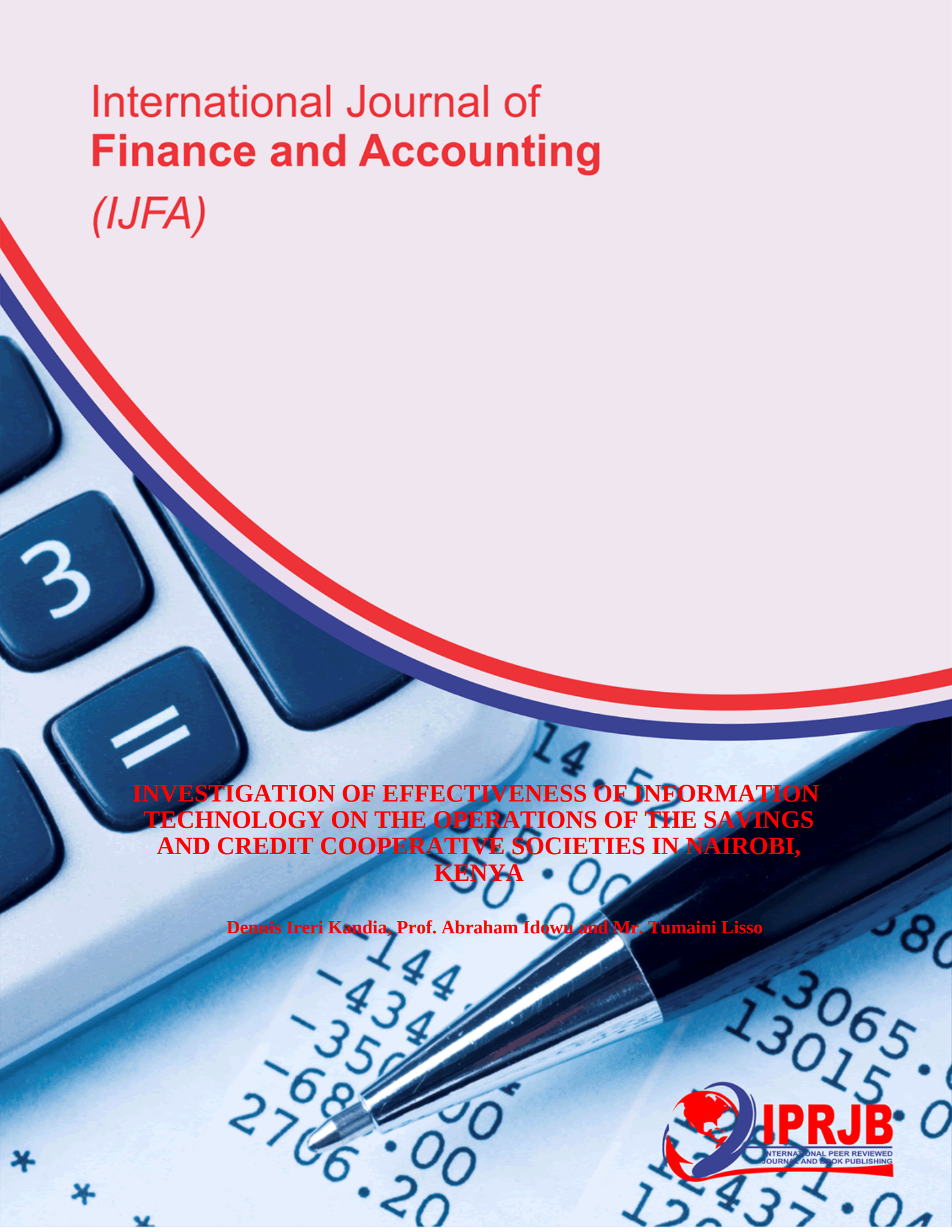
International Journal of
Finance and Accounting
(IJFA)



INVESTIGATION OF EFFECTIVENESS OF INFORMATION TECHNOLOGY ON THE OPERATIONS OF THE SAVINGS AND CREDIT COOPERATIVE SOCIETIES IN NAIROBI, KENYA

Dennis Ireri Kandia, Prof. Abraham Idowu and Mr. Tumaini Lisso

IPRJB
INTERNATIONAL PEER REVIEWED JOURNALS AND BOOK PUBLISHING

International Journal of Finance and Accounting
ISSN 2518-4113 (Online)
Vol.2, Issue No. 8, pp 29 - 42, 2017

www.iprjb.org

DETERMINANTS OF INTEREST RATE SPREAD AMONG COMMERCIAL BANKS IN KENYA

[1*] Leah Njoroge
School of Business
University of Nairobi

[2*] Mercy Warui
School of Business
University of Nairobi

[3*] Catherine Mbogo
School of Business
University of Nairobi

[4*] Margaret Chiera
School of Business
University of Nairobi

[5] Dr. Chogii
Lecturer, School of Business
University of Nairobi

Abstract

Purpose: To establish the determinants of interest rate spread among commercial banks in Kenya.

Methodology: The study utilized a descriptive survey research design.

Findings: The results indicated that the commercial banking sector has witnessed a gradual rise in the Interest rate spread. Results also showed that the mean of market structure has been fluctuating with year (2010) being the lowest with mean of 4 and year (2012) being the highest with mean 12. Results also showed that there was no regulation from the year (2005) to the year (2009) but it was later adopted whereas regulations shoot steadily to mean of 1.0 in the year (2009) and remained in the same level the rest of the years. The regression results indicate that there is a positive and significant relationship between market structure, credit risk and interest spread. The regression results also indicated that there is a positive but insignificant relationship between access to information and interest spread. Further, the results indicated that there is a negative and significant relationship between regulation and interest spread.

Unique contribution to theory, practice and policy: The study is important to the management of Commercial banks as it will provide an insight on the factors influencing interest rate spread among commercial banks in Kenya. The results of this study will provide information to policy

makers and other stakeholders in the financial sector (especially the banks) to come up with strategies that help in dealing with the high interest rate spread experience in the banking sector and thus improve on the financial performance of the organisations. It may be used as a tool for persuading commercial banks to reduce their interest rates spread and hence increase their volume of business, which of course would compensate the loss in the interest rate spread. The study will also be invaluable to the government and CBK. This is because the monetary policy framework of Central Bank of Kenya and its implementation will be guided by a need to ensure, among others: realistic interest rate spreads that encourage financial deepening and a safe, sound, efficient and competitive banking system through discreet risk management. These findings therefore might influence the effectiveness of economic policies. The research results will also be important to scholars and researchers as it will add to the existing pool of knowledge.

Keywords: *Market Structure, Credit Risk, Regulation, Interest Rate Spread, Commercial Banks*

INTRODUCTION

Background

A key indicator of financial performance and efficiency in the banking sector is the spread between the lending and deposit rates. If the spread is large, it works as an impediment to the expansion and development of financial intermediation. This is because it discourages potential savers due to low returns on deposit and thus limits financing for potential borrowers. High lending rates on the other hand would lead to a reduction in credit demand and the money supply as a result of the high cost of borrowing (Aziakpono & Wilson, 2015). Banks are the main source of credit and have a direct impact on the level of investment and expenditure in an economy.

Global Perspective

Interest rate is the price a borrower pays for the use of money they borrow from a financial institution or fee paid on borrowed assets (Crowley, 2007). Interest rates are normally expressed as a percentage rate over the period of one year. Interest rate as a price of money reflects market information regarding expected change in the purchasing power of money or future inflation (Emmanuelle, 2003).

Regional Perspective

In developing countries, interest rate spreads arise out of the core functions of financial institutions most especially the commercial banks which include lending and deposits taking. As banks lend, they charge interest and for attracting deposits, they offer interest on deposit as compensation for their clients' thriftiness and the difference between the two rates forms the spread. Researchers have attributed the existence of high IRS in developing countries to several factors, such as high operating costs, financial repression, lack of competition and market power of a few large dominant banks enabling them to manipulate industry variables including lending and deposit rates, high inflation rates, high risk premiums in formal credit markets due to widely prevailing perception relating to high risk for most borrowers, and similar other factors (Mujeri & Islam, 2008).

Local Perspective

Interest rate spread is defined by market microstructure characteristics of the banking sector and the Kenya policy environment (Ngugi, 2001). Risk-averse banks operate with a smaller spread than risk-neutral banks since risk aversion raises the bank's optimal interest rate and reduces the amount of credit supplied. Actual spread, which incorporates the pure spread, is in addition influenced by macroeconomic variables including monetary and fiscal policy activities.

Two models are used to define the spread: the accounting value of net interest margin and the firm maximization behaviour. The accounting value of net interest margin uses the income statement of commercial banks, defining the bank interest rate margin as the difference between the banks' interest income and interest expenses, which is expressed as a percentage of average earning assets. Depending on the market structure and risk management, the banking firm is assumed to maximize either the expected utility of profits or the expected profits. And, depending on the assumed market structure, the interest spread components vary (Wagacha, 2001).

Interest rates Spread

Interest rate spread is the interest rate charged by banks on loans to private sector customers minus the interest rate paid by commercial or similar banks for demand, time, or savings deposits. The terms and conditions attached to these rates differ by country, however, limiting their comparability. It involves the difference or spread between two related interest rates occurring in many types of business or finance transactions.

Factors that Influence Interest Spread

Generally, empirical studies that examine the determination of bank interest rate spreads use variables that basically fall in three categories:

Individual bank-specific factors; these are

Operating or administrative costs which are the expenses related to the operation of the business examples are rent, salaries, insurance expenses etc.

Non-performing loans which describe a loan on which the borrower is not making interest or principal payments. The point at which the loan is classified as nonperforming by the bank and when it becomes a bad debt depend on local regulations.

Return on assets which shows the percentage of how profitable a company assets i generating revenue. Structure of the balance sheet which is the way company's assets and liabilities are classified for example assets and liabilities which are further decided to current and noncurrent assets and liabilities.

Non-interest income mainly from service and penalty charges and to a much less extent from asset sales and property leasing. This income is largely unaffected by economic and financial market cycles and is usually not controlled by law or regulation. Bank liquidity which is the ability and ease with which assets can be converted to cash quickly if needed to meet financial obligation; examples of liquid assets generally include cash, central bank reserves and government debt.

Factors specific to the banking industry; they includes

Degree of competition or market concentration, Regulatory requirements such as statutory reserve requirements or regulated minimum deposit rates. Macroeconomic indicators, these are real gross domestic product (GDP) growth rate and Inflation rate.

Description and Measure of Variables

Credit risk: Measured as Non-performing loans to total loans ratio (NPLR), it is used as an indicator of credit risk or quality of loans. An increase in provision for loan losses implies a higher cost of bad debt write-off. Given the risk-averse behaviour, banks facing higher credit risk are likely to pass the risk premium to the borrowers, leading to higher spreads. Hence the higher the risk, the higher the pricing of loans and advances to compensate for likely loss.

Bank size: Measured as the log of total bank's assets. Ideally, one would expect bigger banks to be associated with lower interest rate spreads, arguably because of large economies of scale and ability to invest in technology that would enhance efficiency. However, to the extent that bank size connotes control of the market in the deposit and loan markets, a positive relationship between interest rate spreads and bank size should not be surprising.

Operating costs: Measured as operating expenses as a ratio of total net operating income (OPERAT). Banks incur costs of financial intermediation such as screening loan applicants to assess the risk profile of borrowers and monitor the projects for which loans are advanced. An increase in operating costs is expected to have positive influence on interest rate spreads. High operating costs are likely to include costs due to inefficiency, leading to higher spreads and hence, this variable is commonly used as an indicator of operational inefficiency. A higher cost of financial intermediation will drive up interest rates on loans while depressing interest rates on deposits.

Liquidity risk: Measured as the ratio of bank's liquid assets to total assets (LQDR). The degree to which banks are exposed to liquidity risk varies across banks. A bank with higher liquidity faces lower liquidity risk hence is likely to be associated with lower spreads due to a lower liquidity premium charged on loans. Banks with high risk tend to borrow emergency funds at high costs and thus charge liquidity premium leading to higher spreads (Ahokpossi, 2013).

Return on average assets: Measured as net income divided by average total assets (ROAVG). This is generally considered as a good indicator to evaluate the profitability of the assets of a firm in comparison to other firms in the same industry. A positive relationship with interest rate spreads is hypothesized.

Net interest income as a ratio of total income (INTRCOM): Banks that traditionally rely on interest income from loans and advances relative to non-interest income assets are likely to be associated with higher spreads since they may not be willing to forego interest income traditionally generated from higher spreads. However, it might also be the case that higher interest income is associated with lower interest rate spreads due to higher probability of loan repayment.

Market concentration: Market concentration measures the degree of competition each bank faces in the market. Theoretically, competitive pressures lead to competitive pricing, thus leading to higher efficiency of intermediation process and lower spreads. However, Gambacorta (2004) notes that the impact of the structure of the banking sector on the spread can be ambiguous. A

concentration that makes banks to behave in an oligopolistic manner will lead to higher lending rates and low deposit rates while a concentration that arises because more efficient banks are replacing less efficient banks may lead to lower lending rates and higher deposit rates and hence, lower spreads.

Herfindahl–Hirschman Index (HHI) is the commonly used measure of market concentration. The computed HHI shows that market concentration has been declining, implying that Kenya's banking sector is moving from less to a more competitive market. However, due to the relatively high correlation that was found to exist between this variable and the bank size, inclusion of both variables in the same model can lead to misleading results.

Macroeconomic and policy variables: The variables used to capture the impact of the macroeconomic factors are real GDP growth and inflation rate. Increased economic activity can heighten demand for loans leading to higher lending rates. On the other hand, increased economic activity can make projects more profitable, reduce defaults, and increase deposits, all of which reduce the spreads. For both variables, negative as well as positive parameters have been observed. The CBR was included as a regulatory variable to capture the effect of monetary policy stance. According to Gambacorta (2004), changes in monetary policy can affect deposit and lending rates through the interest rate, bank lending and bank capital channels. For instance, monetary policy tightening that raises policy rate and short term interest rates makes it more costly for banks to get funds and they pass these costs to borrowers through higher lending rates. The bank lending channel works through moral hazard and adverse selection. Following a monetary tightening that leads to higher interest rates, banks tend to attract more risky customers and to compensate for the higher risk they increase lending rates.

Market conditions such as Inflation, this variable is an indicator of the cost of doing business in an economy its positively correlated with Interest Rate Spread its measured using

Discount rate used as monetary policy instrument it's also a major factor in determining Interest rate spread.

Statement of the Problem

Banking systems have been shown to exhibit significantly and persistently large interest rate spreads on average than those in other developing and developed countries (Beck & Hesse, 2006). The size of banking spreads serves as an indicator of efficiency in the financial sector because it reflects the costs of intermediation that banks incur (including normal profits). Some of these costs are imposed by the macroeconomic, regulatory and institutional environment in which banks operate while others are attributable to the internal characteristics of the banks themselves (Robinson, 2002). High Interest rate Spreads are an impediment to financial intermediation, as they discourage potential savers with low returns on deposits and increase financing costs for borrowers, thus reducing investment and growth opportunities.

Lending rates continue to ride high while lower rates are being offered on deposits. In 2005, for example, the average interest rate spread hit 20% with dispersions in the range of 18% to 34% while at the same time, the net interest margins hit 13%, compared to 7.4% on average in the sub-Saharan African region, 6.3% on the average in low-income countries, and 5% in the world, and moreover, higher in comparison to neighbouring Uganda and Tanzania. Ngugi (2001) analyzing interest rate in Kenya found a widening interest rate spread following interest rate

liberalization characterized by high implicit costs with tight monetary policy achieved through increased reserve and cash ratios and declining non-performing loans.

According to Ndung'u and Ngugi (2000), deposit rates remained low while lending rates kept moving upwards. As of December 2003, the nominal average savings deposit rate in Kenya among commercial banks was 3.51% while the nominal lending rate was 14.11%.

The spread was 10.6% ,Compared to the 1980s and early 1990s when the spreads remained below 4%, these wide spreads in later years were not healthy for the economy. According to Ndung'u and Ngugi (2000:5), the widening interest rate spreads indicated either inefficiency in the intermediation process with weak institutional infrastructure; macroeconomic instability; or a non-competitive structure in the banking sector.

According to Kithinji and Waweru (2007), that banking problems is back-dated as early as 1986 culminating in major bank failures (37 failed banks as at 1998) following the crises of 1986 to 1989, 1993/1994 and 1998; they attributed these crises to NPLs which is due to the interest rate spread.

Research objectives

The study aimed at establishing the determinants of interest rate spread among commercial banks in Kenya. The study was guided by establishing the effects of credit risk, assessing effects of market structure, establishing the effects of regulation and to determine the effects of access to information and distribution of market power on interest rate spread among commercial banks in Kenya.

THEORETICAL REVIEW

Financial Liberalization Theory

Political economy theorists like Rajan and Zingales (1998), Chinn and Ito (2006) basically insist that financial liberalization helps in enhancing financial intermediation proxied by lower spreads as it dismantles the perfect rent seeking environments created by financial institutions that operate in repressed financial regimes. They further contend that opening up of the capital account helps attract foreign players in the domestic capital markets which are a prerequisite for augmentation of developing market.

Moreover this is reinforced by Guiso *et al,* (2006) who in their study, find that financial liberalization in Italy was preceded by easier access to finances and significant slowdown in the interest rate spreads. In most of the empirical studies on financial liberalization and interest spreads underlies the fact that more controlled financial systems are neither the solution to narrowing spreads as this leads to opacity, corruption and crony capitalism all of which are wasteful and set the foundation for wider spreads (Ghosh, 2005). This justifies the multi-sectoral approach adopted by countries like China, and the other Asian tigers which provide for self correction mechanisms that cater for better financing while protecting the economy during and after the reforms (Wyplosz, 2001).

Loanable Funds Theory

According to the loanable funds theory of interest, the rate of interest is calculated on the basis of demand and supply of loanable funds present in the capital market. The concept formulated by

Wicksell (1952), the well-known Swedish economist, is among the most important economic theories. Basic tenet of the loanable funds theory of interest advocates that both savings and investments are responsible for the determination of the rates of interest in the long run. When the interest rates are high the savings and investments are low hence the amount of money in circulations. This reduces the disposable income of an individual. Low interest rates stimulate the investments through borrowing of funds that consequently yield high returns and saving. The disposable income for individuals and companies increase as a result.

The dependable variable the disposable income relies on the loan interest rates and varies with the change in the interest rate (Wiksell, 1952).

On the other hand, short-term interest rates are calculated on the basis of the financial conditions of a particular economy. The determination of the interest rates in case of the loanable funds theory of the rate of interest depends essentially on the availability of loan amounts. The availability of such loan amounts is based on certain factors like the net increase in currency deposits, the amount of savings made, willingness to enhance cash balances and opportunities for the formation of fresh capitals. According to the loanable funds theory of interest the nominal rate of interest is determined by the interaction between the demand and supply of loanable funds. Keeping the same level of supply, an increase in the demand of loanable funds would lead to an increase in the interest rate and vice versa is true. This will in turn decrease the disposable income that is available in the economy. Conversely an increase in the supply of loanable funds would result in the fall in the rate of interest. If the both demand and supply of the loanable funds change, the resultant interest rate would depend much of the magnitude and direction of movement of the demand and supply of loanable funds.

This study attempts to identify how changes in interest rate affect the economy. This theory indicates the various factors that lead to fluctuations in the interest rates and consequently affecting the disposable income. Effects of loan interest rates on disposable income, the main variables are loan interest rates being the independent variable and disposable income as the dependent variable. Hence the literature review intends to concentrate on the loan interest rates and the disposable income.

Keynesian Theory

Keynesian theory show that they believe that the economy can settle at any equilibrium. This means that they recommend that the government gets actively involved in the economy to manage the level of demand Keynes (1936) the government uses tools such as interest rates to regulate the amount of money in the economy. If there is an increase in the amount of money the interest rates will be increased thus reducing the disposable income available to individuals.

Demand management means adjusting the level of demand to try to ensure that the economy arrives at full employment equilibrium. If there is a shortfall in demand, such as in a recession (a deflationary gap) then the government will need to reflate the economy. If there is an excess of demand, such as in a boom, then the government will need to deflate the economy.

METHODOLOGY OF THE STUDY

The study used a descriptive research design. The target population of this study included all the commercial banks in Kenya since the small number of population called for a census survey of all the banks. The study used secondary data which includes the governments' publications, journals, banking survey reports, annual reports of the Commercial banks in Kenya and periodicals. Quantitative data was collected. Secondary data used to calculate interest rate spread was collected from the annual statements of the sampled commercial banks. The study used both descriptive and inferential statistics. The descriptive statistics included trend analysis, mean and standard deviation. The study used a pooled OLS regression model to analyze the relationship between the independent and dependent variables.

RESULTS OF THE STUDY

Data analyzed was summarized in line with the research objective.

Trend Analysis

This section analyzes the effect of credit risks, market structure, regulation and access to information on interest rates spread among commercial banks in Kenya banks.

Interest Spread

The results in Figure 1 indicated that the commercial banking sector have witnessed a gradual rise in the Interest rate spread. There was an increase in mean of interest spread from mean of 9% in year (2005) to mean of 12 in year (2012) though it again declined from year (2013) to year (2014). The drastic increase of the interest spread in the year 2012 can be explained by the fact that the central bank increased the lending rates for banks.

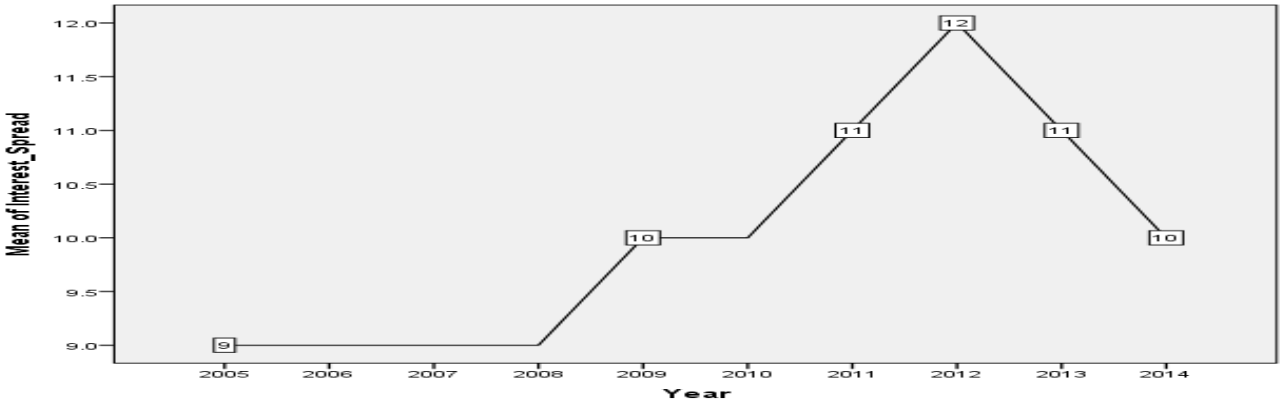


Figure 1: Mean of Interest Spread Year 2005 to year 2014

Market Structure

Results in Figure 2 shows that the mean of market structure has been fluctuating with year (2010) being the lowest with mean of 4 and year (2012) being the highest with mean of 12%. The years (2006) and (2009) had same levels market structures.

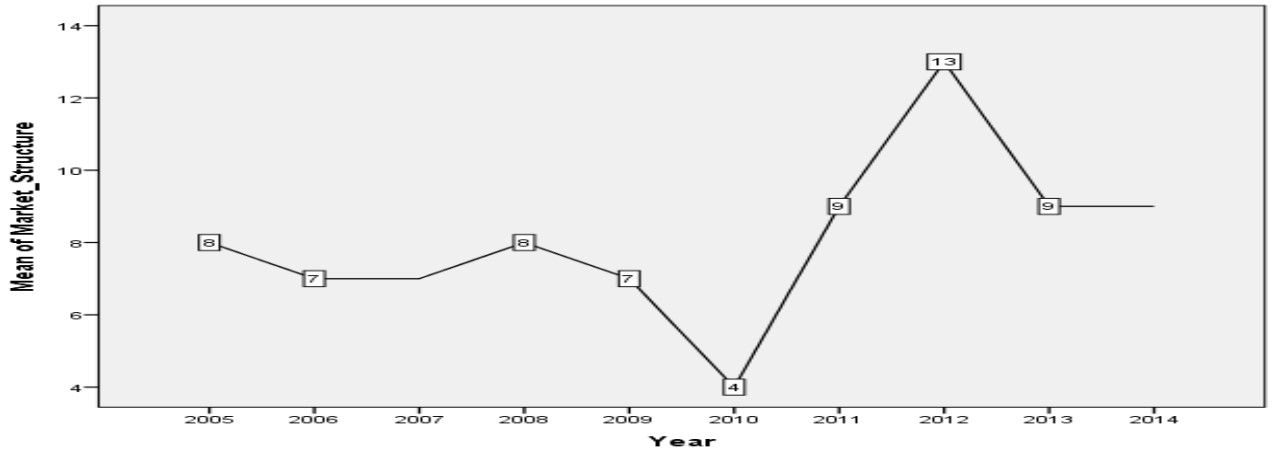


Figure 2: Mean of Market Structure Year 2005 to year 2014

Credit Risk

Results in Figure 3 show that credit Risk was high in the year (2005) but gradually and steadily started to decline down the following years with figures being lowest in the years 2010- 2012 but rose slightly 2013 and 2014. This could be attributed to commercial banks strategies to minimise credit risks arising from defaulters.

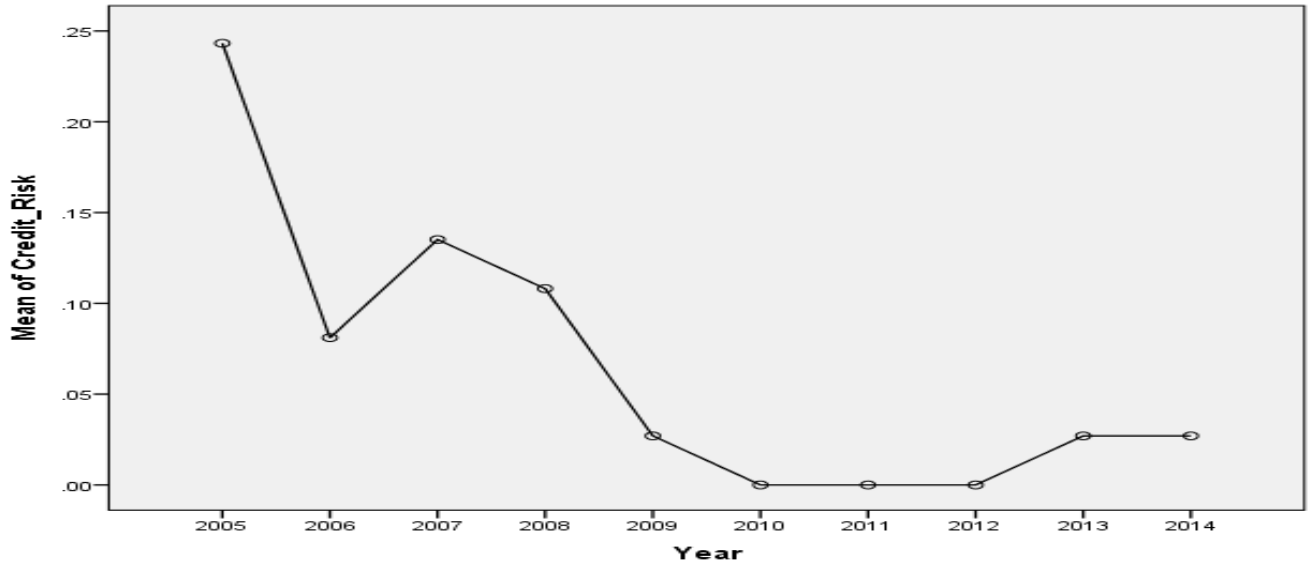


Figure 3: Mean of Credit Risk Year 2005 to year 2014

Access to Information

Figure 4 below shows that mean of access to information (measure by HHI) increased steadily from year (2005) to year (2006) and hitting high in year (2008). It later started declining slowly the following years.

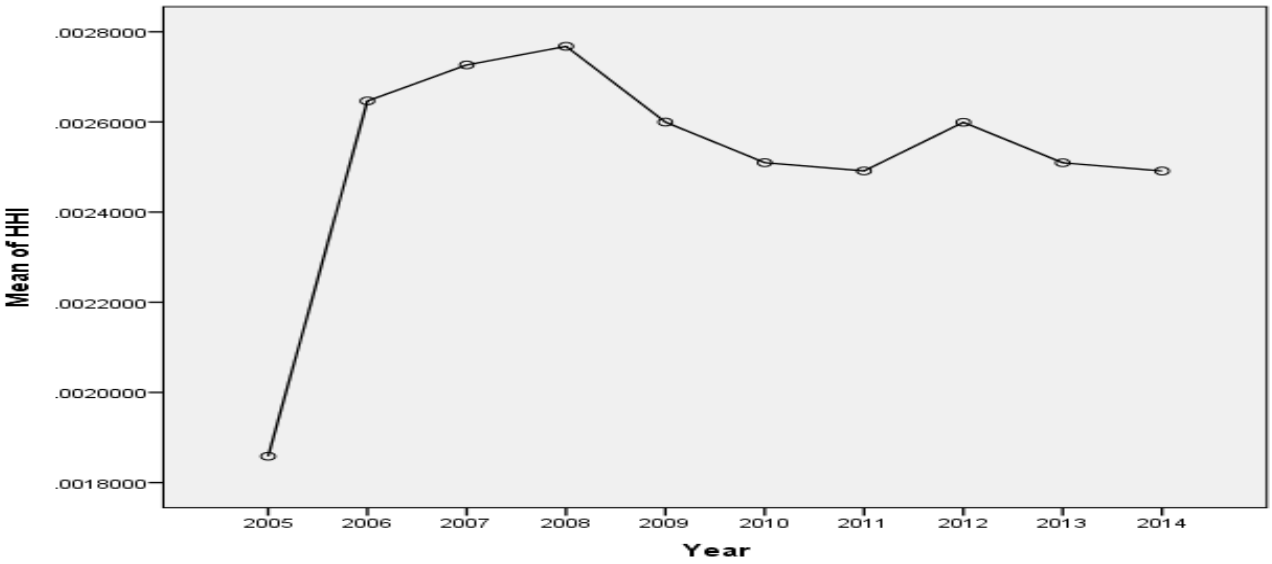


Figure 4: Mean of HHI Year 2005 to year 2014

Regulation

Results in Figure 5 show that there was no regulation from the year (2005) to the year (2009) but it was later adopted whereas regulations shoot steadily to mean of 1.0 in the year (2009) and remained in the same level the rest of the years.

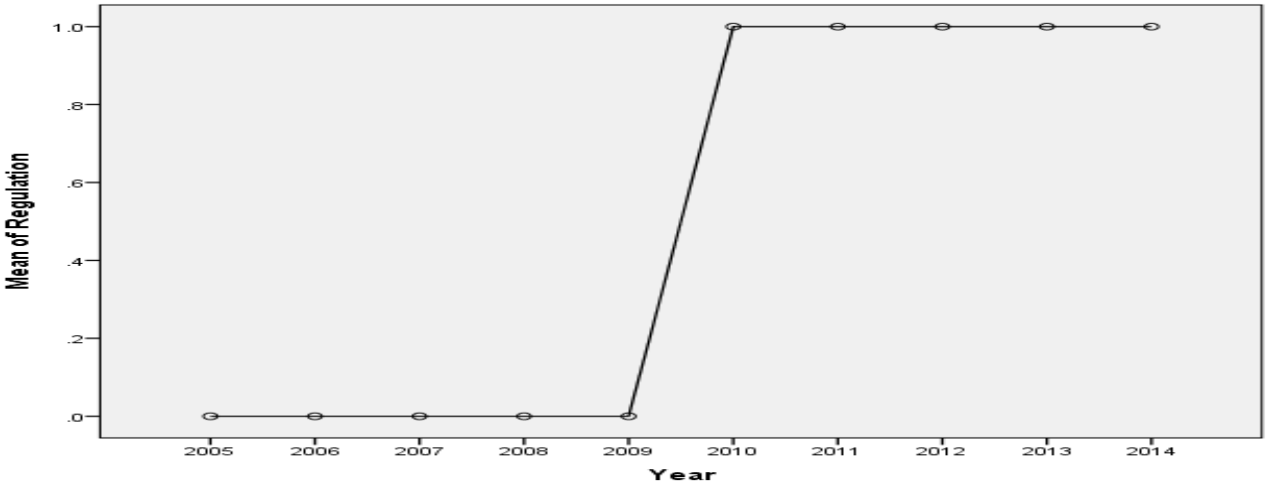


Figure 5: Mean of Regulation Year 2005 to year 2014

Descriptive Statistics

The results in Table 1 show the descriptive results. The results give further details on the determinants of interest spreads among commercial banks in Kenya. The mean and the standard deviation are given. The mean interest spread for the 34 banks over the 10 years was 10 while the standard deviation was 1.001. The mean market structure for the 34 banks over the 10 years was 8.1 while the standard deviation was 2.169. The mean credit risk for the 34 banks over the 10 years was 0.06 while the standard deviation was 0.377. The mean HHI for the 34 banks over

the 10 years was 0.003 while the standard deviation was 0.006. The mean Regulation for the 34 banks over the 10 years was 0.500 while the standard deviation was 0.501.

Table 1: Descriptive Statistics

Variable	N	Mean	Std Dev
Interest spread	37	10.000	1.001
Market Structure	37	8.100	2.169
Credit Risk	37	0.060	0.377
HHI	37	0.003	0.006
Regulation	37	0.500	0.501

Regression Analysis

Regression analysis results presented in Table 2 indicates that the goodness of fit of the model was satisfactory. The coefficient of determination (R squared) was 0.809. An R square of 0.809 indicates that 80.9% of the variation in interest spread is explained by the independent variables (market structure, credit risk, access to information and regulation). This implies that 19.1% of the variations in interest expense are explained by other factors not included in the model.

Table 2: Goodness of fit (Coefficient of Determination)

Indicator	Coefficient
R	0.9
R Square	0.809
Adjusted R Square	0.807
Std. Error of the Estimate	0.44

Results in Table 3 presents the overall model significance. The results indicate that the overall model was significant. The reported F statistic of 387.24 in table 4.3 was larger than the F critical (F tabulated). The reported p value was lower than the critical p value of 0.05. The findings imply that the independent variables are good joint predictors of interest spread.

Table 3: Analysis of Variance (ANOVA)

Indicator	Sum of Squares	df	Mean Square	F	Sig.
Regression	299.439	4	74.86	387.24	0.000
Residual	70.561	365	0.193		
Total	**370**	**369**			

The regression coefficients and their associated t statistics and p values are presented in Table 4. The results indicate that there is a positive and significant relationship between market structure and interest spread. This finding was supported by a regression coefficient of 0.200 (p value = 0.000). The reported p value was less than the critical p value of 0.05. This implies that an increase in market structure by one unit would result to an increase in the interest spread by 0.200 units.

The results indicate that there is a positive and significant relationship between credit risk and interest spread. This finding was supported by a regression coefficient of 0.096 (p value =

0.008). The reported p value was less than the critical p value of 0.05. This implies that an increase in credit risk by one unit would result to an increase in the interest spread by 0.096 units.

Further, the results indicate that there is a positive and insignificant relationship between access to information and interest spread. This implies that an increase in access to information by one unit would result to no change in the interest spread.

The results in Table 4 also indicate that there is a negative and significant relationship between regulation and interest spread. This finding was supported by a regression coefficient of -1.309 (p value = 0.000). The reported p value was less than the critical p value of 0.05. This implies that an increase in regulation by one unit would result to a decrease in the interest spread by 1.309 units.

Table 4: Regression Coefficients

Variable	B	Std. Error	t	Sig.
Constant	7.727	0.089	86.459	0.000
Market Structure	0.200	0.011	17.955	0.000
Credit Risk	0.096	0.046	1.567	0.008
Access to Information	0.805	3.938	0.204	0.838
Regulation	-1.309	0.049	-26.829	0.000

CONCLUSIONS

Results indicate that the commercial banking sector have witnessed a gradual rise in the Interest rate spread. This led to a conclusion that the interest spread has been increasing over time. Results also showed that the mean of market structure has been fluctuating over the year. This led to a conclusion that the market structure has been fluctuating over the years.

Further, results showed that mean of access to information (measure by HHI) increased steadily from year (2005) to year (2006) and hitting high in year (2008). This led to a conclusion that access to information has been increasing steadily over the years Results also showed that there was no regulation from the year (2005) to the year (2009) but it was later adopted whereas regulations shoot steadily to mean of 1.0 in the year (2009) and remained in the same level the rest of the years. This led to a conclusion that the introduction of Credit Reference Bureaus resulted to increased regulation.

Based on the regression results the study concluded that there exists a positive and significant relationship between market structure and interest spread. The study also concluded that there is a positive and significant relationship between credit risk and interest spread. Further, the study concluded that there is a positive but insignificant relationship between access to information and interest spread. Based on the regression results the study also concluded that there is a negative and significant relationship between regulation and interest spread.

RECOMMENDATIONS

Based on the study results, the study recommended that commercial banks should be encouraged to use the information from the credit reference bureaus so as to maintain a lower interest spread among Commercial banks in Kenya. This would encourage lending which would translate to better economic growth. The study also recommended that the central should licence more CRBs which would assist the commercial banks in lowering the credit risk. This would in return assist to lower the interest spread among Commercial banks in Kenya and thus encourage lending. Further, the study recommended that the central bank should review the monetary policy and lower the T- bill (91 days). This would help to lower the interest spread among Commercial banks in Kenya.

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