loans advanced by commercial banks, and this could form an important basis for further studies on reduction of credit risk.

On a study on simulated correlated interest rates and credit spreads carried out by Jobst et al (2006), noted that there were defaults for a portfolio of corporate bonds and track future portfolio valuations, incorporating all coupon payments. Using this information they compute the optimal portfolio allocation if there was only one investment decision ex-ante or if the portfolio could be rebalanced at each point in time. Credit spreads could not be used from bond data when looking at banks' portfolios which contain a wide range of non-traded assets and liabilities. Instead, a model corporate and household credit risk directly was applied. The approach also took account of interest rate sensitive off-balance sheet items.

The main sources of credit risk include, limited institutional capacity, inappropriate credit policies, volatile interest rates, poor management, inappropriate laws, low capital and liquidity levels, directed lending, massive licensing of banks, poor loan underwriting, reckless lending, poor credit assessment., no non-executive directors, poor loan underwriting, laxity in credit assessment, poor lending practices, government interference and inadequate supervision by the central bank. To minimize these risks, it was necessary for the financial system to have; well-capitalized banks, service to a wide range of customers, sharing of information about borrowers, stabilization of interest rates, reduction in non-performing loans, increased bank deposits and increased credit extended to borrowers. Loan defaults and nonperforming loans needed to be reduced (Sandstorm, 2009).

Mugendawala (2010) pointed out that the principals macroeconomic determinants of interest rates and thus higher credit risk such as inflation which was the rate of change in the general price levels of consumer goods and services captured annually within the country. This was usually measured by the annual changes in the consumer price index. High and volatile inflation and the uncertainty created led to an increase in interest rates. Similarly, in a weak macroeconomic environment, and in developing countries in particular, the quality of collateral was likely to be weak, which increased the costs to banks in their effort to recover loans. This could increase the amount of non-performing loans provisioning and led to higher interest rate margins.

The approach of Olokoyo (2011), explained the attendant risks of banks having to set high interest rates in order to optimize returns from lending. When banks set very high interest rates, they induced the problem of adverse selection and moral hazard. This attracted borrowers with very risky projects into the banks' portfolio. In return, the already high interest rates incentivized the borrowers into adding more risk to their investment portfolio due to high affinity for high returns.

According to Nazir et al (2012) carried out a study on determinants of interest rate differentials in Pakistan. Their study used a 4-year data for 30 banks using correlation, descriptive and regression approaches in the analysis. They noted that credit risk affected positively interest rate margin.

Mannasoo (2012) investigated the role of the recent global financial crisis on interest spreads in Estonia. The approach followed works of Ho and Saunders (1981) in which the spread was decomposed into a pure spread and the remaining component that was explained by market structure, regulation and idiosyncratic bank factors. Credit risk was found to play a minimal role in determining interest rate margin.

According to Saad and el Moussawi (2012), credit risk was among the factors with the highest impact on banks' interest margins. Banks was expected to charge higher interest rates in order to compensate for covering anticipated and unanticipated credit risk. The significant inverse relationship between the real economic growth and bank interest rate margin was based on the argument that the improved financial situation of borrowing firms could improve their crediting performance, thereby reducing nonperforming loans and allowing banks to cope with lower interest margins. Depreciation of domestic currency decreases banking margin, due to the deterioration of foreign currency loan quality. This effect was significant due to the considerable share of foreign currency loans in total bank loans.

Saad and Moussawi (2012) observed that credit risk was among the factors with the highest impact on the interest margins of the banks. Banks were expected to charge higher interest rates in order to compensate for covering anticipated and unanticipated credit risk .However, analysis of Latin American banking systems, had showed a negative correlation between the two variables. The decrease of loan rates or increase of deposit interest rates, besides the increase of non-performing loans share on total credit was a strategy pursued by commercial banks aiming to increase the market share.

Mang'eli (2012) noted that credit risk management technique remotely affected the value of a bank's interest rates spread as interest rates were benchmarked against the associated non-performing loans and non-performing loans was attributable to high cost of loans. The study recommended that commercial banks in Kenya should assess their clients and charge interest rates accordingly in order to mitigate the risks associated with the defaulters since the lending interest rate on loans had an effect on the non-performing loans, as ineffective interest rate policy could increase the level of interest rates and consequently non-performing assets.

According to the Central Bank of Kenya (2013), the study concluded that there was a positive and strong relationship between borrowing interest rates and non-performing loans in Kenyan commercial banks. This meant that in order to ensure the stability and profitability of the banks, there was need to check the interest rates charged on loans. Lowering of interest rates could also be a big incentive for borrowers to repay their loans on time, besides stimulating borrowing for economic development. Since banks' internal efficiencies and cost of offering financial services were important contributors to the final value of interest rate charged on loans, enhancing such procedures and faster adoption of technology could lead to lower interest rates and hence reduced levels of credit risk.

Ahokpossi (2013) observed that importance of credit risk for the determination of interest margins, because credit risk was positively and significantly associated with net interest margins. During recessions, the default rate increased, credit risks were higher, and banks covered themselves with higher margins. Conversely, during booms, defaults decreased, activity was higher, and banks charged smaller margins.

The higher the better net interest margin, meant that the bank had the potential gains derived from the difference between interest income resulted in increased earnings and capital as one of the financial resources that could be used to support intermediation function especially the provision of credit. Study carried out by Sitorus (2013) stated, the result of the research indicated that net interest margin influence the Loan to Deposit Ratio. The results showed interest that net interest margin variables could not strengthen the influence of a variable loan to deposit ratio to changes in foreign exchange earnings on the bank of banks in Indonesia.

Were and Wambua (2013) observed that bank-specific factors play a significant role in the determination of interest rate spreads. These included credit risk as measured by non-performing loans to total loans ratio, which had a positive relationship with interest rate spreads. Banks were compelled to shift the credit risk premium associated with non-performing loans to the borrowers, which necessitated squeezing the rates offered to the depositors.

According to the estimation carried out for the Mongolian banking system, the evidence revealed that credit risk affected net interest margin negatively. Credit risk influences negatively bank interest margins which had a coefficient of non-performing loans which was statistically significant (Chuluunbaatar, 2014). The estimated results show that credit risk had negative and significant effects on the profitability of Nigerian deposit money banks (Ogunbiyi and Ihejirika, 2014).Kalsoom et al, (2016) concluded that credit risk was a

prominent factor behind profit margins of bank. Some other factors also existed that affect the profit level of banks but the focus was on the relationship of credit risk and bank profitability as it was a prominent factor among factors of interest rate margins.

II.   STATEMENT OF THE PROBLEM

Credit risk had no significant effect on the Interest Rate Margin. The average size of operations and the co-movement of interest rate and credit risk had no significant impact on the Interest Rate Margin either. In terms of the control variables, the extent of relationship banking wields a significant positive influence on interest rate margins. This, however, was surprising given earlier results on the topic by Ergungor (2005), in the study found no effect of relationship banking on bank Interest rate margin. Our results, on the contrary, showed that an increase in the share of relationship banking loans to total loans by one percent drives up a bank's Interest rate margin by more than 2 basis points in the subsequent period and by roughly 4 basis points in the long run.

In a study carried out by Bonga (2016) covering the period 2009 – 2015 using financial data from five listed commercial banks in Zimbabwe, four locally owned banks and one foreign owned, posited that interest rate margins was positively influenced by credit risk. As for banks, the increase in credit risk volume in conjunction with stable interest margin leads to positive increase in the bottom line.

Locally, studies that have been carried out on interest rate including Ngari (2013) who found that there was a positive linear relationship between interest rate spread and Return on Assets (ROA). Kipngetich (2014) observed that for banks to attain high financial performance, then interest rates was among the key determinants. Different factors influenced the behavior of interest rates thereby contributing to how they influence the banks performance. Commercial banks therefore should come up with opportunities to take advantage of interest rates and maximize in quality portfolio in order to improve on their financial performance. While the above studies provided valuable insights on interest rates and financial performance they only provided partial insight on the influence of specific interest rates determinants and performance of commercial banks.

III.   OBJECTIVE OF THE STUDY

To analyze the influence of credit risk on interest rate margins in the midst of capping among commercial banks in Kenya.

IV.   HYPOTHESIS

The study postulated the hypotheses as follows:

Ho1:   Credit risk has no significant effect on interest rate margins in the midst of capping among commercial banks in Kenya.

V.   LITERATURE REVIEW

5.1 Theoretical Review

5.1.1 Theory of Interest Rate

The theory of Interest explains the relationship between inflation and the real and nominal interest rates arrived at. This relationship is known as the Fisher Effect. The Fisher Effect states that an increase in the growth rate of the money supply will result in an increase in inflation and an increase in the nominal interest rate and with interest rate capping the growth is towards the cap ceiling, which will match the increase in the inflation rate. Fisher (1930) first put forward that the relationship between interest rates and inflation is termed as the Fisher Effect. It postulates that the nominal interest rate in any period is equal to the sum of the real interest rate and the expected rate of inflation. Fisher (1930) studied that the nominal interest rate could be decomposed into two components, a real rate plus an expected inflation rate. Fisher indicated that there exist a relationship between the inflation and interest rates in a perfect world, with real interest rates being unrelated to the expected rate of inflation and determined entirely by the real factors in an economy, such as the productivity of capital and investor time preference.

The fisher effect theory has the same conclusions with the International Fischer Effect (IFE). IFE theory suggests that foreign currencies with relatively high interest rates will tend to depreciate because the high nominal interest rates reflect expected rate of inflation, Madura (2000). This theory also proposed that changes in the spot exchange rate between two countries will also tend to equate the differences in their nominal interest rates (Craigwell, 2000). Fisher's rate of interest is important because it provides a basis for the idea that monetary policy should be concerned mainly with managing inflation expectations in order to keep real interest rates at a stable level that promotes saving and investment. Fisher (1930) examined the relationship between nominal interest rates and the rate of inflation for the U.S and the U.K. Using annual data over the 1890 to 1927 period for the US, and 1820 to 1924 period for the U.K. Fisher found that inflationary expectations were not instantaneously reflected in interest rates. For the US, the highest correlation, 0.86, between long-term interest rates and price changes was obtained when the latter was lagged over 20 years, while for the UK, a correlation coefficient of 0.98 was obtained when price changes were spread over 28 years. High interest rates affect demand for credit, hinder economic growth and consequently hurt the economy (Solnik, 2000). Linking of

exchange rates with changes in interest rates and inflation rates, the IFE theory states that the future spot rate of exchange can be determined from nominal interest differential.

### 5.1.2 Modern Monetary Theory

Modern monetary theory explains exclusively how the government, central bank and the commercial banking sector interacts, with some economists arguing that understanding of reserve accounting is critical to understanding monetary policy options. This theory was developed by a group of economist including Randal Wray (2009) and Bill Mitchell. All of the commercial banks must have an account with the central bank. This permits the banks to manage their reserves that is, the amount of available short-term money that a particular bank holds. So when the government spends, treasury will debit its cash operating account at the central bank, and deposit this money into private bank accounts (and hence into the commercial banking system). This money adds to the total reserves of the commercial bank sector. MMT argues that taxes and bond offerings are not best conceptualized as funding sources for the Treasury, but rather as reserve draining devices to maintain price and interest-rate stability (Tymoigne, 2013). In most countries, commercial banks' reserve accounts with the central bank must have a positive balance at the end of every day; in some countries, the amount is specifically set as a proportion of the liabilities a bank have that is on its customers. This is known as a reserve requirement. At the end of every day, a commercial bank will have to examine the status of their reserve accounts. Those that are in deficit have the option of borrowing the required funds from the central bank, where they may be charged a lending rate which is also referred to as the discount rates on the amount they borrow. In a balanced system, where there are just enough total reserves for all the banks to meet requirements, the short-term interbank lending rate will be in between the support rate and the discount rate. Both the Treasury and the central bank are involved in these reserve management operations to maintain interest rate stability (Palley, 2012).

5.1.3 Interest Rate Parity Theory

Interest Rate Parity theory (IPRT) is based on the assumption that differences in interest rates between a country and its trading partners account for the rate of change in the nominal exchange rate. The theory of interest rate parity, relates to the difference between foreign and domestic interest rates with the difference in spot and future exchange rates. This parity condition states that the domestic interest rate should equal the foreign interest rate plus the expected change of the exchange rates. The interest rate differential between domestic country and world is equal to the expected change in the domestic exchange rate (Bhole and Dash, 2002).

The IPR theory states interest rate differentials between two different currencies will be reflected in the premium or discount for the forward exchange rate on the foreign currency if there is no activity of buying shares or currency in one financial market and selling it at a profit in another. The theory further states that the size of the forward premium or discount on a foreign currency should be equal to the interest rate differentials between the countries in comparison (Fielding, 2005). Sargent and Wallace (2001) posited that a high interest rate policy may lead to a reduction in demand for money and increase in price level. This is because an increase in interest rate implies an increase in government debt. If investors are risk-neutral and have rational expectations, the future exchange rate should perfectly adjust given the present interest rate differential.

5.2 Conceptual Framework
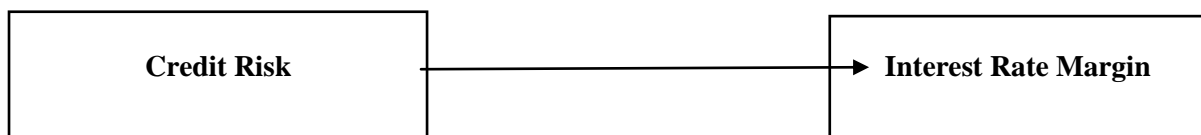
VI.   RESEARCH METHODOLOGY

6.1 Research Design

The study employed an explanatory approach by using panel data research design. According Ranjit (2005), explanatory research attempts to clarify why and how there is a relationship between two or more aspects of a situation or phenomenon. Explanatory research aims at answering the question why. This type of research attempts to go above and beyond exploratory and descriptive research to identify the actual reasons a phenomenon occurs (Kumar, 2005). Hence explanatory research design was utilized employing panel data approach.

Panel data models provide much more insights than time series models or cross section data models since it is theoretically possible to separate the effects of specific effects and actions (Hsiao 2003). With panel data, variations across commercial banks in Kenya and time periods are accounted for. The analysis of panel data is the subject of one of the most active and innovative bodies of writings in econometrics; the reason is that this type of data provides such a rich environment for the development of estimation techniques and theoretical

results. Studies have been able to use panel data, that is, time-series cross-sectional data to examine issues that could not be studied in either cross-sectional or time-series settings alone.

6.2 Target Population
A population is the total collection of elements from which the researcher wishes to make some inference (Donald, 2000). The population of this research were all commercial banks with normal operation in Kenya as at the end of 31st December 2018.
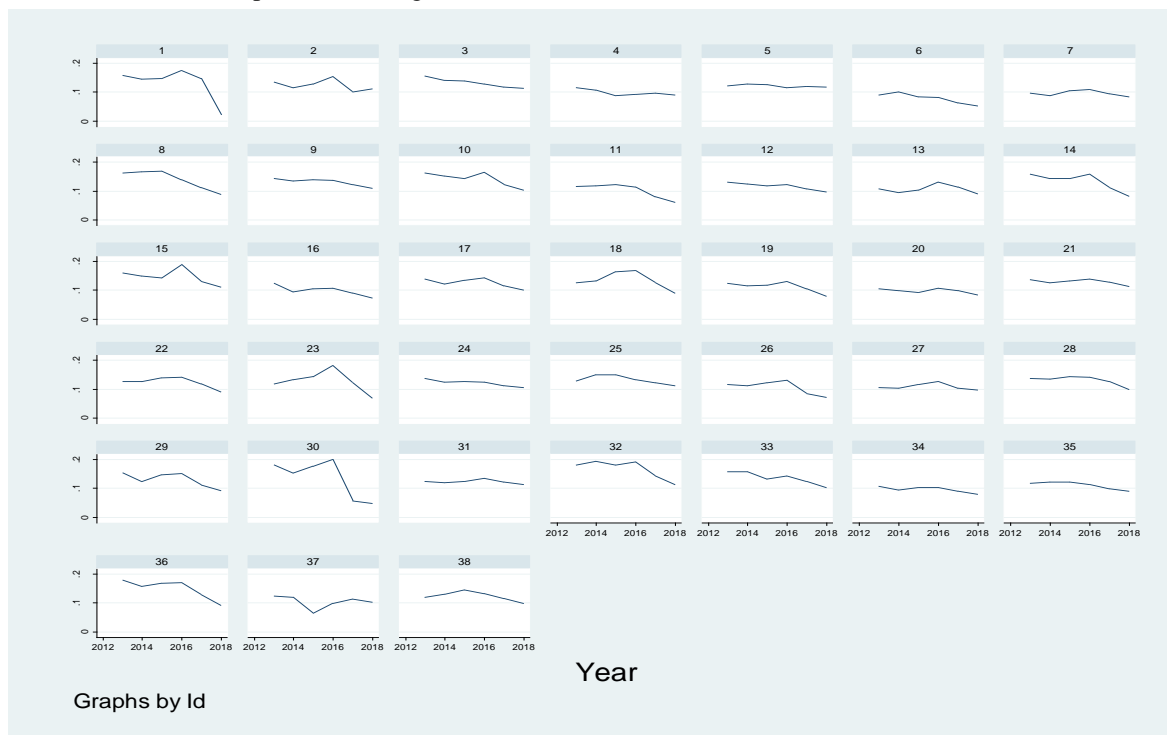
VII.   FINDINGS

The mean of credit risk showed that credit risk increased after capping of the interest rate depicted by the mean before interest rate capping was from 0.0673 and after interest capping was 0.0948. This characteristic showed that commercial banks started to increase their provisions for loan losses after interest rate capping to cover higher cost of bad debt required to be written offs. Comparing the maximum credit risk points for the period before and after interest rate capping, the results showed that after interest rate capping a maximum value, 0.6056, was portrayed which was more than the maximum value, 0.2697, before interest rate was controlled. This characteristics showed that credit risk increased after interest rate capping.

The mean of capital adequacy increased after interest rate capping from 0.1561 to 0.1653 respectively. Also, on maximum points, commercial banks in Kenya portrayed a higher maximum value for the period covering 2016 to 2018, which was after interest rate capping, compared to the period covering 2013 to 2015, which was before interest rate capping.

Operation efficiency before interest rate capping was 0.6164 while operation efficiency increased after interest rate capping to0.6738. The optimal efficiency ratio for commercial banks in Kenya is 0.50. This indicated that the characteristic of operation efficiency before and after interest rate was higher than the optimal efficiency required in the industry.

4.2.2   Graphical Representation
The summary statistics when presented graphically by country based on the bank interest rate trends over the years of 2013 to 2018 is presented in Figure 4.1.

Where 1. African Bank of Kenya, 2. Bank of Africa 3. Bank of Baroda 4. Bank of India 5. Barclays Bank 6. Citibank 7.Commercial Bank of Arica 8. Consolidated Bank of Kenya 9. Co-operative Bank of Kenya 10. Credit Bank 11. Development Bank of Kenya 12. Diamond Trust Bank 13. Ecobank Kenya Limited 14.Equity Bank Kenya Limited 15. Family Bank Limited 16. First Community Bank Limited 17.Guaranty Trust Bank (K) Ltd 18. Guardian Bank Limited 19. Gulf African Bank Limited 20. Habib Bank A.G Zurich 21. Housing Finance Bank Limited 22. I & M Bank Limited 23. Jamii Bora Bank Limited 24. KCB Bank Kenya Limited 25. Middle East Bank (K) Limited 26. National Bank of Kenya Limited 27.NIC Bank Limited 28. M-Oriental Bank Limited 29. Paramount Bank Limited 30.Prime Bank Limited 31.SBM Bank Ltd (Fidelity Commercial Bank
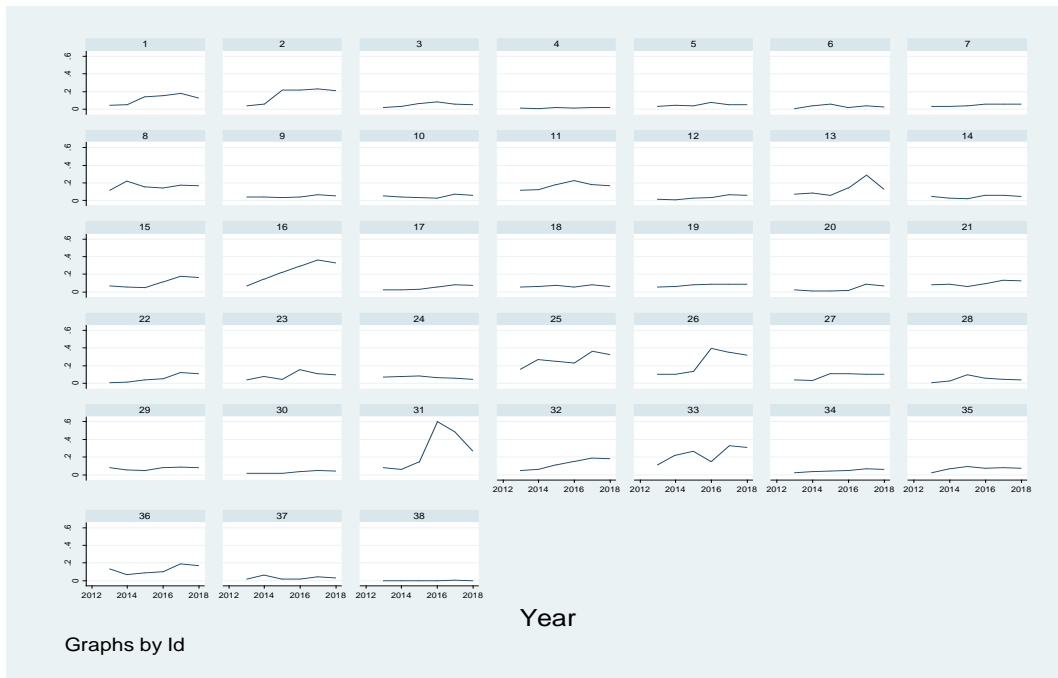
Limited) 32. Sidian Bank Limited 33. Spire Bank Ltd 34. Stanbic Bank Kenya Limited 35. Standard Chartered Bank Kenya Limited 36. Trans-National Bank Limited 37.UBA Kenya Bank Limited 38. Victoria Commercial Bank Limited

Figure 4. 1: Interest Rate Trends for the Period 2013 to 2018

Source: Author (2019)

As shown in figure 4.1, average interest rate in the thirty eight banks almost moved in the one direction except for UBA Kenya Bank Limited which reduced tremendously between the year 2014 and 2015. This was an indicative that UBA Kenya Bank Limited reduced interest rate margins in that period despite the other banks maintain or increasing the interest rate margin.

The summary statistics by country based on credit risk trends over the years of 2013 to 2018 is presented in Figure 4.2.

Graphs by Id

Where 1. African Bank of Kenya, 2. Bank of Africa 3. Bank of Baroda 4. Bank of India 5. Barclays Bank 6. Citibank 7.Commercial Bank of Arica 8. Consolidated Bank of Kenya 9. Co-operative Bank of Kenya 10. Credit Bank 11. Development Bank of Kenya 12. Diamond Trust Bank 13. Ecobank Kenya Limited 14.Equity Bank Kenya Limited 15. Family Bank Limited 16. First Community Bank Limited 17.Guaranty Trust Bank (K) Ltd 18. Guardian Bank Limited 19. Gulf African Bank Limited 20. Habib Bank A.G Zurich 21. Housing Finance Bank Limited 22. I & M Bank Limited 23. Jamii Bora Bank Limited 24. KCB Bank Kenya Limited 25. Middle East Bank (K) Limited 26. National Bank of Kenya Limited 27.NIC Bank Limited 28. M-Oriental Bank Limited 29. Paramount Bank Limited 30.Prime Bank Limited 31.SBM Bank Ltd (Fidelity Commercial Bank Limited) 32. Sidian Bank Limited 33. Spire Bank Ltd 34. Stanbic Bank Kenya Limited 35. Standard Chartered Bank Kenya Limited 36. Trans-National Bank Limited 37.UBA Kenya Bank Limited 38. Victoria Commercial Bank Limited

Figure 4. 2: Credit Risk Trends for the Period 2013 to 2018

Source: Author (2019)

The results as depicted in figure 4.2 indicated that out of the thirty eight commercial banks in Kenya, eleven commercial banks, that is, African Bank of Kenya, Bank of Africa, Development Bank of Kenya, First Community Bank Limited,National Bank of Kenya Limited, NIC Bank Limited, M-Oriental Bank Limited, SBM Bank Ltd (Fidelity Commercial Bank Limited), Sidian Bank Limited, Spire Bank Ltd and Standard Chartered Bank Kenya Limited, had their credit risk on the rise over the period 2014 to 2015. Two commercial banks, that is, Consolidated Bank of Kenya and UBA, Kenya Bank Limited reduced their credit risk over the period 2014 to 2015.

VIII. CONCLUSIONS

Application of GMM model before the interest rate capping, indicated that holding credit risk, capital adequacy, operation efficiency and liquidity to a constant zero; the intercept coefficient was positive and statistically significant at 5 percent level indicating that most of the variables were captured in the model which determined interest rate margin for the thirty-eight commercial banks in Kenya under the period of study.

IX.   RECOMMENDATION

The results showed coefficient of the variable representing lagged interest rate margin which was positive and significant at 5 percent level of significance. This implied that the previous year's bank interest rate had a positive influence on the current interest rate margin.

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