International Journal of Economics, Commerce and Management
United Kingdom Vol. V, Issue 7, July 2017
http://ijecm.co.uk/ ISSN 2348 0386

IMPACT OF INTEREST RATE LIBERALIZATION ON COMMERCIAL BANKS' PROFITABILITY: CASE OF CONGO

Jean Baptiste Bernard Pea-Assounga
School of Economics, Anhui University, China
aspeajeanbaptiste@yahoo.fr

Dalia Ayme Opoko Apendi
School of Finance, Dongbei University of Finance and Economics, China

Chen Wenfu
School of Economics, Anhui University, China

Abstract

This study is focused on the impact of interest rate liberalization on commercial banks' profitability in Congo. The study covers the period 2007 to 2014 and was carried out by a simple linear regression using 'Eviews 7.2' software. For the aim of this research, 7 commercial banks operating in Congo were selected. In this paper, the net interest margin was used as the dependent variable, and spread, credit risk, asset size, equity to asset and deposit to asset, as independent variables. The result reveals that deposit to asset did not impact the profitability of Congolese banking industry, while credit risk, asset size, equity to asset and spread showed a significant impact. The spread factor, which is a control indicator of interest rate displayed higher impact on banks' profitability compared to others. Therefore, the monetary authorities are recommended to liberalize the financial system in general and particularly the interest rates in providing the measures to remove the competition obstacles, bank entry barriers, and lower regulatory costs, if they exist as well.

Keywords: Congo, Interest rate, Profitability, Liberalization, Commercial Bank, Credit Risk

INTRODUCTION

The banking sector is the keystone of any economy and plays an important role in countries financial system. Financial liberalization is a process which, through the increase in interest rates in real terms, allows not only to rehabilitate the banking sector, but also to increase the rates of growth in the countries concerned.

The studies of Shaw and McKinnon (1973) attributed the financial repression as the cause of economic growth slowdown in developing countries. They found that countries under financial repression usually increase their level of nominal interest rates according to the inflation level in order to increase savings and to supply financial resources in the economy. The investment productivity rises when their resources are channeled to projects and have higher rates return. Furthermore, they mentioned that when the ceilings imposed on lending interest rates and nominal deposit is inferior to inflation, the financial repression arises. The resulting low-interest rates weaken saving and the smooth functioning of the financial system. This leads to the poor investments and negatively affects economic growth. McKinnon and Shaw suggested that financial liberalization can solve the problems caused by the financial repression policies of developing countries. During the 1980s, many African, Asian and European countries have adopted McKinnon and Shaw financial model by eliminating or reducing credit controls, giving autonomy to commercial banks, deregulating interest rates, permitting private ownership of banks, allowing free entry in the banking sector and liberalizing international capital flows. Among these financial measures taken, the liberalization of interest rate seems to be the most important.

Problem Statement

The interest rate is the amount invoiced, calculated as a percentage to be paid on a loan granted to a borrower for the use of assets. Studies on the effect of the financial repression on investment and economic growth by Saw and McKinnon (1973) led industrialized countries to the liberalization of the financial system in general and the liberalization of the interest rate in particular. Thus, the economic and macroeconomic difficulties faced by the sub-Saharan African countries during the 1980s convinced them to comply with the policy of financial liberalization. Nowadays, the majority of African countries include Republic of the Congo practice financial liberalization. For a long time, strict financial regulation was considered necessary to ensure the stability of financial systems and the allocation of financial resources to the sectors deemed to be priorities. Thus the policy of low real interest rates was admitted without much discussion as the way of encouraging investment.

The economy of the Republic of Congo is a mixture of subsistence agriculture, hunting and an industrial sector based largely on the extraction of petroleum and support of services and therefore the government spending is characterized by budget problems and overstaffing. The Congolese economy had a difficult transition between 1994 and 1996. However, to build the economic healthy, the prospects were better than at any time in the previous 15 years. Several measures such as tax relief, labor policy, investment, and hydrocarbon codes reforms have been taken by the government to liberalize its economy.

The Congolese government was supported by World Bank to make some reforms in its banking system through a wave of privatizations from 2001 to 2002. Congolese financial banking system is not as developing as other African countries. The bank asset represented about 87 percent of total financial sector assets and 10 percent of total GDP in 2006. The access to credit for investment and business is limited by the weakness of banking sector. Bank accounts are held just about 3 percent of the population and many of them still face high financing costs due to the lack of competition among banks.

In the Economic and Monetary Community of Central Africa (CEMAC), decisions about interest rates are taken by Central Bank of Central African States Monetary Policy Committee. The official rate in the Central Bank of Central African States is the prime lending rate. As a member of the CEMAC, Republic of Congo's actual benchmark interest rate is 2.45%. Interest Rate in the Republic of Congo averaged 3.47% from 2009 until 2017, reaching an all-time high of 4.25% in July 2009 and a record low of 2.45% in July 2015.

In this study, we analyzed the impact of interest rate liberalization on seven commercial banks' profitability in Republic of Congo during the period 2007-2014. We have used banks characteristics and some control variables to investigate the profitability of these banks. The Net Interest Margin is considered as dependent variable while deposit to asset, spread, asset size, credit risk and equity to asset are independent variables. Regression, descriptive, and correlation analyses methods have been used. Other methods like normality test and natural logarithm techniques were also employed.

LITERATURE REVIEW

For a better understanding of banks' profitability in Congo, it is necessary to refer to previous studies on bank's profitability and interest rate liberalization.

Many studies on the profitability of commercial banks have been done in the past by researchers. Some researches only focused on bank internal factors but others also considered external factors in their studies. Saira Javaid et al 2011 found that total asset or bank size does

not lead any impact on profitability of commercial banks but deposits and equity have impacted significantly the profitability.

Euphemia Ifoema Godspower-Akpomienie (2012) based her study on market interest rate fluctuations: Impact on banks profitability of South Africa, considering two variables of banks profitability net interest margin and net worth as dependent variables and market interest rates (repo rate) factors that determine the interest rate movements, and some banks-specific factors (as independent variables. This author did not include credit risk, spread, and deposit to asset in her analysis and found the result that: macroeconomic factors determine the changes in repo rate, but uncertainties in the economy, at a particular point in time has the highest influence in predicting the changes in repo rate. Interest rate changes had a positive effect on net interest margin of commercial banks in South Africa during the period of 2001 to 2010. Interest rate fluctuations significantly increase the net worth of commercial banks, but this effect was contrary and no more significant when estimation was carried out separately on big and small banks. However, macroeconomic factors (inflation, money supply, and uncertainty) individually handled do not significantly affect the profit of commercial banks. But inflation and uncertainty significantly increase the net worth of the small banks.

Aragaw Hailu (2015) focused his study on 'the impact of capital structure on profitability of commercial banks in Ethiopia'. He considers net interest margin, as the dependent variable and total debt to asset, deposit to asset, loan to deposit, spread, asset growth and asset size as independent variables. This author did not include credit risk and equity to asset in his study and found the result that capital structure had a significant impact on the profitability of core business operations of commercial banks. The empirical findings indicated that total debt to asset had a negative and statistically significant impact, whereas loan to deposit, deposit to asset, asset size and spread had positive and statistically significant influence on profitability. However, asset growth was statistically insignificant.

Usman Dawood (2014), in his paper titled Factors impacting the profitability of commercial banks in Pakistan, covered the period from 2009 to 2012. He has used Return on equity as dependent variable and liquidity, cost efficiency, deposit to asset, capital adequacy and asset size as explanatory variables. He has not employed credit risk. The results of his analysis showed that cost efficiency and liquidity had a negative and significant relationship with the profitability. Equity to asset and deposits to asset had a positive significant impact on profitability. However, asset size shows an insignificant and positive relationship with the profitability of commercial banks.

Hassan Olanrewaju Makinde (2016) studied the effect of interest rate on commercial bank deposits in Nigeria from 2000 to 2013, using the dependent variable commercial bank

deposit and independent variables Gross Domestic Product (GDP) and interest rates. The empirical findings indicated that interest rate has a negative and statistically insignificant correlation with commercial bank. GDP has a positive and statistically insignificant relationship with commercial bank deposits. The author concluded that interest rates did not have any influence on commercial bank deposits.

Yiyou Wang (2015) has focused the research on an exploratory study of interest rate liberalization in commercial banks in China employing net interest spread, non-interest income proportion and concentration ratio of state-owned banks as the dependent variables one by one and benchmark interest spread as the independent variable. The result showed that there was a negative significant correlation between non-interest income proportion and benchmark interest spread, while a positive significant relationship was observed between benchmark interest spread and Concentration ratio of state-owned banks. Whereas, benchmark interest spread had a positive insignificant relationship with net interest spread.

Peninah W. Kariuki (2012) admitted that the influence of interest rate liberalization on financial savings is a big issue in financial theory and added that for keeping the real rates positive we have to increase the level of financial savings. This author concluded that positive real deposit rates are important, but are not enough to increase the mobilization of deposit in the financial institutions.

Porter and Xu (2012) said that banks have to focus on development and financial innovation to handle the competition matter between banks and the increasing operational costs. Hossain et al (2012) found out that the change in interest spreads between deposits and loans is caused by the liberalization reform which leads banks to improve the efficiency of operation and funds allocation to competing with their counterparts. Pennathur et al (2012) analyzed data from banks in India, summarizing that through the process of interest rate liberalization; banks in India developed various profit models and that decreased the risk.

Sheng and Tong (2007) said that to make profits, banks count more on the spread of interest and concluded that to manage well the interest rate liberalization, banks should set interest rate level according to market demand. Wang et al (2012) added that interest rate liberalization results to business risk challenges and banks' inflation.

J.U.J. Onwumere, Okore Amah Okore and Imo G. Ibe (2012), analyzed the impact of interest rate liberalization on savings and investment in Nigeria. They suggested that the policymakers should liberalize the interest rates step by step, firstly the wholesale transactions interest rates among sophisticated entities, secondly lending rates and finally deposit rates. These will make safety the banks' profitability while providing time for firms and people to adapt to the liberalization.

Qishui Chi and Shiwen Fu (2016) focused their research on the Impact of Interest Rate Liberalization on Banks and Small Firms in China, and found the results that under the interest rate liberalization, the bank loans of small firms are not exposed to non-performing risks. This can encourage banks in developing business with small firms to get a satisfied result as win-win.

So far as of now, no studies concerning the impact of interest rate liberalization on profitability of commercial banks in Congo have been published yet. There is a real lack of information between the public and the banks managers. For the first time, we are providing some elements that can allow assessing banks' profitability in Congo.

RESEARCH METHODOLOGY

The data has been extracted from Bank scope. This study took a careful look on the impact of interest rate liberalization on commercial banks' profitability. For this purpose, we have used descriptive analysis, Pearson correlation and regression analysis to test the hypotheses.

Model Specification and Variables

To meet the objective of the study and to find out the impact of interest rate liberalization on the profitability of commercial banks in Congo, the model used by Opoku et al. (2013) and Goyal (2013) with some modification to include relevant variables was applied. The modification was made to include net interest margin (NIM) as a dependent variable, explanatory variables such as deposit to asset as a measure of interest rate, credit risk as a measure of loan loss and spread as a control variable.

The general model:

$$Y_{it} = \beta_0 + \beta_i X_{it} + \mu_{it} \quad (1)$$

Where,

Y_{it} = represents the dependent variable

β_0 = is the intercept

β_i = represents the coefficients of independent variables

X_{it} = represents the explanatory variables

μ_{it} = are the error terms

i = is the number of banks and t = is the number of the time periods

$$NIM_{it} = \beta_0 + \beta_1 SPR_{it} + \beta_2 CR_{it} + \beta_3 SIZE_{it} + \beta_4 EQA_{it} + \beta_5 DPA_{it} + \mu_{it} \quad (2)$$

Where,

NIM it = Net Interest Margin for bank i in year t

SPR it = Spread for bank i in year t

CR it = Credit Risk for bank i in year t

SIZE it = Asset Size for bank i in year t

EQA it = Equity to Asset ratio for bank i in year t

DPA it = Deposit to Asset ratio for bank i in year t

This study does not cover all variables impacting the profitability of commercial banks but used explanatory variables such as spread, credit risk, asset size, equity to asset and deposit to asset, while the dependent variable was net interest margin. The variables descriptions are as follow.

Net Interest Margin (NIM)

The fact that the profitability of interest rate liberalization of banks would be directly and reasonably measured by net interest margin, this study examined the profitability of banks using net interest margin as a dependent variable. The higher the net interest margin, the higher the profit earned by the bank and the more stable the bank is.

The formula used to calculate the NIM was:

$$\text{NIM} = \frac{\text{Interest Income} - \text{Interest Expense}}{\text{Interest Earning Assets}}$$

Spread (SPR)

The purpose of this variable in this study was to serve as a control variable. The formula used to calculate was:

$$\text{SPR} = \frac{\text{Interest Income}}{\text{Loan \& } Advance} - \frac{\text{Interest Paid}}{\text{Deposit}}$$

Asset Size (SIZE)

Asset size of banks was considered in this study as the independent variable. For the purpose of this study, bank size has been taken as the natural logarithm of the total assets of the banks before employing in the model. Asset Size of the bank indicates the diseconomies and economies of scale.

Credit Risk (CR), is the loss risk of principal or a pecuniary loss of reward from the failure of borrower to repay loans or to meet his contractual debt. The higher credit risk, the high level of interest rate demanded by the investors to lend their capital. In this research, it is calculated by the following formula.

$$\text{CR} = \frac{\text{Loan Loss Provision}}{\text{Loan}}$$

Equity to Asset (EQA)

The equity to asset is the financial ratio applied to define the financial health and bank's long-term profitability. A high ratio means that the bank is mostly owned by its shareholders, while a low ratio indicates that the bank is likely burdened with high debts. It was calculated by the following formula.

$$\mathrm{EQA} = \frac{\mathrm{Total\ Equity}}{\mathrm{Total\ \ Asset}}$$

Deposit to Asset (DPA)

As the major source of external finance is deposits, deposit to asset ratio was used as an independent variable to examine the impact of deposit on the profitability of commercial banks in the Republic of Congo. High deposits indicate high profit whereas low deposits imply low profitability. The formula used to calculate this variable was:

$$\mathrm{DPA} = \frac{\mathrm{Total\,Deposit}}{\mathrm{Total\,Asset}}$$

Research Hypotheses

As it is stated in previous sections, the major objective of this study was to examine the impact of interest rate liberalization on the profitability of commercial banks in Congo and to scrutinize the relationship between interest rate variables and profitability. To achieve this objective, the following hypotheses concerning the impact of interest rate on the profitability of commercial banks were tested.

H1: There is no significant relationship between Spread and profitability of commercial banks in Congo.

H2: There is no significant relationship between Credit Risk and profitability of commercial banks in Congo.

H3: There is no significant relationship between Asset size and profitability of commercial banks in Congo.

H4: There is no significant relationship between Equity to Asset and profitability of commercial banks in Congo.

H5: There is no significant relationship between Deposit to Asset and profitability of commercial banks in Congo.

ANALYSIS AND RESULTS

Descriptive Statistics

Table 1 provides a summary of the descriptive analysis of dependent and independent variables for seven commercial banks operating in Congo for the period of 8 years from 2007 to 2014 with a total of 31 observations. Descriptive analysis includes mean, minimum, maximum and standard deviation.

Table 1: Descriptive Statistics (XAF in millions)

	NIM	SPR	CR	SIZE	EQA	DPA
Mean	4.423226	0.220194	1.685374	5.251061	7.239355	83.86408
Maximum	8.200000	1.684493	5.457129	5.985857	54.00000	95.04968
Minimum	0.680000	0.015222	-3.485420	4.449731	-6.590000	42.76218
Std. Dev.	1.738335	0.407163	1.880425	0.399007	9.182682	9.279737
Observations	31	31	31	31	31	31

Source: Bankscope and own computation

The mean of Net Interest Margin (NIM) is 4.423226 and standard deviation 1.738335. This means commercial banks in Congo during the period of study, earned on average 4.423226 of net interest margin from their investment in interest earning assets. This also means that on average for each one XAF (Central African Financial-Coop Franc/CFA Franc) investment in the interest earning asset of commercial banks there was 4.423226 cent return in the form of net interest income. The highest NIM for a bank in a particular year is 8.200000 and in the other side, the minimum ratio for a bank in a year is 68%. Regarding the standard deviation, it means that the value of net interest margin can deviate from its mean to both sides by 1.738335.

From the above table, the mean of deposit to asset ratio of the sample banks in the study period is 83.86408. It reveals that total deposit represents on average nearly 83.86408 of assets of commercial banks in Congo. The highest deposit to asset ratio for a bank in a particular year is 95.04968 and in the same way, the minimum ratio for a bank in a year is 42.76218. The value of deposit to asset ratio can deviate from its mean to both sides by 9.279737.

A summary of test statistic shows that the mean of spread is 22% with the standard deviation of 41%. Moreover, the spread is ranged in between 0.015222 to 1.684493.

The mean of the bank's size which was represented by the natural logarithm of total assets is XAF 5.251061 and a standard deviation of XAF 0.399007. Total assets for the sample banks in the study period were ranged from XAF 4.449731 to 5.985857. And this highest asset size was observed in the balance sheet of BGFI Bank in the year 2014, and the possible

reason for this is also the aggressive branch expansion throughout the country and its investment in different assets such loan advances and other investments/bonds etc. In the other hand, the minimum asset size is observed in the balance sheet of United Bank for Africa (UBA) in the year 2011. The possible reason could be the year 2011 was its infant stage in the banking business operation in Congo.

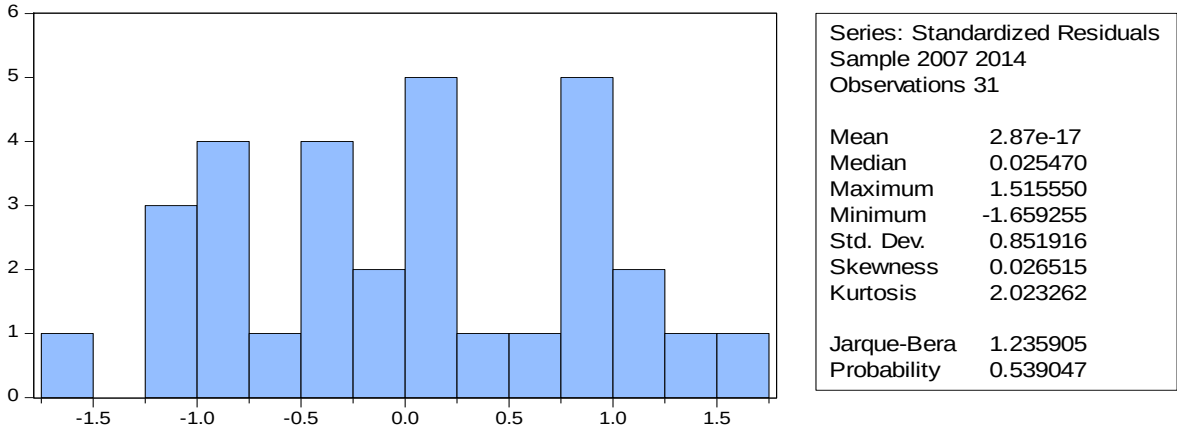
The descriptive statistic shows that the average value of the credit risk is 1.685374. The maximum value of credit risk for the study period is 5.457129 and the minimum value is -3.485420. The value of credit risk can deviate from its mean to both sides by 1.880425.

The mean of equity to asset ratio of the sample banks in the study period is 7.239355. It reveals that equity represents on average 7.239355 of assets of commercial banks in Congo. The highest equity to asset ratio for a bank in a particular year is 54.00000 and in the same way, the minimum ratio for a bank in a year is -6.590000. The value of equity to asset ratio can deviate from its mean to both sides by 9.182682.

Normality Test (errors are normally distributed, ut ~ N (0, σ2))

Brooks (2008) stated that if the distribution of residuals follows a normal distribution, its histogram should be bell-shaped and the Bera-Jarque statistic would not be significant. That is, the P-value given at bottom of the normality test screen should be greater than 0.05 to not reject the null hypothesis normality at the 5% significant level.

Figure 1: Normality Test



Source: Bankscope and own computation

From the above figure 1, we can conclude that there is no problem of normality. That is, the coefficient of kurtosis was 2.0232262, and the Jarque-Bera statistic has a P-value of 0.539047 implying that the data were consistent with a normal distribution assumption. Furthermore, it

indicates that the inferences made about the population parameters from the sample banks tend to be valid.

Correlation Analysis

The correlation matrix between independent variables was the method used in this study to test the existence of multicollinearity problem. Since all correlation results are below or equal 0.8, it is indicated that multicollinearity is not a potential problem for this study.

Table 2: Correlation Matrix (XAF in millions)

	NIM	SPR	CR	SIZE	EQA	DPA
NIM	1.000000					
SPR	0.558943	1.000000				
CR	-0.220593	0.074205	1.000000			
SIZE	0.016865	0.183008	-0.448756	1.000000		
EQA	0.315534	0.014491	0.026455	0.055655	1.000000	
DPA	-0.257735	0.170963	0.077779	0.109055	-0.814505	1.000000

Source: Bankscope and own computation

The table 2 above shows that spread, asset size and equity to asset have a positive correlation with the net interest margin, while credit risk and deposit to asset are negatively correlated with the dependent variable.

Regression Analysis

As stated in Brooks (2008), in financial research, there are two major classes of panel estimator approaches that can be employed.

Table 3 Regression analysis (XAF in millions)

Dependent Variable: NIM				
Method: Panel EGLS (Period weights)				
Date: 05/21/17 Time: 22:05				
Sample: 2007 2014				
Periods included: 8				
Cross-sections included: 7				
Total panel (unbalanced) observations: 31				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
SPR	3.111056	0.622615	4.996756	0.0000*
CR	-0.405564	0.101000	-4.015479	0.0005*
SIZE	-2.412912	0.570829	-4.227030	0.0003*
EQA	0.095114	0.026493	3.590152	0.0014*

Table 3...

DPA	0.017071	0.026641	0.640769	0.5275**
C	14.73612	3.700768	3.981909	0.0005*
R-squared	0.731483			
Adjusted R-squared	0.677780			
S.E. of regression	1.293041	Sum squared resid		41.79885
F-statistic	13.62080	Durbin-Watson stat		0.870193
Prob (F-statistic)	0.000002			

*Significant at 1% and ** Insignificant

Source: Bankscope and own computation

We have selected the model for the bank's profitability on the basis of the high value of R-Squared. Table 3 mentioned above represents the result of regression analysis. The value of R-Squared is 0.73 in the model which shows that 73% variation of the dependent variable is described by the independent variables of the commercial banks of Congo and 27% variation is not explained by the independent variables. In addition, the Prob (F-statistic) 0.000002 indicates that the explanatory variables jointly have a significant impact on the profitability of banks in Congo. The value of F=13.62 is significant supporting the model relevant to the study. The value of Durbin-Watson is 0.870193 which indicates that there is no autocorrelation between residuals. The other results reveal that equity to asset was statistically significant (p- value = 0.0014) at 1% level and had a positive relation with profitability. This positive correlation implies that banks with high capitalization show high profitability. Saira Javaid et al (2011) and Usman Dawood (2014) have found the same result. Deposit to asset was statistically insignificant and had a positive relation with profitability, which means that banks in Congo don't take risks to transform the deposits in investing into riskier and profitable projects. The possible reason could also be that the cost or interest expenses associated to debt financing through the deposit mobilization is expensive in the context of Congolese banking sector. The result is consistent with empirical findings of Bogan (2009) and Usman Dawood (2014), but the contradictory result was found by Aragaw Hailu (2015). Besides, the spread was strongly statistically significant (p-value = 0.0000) at 1% level and had a positive relationship with profitability. This implies that every 1% change (increase or decrease) in bank's spread keeping the other thing constant has a resultant change of XAF 3.111056 on the profitability in the same direction. This result also shows that an increase of interest rate has a positive impact on the profitability of Congolese banking industry. The reason could be that due to the fact that during the period under study, the interest rates used to pay for depositors were lower than the interest rates applied to the loans and advances. The result was consistent with previous empirical findings of Irungu (2013) and Aragaw Hailu (2015). The asset size as measured by the natural logarithm of total asset

had a negative and statistically significant relationship with profitability. This reveals that every 1% change increase or decrease in the bank's size keeping the other thing constant had a resultant change of XAF 2.412912 on the profitability in the opposite direction. Which indicates that the bigger the bank, less the economies of scale and hence less the profitability as well. The possible reason is that larger banks have economies of scale and lower variance of earnings and the cost used to pay the employees in different branches which resulted in low profitability in the case of banks in Congo. A similarly significant relationship with profitability was found by Goyal (2013) and Aragaw Hailu (2015), but the inconsistent result has been shown by Usman Dawood (2014). Similarly, credit risk also had a negative and statistically significant relationship with profitability. The credit risk excess leads to banks fragility and set up their bankruptcies. The banks usually finance the risky projects and distribute bad credits; therefore they require the high lending interest rates. The banks' projects are with high yield and also with a weak level of probability success on the other hand. It is for that the credits risk and profitability of banks are negatively correlated just in the short run.

Summary of Hypotheses Testing

H1: There is no significant relationship between Spread and profitability of commercial banks in Congo. - Rejected

H2: There is no significant relationship between Credit Risk and profitability of commercial banks in Congo - Rejected

H3: There is no significant relationship between Asset size and profitability of commercial banks in Congo - Rejected

H4: There is no significant relationship between Equity to Asset and profitability of commercial banks in Congo - Rejected

H5: There is no significant relationship between Deposit to Asset and profitability of commercial banks in Congo - Accepted

CONCLUSION AND RECOMMENDATIONS

This paper analyzed the impact of interest rate liberalization on commercial banks' profitability in Congo for the period 2007 to 2014. The results of the estimation model showed that Deposit to Asset ratio had a statistically insignificant positive relationship with profitability. This indicates that banks in Congo don't take risks to transform the deposits in investing into riskier and profitable projects. In the other hand, the cost or interest expense associated to debt financing through deposit mobilization is expensive in the context of Congolese banking sector. In this study, the spread factor showed a strong positive and statistically significant relationship with

profitability. This implies that the higher the interest rate, the greater the profitability of banks. Therefore interest rate and net interest margin move together and in the same direction. Besides, the results of the study indicated that asset size had a negative and statistically significant relationship with profitability. Equity to Asset had a statistically significant and positive relationship with the profitability of commercial banks. This result confirms the pecking order theory which posits that banks prefer to use internal finances before raising their debts and equity.

This research has fulfilled its purpose of using econometric methods, net interest margin as the dependent variable and some indicators of the interest rate as independent variables to examine the impact of interest rate liberalization on banks' profitability in Congo. According to the results of this research, banks' managers should take in consideration to manage their credit risk by reducing its negative impact on the profitability, and increase loan advances keeping the profitability of their loan portfolio in line with objectives and therefore generate more interest income from loan advances.

In addition, commercial banks are recommended to develop new strategies that will increase interest income and hence spread without affecting the competitive based in the banking industry. They should make a great management and strategies to promote the interest rate for increasing the deposits and the access of credits to private sector, hence the profitability.

It is important to note that every research has limitations. In this paper, we encountered some difficulties, such as the lack of data that prevented a long-term analysis and the use of other explanatory variables such as Loan to Deposit, Total Debt to Asset and Asset Growth. On the other hand, there was the lack of empirical studies on this topic in underdeveloped and developing countries, which limited the literature review.

REFERENCES

Chi, Q. and Fu, S. (2016) 'The Impact of the Interest Rate Liberalization on Both Banks and Small Firms: Evidence from China', Research in World Economy, 7(2), pp. 26–33. doi: 10.5430/rwe.v7n2p26.

Dawood, U. (2014) 'Factors impacting profitability of commercial banks in Pakistan for the period of (2009-2012)', Ijsrp.Org, 4(3), pp. 1–7.

Godspower-akpomiemie, E. I. (2012) 'Market Interest Rate Fluctuations : Impact on the Profitabilty of Commercial Banks', pp. 1–90.

Hailu, B. A. (2015) 'The impact of capital structure on profitability of Commercial Banks in Ethiopia', (June).

Hossain, M. I. (2009) 'R EVIEW : EVIEW : Economic liberalization reforms may explain the impressive GDP growth in Bangladesh'.

Hossain, M., Shinkai, N., Yunus, M. and Bakht, Z. (2012), "Integration of ICT industries and its impact on market access and trade: The case of Bangladesh and India", in Rahman, S.H. (Ed.), Regional Integration and Economic Development in South Asia, Edward Elgar Publishing, Northampton, Chapter 3.

Irungu, P. N. (2013) 'the Effect of Interest Rate Spread on Financial Performance of Commercial Banks in Kenya Submitted By: a Research Project Submitted in Partial Fulfilment of the Requirement for Award of Masters of Science in Finance, University of Nairobi'.

Javaid, S. et al. (2011) 'Determinants of Bank Profitability in Pakistan: Internal Factor Analysis.', Journal of Yasar …, 2(1), pp. 59–78. doi: 10.2110/jsr.2005.053.

Makinde, O. (2016) 'Effect of Interest Rate on Commercial Bank Deposits in Nigeria (2000-2013)', pp. 1–17.

McKinnon, R. I. (1973). 'Money, Capital and Banking in Economic Development'; Brooklyn Institution, Washington D.C. (As cited by Dawood, U. (2014).

Peninah W. Kariuki (2012), effects of liberalization on access to bank credit in Kenya. Primo, N. (2003), Gender issues in the information society, World Summit on the Information Society, UNESCO. Paris: France. (As cited by Pamela Awuor Ochieng' and Antony Sije, 2013).

Pennathur, A., Subrahmanyam, V. and Vishwasraoc, S. (2012). "Income diversification and risk: Does ownership matter? An empirical examination of Indian banks", Journal of Banking & Finance, Vol. 36 No.8, pp. 2203-2215. (As cited by Yiyou Wang, 2015).

Porter, N. and Xu, T. (2012) 'What Drives China's Interbank Market ?', (January), pp. 1–46.

Shaw, E. (1973), "Financial Deepening in Economic Development, New York: Oxford University Press. (As cited by Dawood, U. (2014).

Sheng, S.C. and Tong, S.T. (2007), "Interest Spread of Loan and Deposit of Commercial Banks: Increased or Decreased?", Financial Study, No.11, pp. 1319. (As cited by Yiyou Wang, 2015).

Wang, Y. and Review, L. (2015) 'An Exploratory Study of Interest Rate'. Journal of Applied Management and Investments, 2015 5(4):270-278.