

Determinants of Commercial Banks' Interest Rate Spread in Namibia: An Econometric Exploration

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Abstract

This paper investigates the determinants of commercial banks interest rate spread in Namibia, using a panel data analysis of bank level data. It applied the OLS technique to identify the bank-specific variables that have been influencing interest rate spread in Namibia over the period 2004 – 2011. The results of the study indicate that deposit market share, liquidity levels and operating costs are the main bank-specific determinants of interest rate spread in Namibia. More specifically, it was found that the deposit market share and operating costs reduce net interest margin whilst the liquidity levels of a commercial bank increase its net interest margin. Furthermore, it was revealed that the tax paid by a bank, non-performing loans and the capital ratio are not important determinants of the net interest margin. The foregoing implies that the monetary authority in Namibia should place emphasis on the policies aimed at reducing the liquidity levels in the banking industry, which will reduce the net interest margins. This is especially important for both banks and consumers alike. It is also found that it is imperative to focus on policies that promote a low interest rate environment, as these would reduce the interest margins in the economy.

Keywords: Interest rate spread, commercial banks, Namibia.

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1. Introduction

In economics it is believed that financial sector development is an important contributor to economic growth and development (Bawumia, Belye and Ofori, 2005). Fowowe (2008) argues that lack of real growth in developing countries has been due to a repressed financial sector and therefore, developing countries needed to adopt financial liberalisation policies in order to realise real economic growth and development. The removal of all financial repressive policies which characterised the financial sector such as fixed interest rates and credit rationing would deepen the financial sector and open it to competition, thus leading to competitive deposit and lending rates and pave the way for the development of the financial sector, and consequently economic growth (Chirwa, 2001). Commercial banks are important in the development of the financial sector in the sense that they promote economic efficiency through financial intermediation.

It is imperative to understand the behaviour of commercial banks because of their importance to economic growth and development. The study of interest rate spread is important in many ways, because of the essential relationship between the interest rate spread and the banking industry efficiency (Folawewo & Tennant, 2008). There is a direct relationship between the two, thus, the wider the interest rate spread the more inefficient is the banking system. The more inefficient the banking sector is, the higher the cost of intermediation. This translates into reduced lending and investment, and subsequently reduced economic growth.

Namibia's commercial banking sector is well established and compares well with other banks in sub-Saharan Africa (SSA) (IMF, 2007). In 2007, the IMF estimated that in SSA during the year 2004, commercial banks return on average equity was 16.3 percent, return on average assets 1.9 percent and capital ratio was 16.1. In Namibia, these ratios were 21.6 per cent, 2.0 per cent and 15.4 per cent, respectively. In the same year, non-performing loans were 2.4 percent in Namibia whilst it was 14.7 percent in SSA, 1.8 percent in Botswana and 2.8 percent in Lesotho. However, the oligopolistic nature of the industry has led to wider interest rate spreads and higher bank charges (NEPRU, 2005). The interest rate spread was as high as 9.3, 8.9 and 8.3 per centage points in 1991, 1992, and 1993, respectively. However, the interest rate spread has declined since 2008 and recorded its lowest value of 4.4 per centage points in 2011. Despite the fact that the interest rate spread has narrowed in recent years, the Bank of Namibia (BoN) is still concerned about the level of interest rate spread (Bank of Namibia, 2009b). Although, there have been numerous studies on interest rate spreads in Africa and beyond, such studies are very limited in the context of Namibia. One such study in Namibia is by Eita (2012), which focused on the macroeconomic determinants of interest rate spreads using quarterly times series from 1996 to 2010. The current study is different from that of Eita (2012) since its focus is on determining interest rate spread using the firm-level or bank-specific variables.

The rest of this paper is organized as follows: section two provides an overview of the financial sector in Namibia, section three presents both the theoretical and empirical literature review, section four discusses the methodology, section five presents and discusses the results of the study; section six contains the conclusion and policy recommendations of the study.

2. The Namibian Financial System

The Namibian financial system is regarded as one of the most diverse, sophisticated and

developed in the continent (IMF, 2007). Like other developing countries in the world, Namibia has a dual financial system which comprises of formal and informal sectors. The formal sector is divided in two categories. The banking sectors which comprises of the central bank, commercial banks, development financial institutions and the non-banking sector which consists of insurance companies, pension funds, smaller intermediaries in the form of stockbrokers and money market funds, and capital market which comprises of Namibia Stock Exchange. The informal sector on other hand, consists of cash loan operators, moneylender, pawn brokers etc.

2.1 Banking Institutions

Central Bank

The Bank of Namibia is the central bank that regulates the banking institutions in the country. The main goal of the central bank as stipulated in the Namibian Constitution is to promote and maintain sound monetary policy, credit and financial in the country; to sustain liquidity, solvency and functioning of the system; to promote and maintain internal and external monetary stability; to serve as the Government's banker, financial adviser and fiscal agent, and to support in the attainment of national economic goals. The BoN main operational instrument is the repo rate. The Bank regulates the repo rate in line with monetary policy stance of South African Reserve Bank.

Commercial Banks

The Namibian financial sector is dominated by banking industry which consists of four commercial banks (Bank Windhoek, Standard Bank, Ned Bank, and First National Bank) with a share of nearly 40 per cent of total assets. Amongst these four commercial banks, three are locally authorized subsidiaries of South Africa Holding companies, with Bank Windhoek being the only locally owned bank. The commercial banks remain strong, well-capitalized, profitable and resilient to shocks including the recent financial crisis experiences in the United States economy and European Union area.

Development Financial Institutions

The development financial institutions (DFIs) are specialized institutions that provide a range of financial products and services to suit the specific needs of the targeted sectors such as industrial, manufacturing, services and agriculture sectors. Currently, there are three DFIs in Namibia namely; Agricultural Bank of Namibia, Development Bank of Namibia and National Housing Enterprise Ltd. DFIs therefore act as strategic tools to bridge the gaps in the supply of financial products and services to ensure the long-term economic development of the country.

Money Market

In Namibia, the money market includes the call deposits under the Bank of Namibia, call deposit with commercial banks, interbank loans, treasury bills, overdrafts with commercial banks etc (BoN, 2001). The purpose of the call deposit facility with commercial banks is to influence the level of liquidity in the economy and to avoid the drain of official reserves. Treasury bills in Namibia are issued at discount rate for three months (91 days), six months (182 days) and 12 months (365 days). The fact that they are issued by the government yield them a high status. These instruments normally attract a wide range of investors such as commercial banks, individuals, investment trusts, insurance companies, stockbrokers and other public enterprises.

2.2 Non-Banking Financial Institutions

Non-bank financial institutions (NBFIs) play an important role in the intermediation of savings of individuals and corporations. The NBFIs are regulated by Namibia Financial Institutions Supervisory Authority (NAMFISA) and consists of pension funds, long term and short term insurance, micro lenders, unit trusts, medical aid funds, a stock exchange and stock brokers. At the end of 2011, the total industry assets were recorded at N\$205,217 million (BoN, 2012). Their stock of assets most of which are administered by asset managers is marginally higher than the country's annual nominal GDP, or about 1.5 times the size of the money supply in Namibia (BoN, Financial Sector Performance Report 2012). NBFIs, through their asset managers, allocate most of their financial resources in domestic and other CMA financial markets; only a small share of total resources is invested beyond the regional boundaries.

Stock Exchange

The Namibian stock exchange was established in 1992. It first started with funds contributed by Namibian firms with an interest in attracting capital market finance (NSX, 2002). It began with dual-listings of bigger Namibian companies which had previously listed on Johannesburg Stock Exchange (JSE) and grew with more dual listings of major financial institutions with extensive operations in Namibia. The first Namibian only listing and capital raising exercises occurred in 1994. Trading was by an automated system and NSX was the first ever in Southern African Development Community (SADC) to make use of the Johannesburg Equity Trading (JET) in 1998. The Regulation for primary market listings follows the requirements of the Johannesburg Stock Exchange (JSE), as well as general strategy with all SADC exchanges. Like other developing countries, there are three standard ways of listing shares on the NXS; by placing stocks on NSX, by issuing it as an initial primary offering (IPO) and by dual listing with other exchanges. The listing requirements, however, differ from each standard (NSX, 2002).

3. Literature review

According to Da Silva et al., (2007) there are two theoretical approaches to interest rate spread, namely, the monopoly model by Klein (1971) and the dealership model of Ho and Saunders (1981). The monopoly model also known as the Klein-Monti Model considers a monopolistic bank as a firm whose main business is to produce deposit and loan services. The difference between deposits and loans can be borrowed on the interbank market. Thus, a firm can borrow funds on the interbank market in case it does not have sufficient deposits to make out more loans. It is believed that the bank has monopolistic power in either the deposit or credit (loan) market, which, in turn, affects its business operations. Consequently, this monopolistic power manifests itself in interest rate spreads. In this case, the bank is able to charge a price higher than its marginal cost. Therefore, the monopoly model predicts that due to monopolistic power, larger commercial banks exercise market control over smaller banks and influence the market price, which in this case, is the interest rate spread. Another outcome of the monopoly model is that the interest spread is an increasing function of banking sector concentration.

Similar to the monopoly model, the Structure-Conduct-Performance (SCP) theory of industrial organization maintains that market concentration encourages firms to adopt less competitive behaviour which leads to inefficient markets. The SCP model argues that firms adopt anti-competitive strategies such as collusion and that such behaviour impacts on their performance (Tushaj, 2010). Therefore, the SCP paradigm implies that market concentration is positively related to interest rate spread. However, the efficient market hypothesis argues to

the contrary. Under the efficient market hypothesis, it is argued that bigger banks tend to have narrower spreads due to economies of scale. Thus, variables such as bank size and market power influence a firm's price decision.

The dealership model views a bank as an intermediary between the borrower (firms) and the final lender (households). In this model, the bank faces two types of uncertainty. The first uncertainty is due to lack of harmonisation between the loans and deposits which leads to an interest rate risk for the bank.

The second uncertainty that the bank faces concerns the default risk by its customers. The dealership model postulates that a bank lacks knowledge, *ex-ante*, about the likelihood of default by its customers in the credit market and that this uncertainty exposes the bank to a credit risk. The more exposure to default risk the bank has, the more likely the bank will widen its interest rate spread in order to shield itself against the risk. This suggests that the interest rate spread is directly related to non-performing loans (NPLs), thus the higher the NPLs the wider the interest rate spread.

On the empirical side, researchers such as Ngugi (2001), Chirwa and Mlachila (2002) and Perez (2011) classified the determinants of interest rate spread into three categories, namely, bank-specific, bank-industry or market, and macroeconomic determinants. In relation to bank-specific determinants several studies have found that variables such as non-performing loans (NPLs), overhead costs, excess liquidity, market share, and ownership of bank are significant determinants of interest rate spread. Studies such as Ngugi (2001) in Kenya and Perez (2011) in Belize found that excess liquidity tended to widen the interest rate spread. Demirgüç-Kunt and Huizinga (1999) found that in developing countries, foreign owned banks tend to have wider interest rate spreads compared to domestically owned banks. However, foreign ownership of a bank was found to be insignificant by Gelos (2006) in 14 Latin American Countries. Perez (2011) found that market share and NPLs are the major determinants of interest rate spread in Belize. Chirwa and Mlachila (2002) found that high monopoly power (or market power) contributed to high interest rate spreads in Malawi. Hossain (2010) and Grenade (2007) found that overhead costs, operating costs and NPLs were positively correlated with high interest rate spreads in Bangladesh and in the Eastern Caribbean Currency Union.

The empirical evidence on the role of bank-industry variables in the determination of interest rate spread in general supports the theory. For example, studies such as Perez (2011) in Belize, Claey's and Vennet (2004) in Europe, Gelos (2006) in a study of 14 Latin American economies, Hossain (2010) in Bangladesh, and Dabla-Norris and Floerkemeier (2007) in Armenia have found that concentration is a significant determinant of interest rate spread. In addition, Ngugi (2001) points out that other market specific determinants include ownership structure and control of banks, policy regime (whether interest rates are controlled or not), the market share of individual banks, and diversity of financial assets.

Several studies, Eita, 2012; Khawaja and Din, 2007; Chirwa and Mlachila, 2002; Afanasieff, Lhacer and Nakane, 2002; Demirgüç-Kunt and Huizinga, 1999) indicate that the macroeconomic environment has a bearing on interest rate spreads. Unpredictable macroeconomic conditions tend to increase the risk of investments and therefore, investors are compelled to increase lending rates (Ngugi, 2001). Chirwa and Mlachila (2002) found that wide interest rate spreads were associated with high discount rates (or bank rate), high reserve requirements (implicit

tax) and high inflation rates in Malawi. In Kenya, it was found by Ngugi (2001) that monetary policy tightening and increasing the treasury bills rate widened the interest spread. Crowley (2007) found that higher reserve requirements were associated with higher interest rate spreads in English-speaking African countries. In Latin America, Gelos (2006) found that high interest rates and reserve requirements were major contributors to high interest rate spreads, while GDP growth was associated with narrower interest rate spreads.

Eita (2012) investigated the determinants of interest rate spread in Namibia using quarterly data spanning from 1996 to 2010 and found that macroeconomic variables are important factors explaining interest rate spread in Namibia. Eita (2012) found that inflation rate, bank rate and the treasury bills rate increase whilst the size of the economy and financial deepening decrease the interest rate spread. Tarus et al., (2012) examined the determinants of net interest margin of commercial banks in Kenya. Their pooled and fixed effects regression results indicated that operating expenses and credit risk has a positive effect on net interest margin. Their study has also revealed that higher inflation widens net interest margin whereas growth and market concentration have a negative effect on net interest margin. Ahokposi (2013) investigates the determinants of bank interest margin in Sub-Saharan Africa. The results of his study show that market concentration is positively related to interest margins, while bank specific factors such as credit risk, liquidity risk and bank equity are important determinants of interest margins in Sub-Saharan Africa.

4. Research Methodology

4.1 Technique

The study employs econometric techniques to investigate the determinants of interest rate spread. The data used in this study were obtained from the Bank of Namibia and the World Bank. The model used panel data for four commercial banks which covered the period from the first quarter of 2004 to the last quarter of 2011. This study adopted a variant model of the monopoly model of Klein (1971), which argues that the firm characteristics and behaviour affects its business operations including its decision of what interest rate to charge. Thus, based on the reviewed literature and the availability of data, the following fixed effects model was estimated:

$$NIM_{it} = \alpha_i + \beta_1 LIQ_{it} + \beta_2 NPL_{it} + \beta_3 CR_{it} + \beta_4 TAX_{it} + \beta_5 DMS_{it} + \beta_6 CER_{it} + v_{it} \dots \dots \dots (1)$$

where: t is the time dimension of the panel, i captures the cross sectional dimension of the data, i.e. bank, and α_i represents the constant term and coefficients, respectively; v_{it} is the error term. The dependent variable is net interest margin (NIM), which is net interest income as a percentage of earning assets and indicates the rate of return on assets that should be earning income.

LIQ is a proxy for excess liquidity and its coefficient β_1 is expected to have a positive sign since excess liquidity acts as an implicit tax. NPL is the non-performing loans measured as the percentage of total loans that are not performing, i.e. 90 days or more in arrears. Poor economic conditions such as recessions, high inflation rates and high interest rates erode consumer income and the ability of consumers to pay back loans diminishes, thus, increasing non-performing loans. Therefore, the coefficient for this variable, β_2 , is expected to have a positive sign since increased non-performing loans put pressure on commercial banks to widen their interest margins due to potential loss of revenue. CR is the amount of a bank's core capital expressed as a percentage of its risk-weighted assets. Its parameter β_3 is expected

to have a positive sign because higher capital levels act as an implicit tax and encourages a commercial bank to widen its interest margin in order to compensate for unutilised capital.

TAX is the tax paid by a commercial bank as a percentage of its total income. A high tax rate encourages commercial banks to widen their interest margin, therefore, the coefficient of TAX is expected to be positive. *DMS* denotes deposit market share and is the percentage of a commercial bank's deposits in total industry deposits. β_4 is expected to be positive because of monopolistic power in the deposit (or loan) market. The cost efficiency ratio, *CER*, is a proxy for operating costs, which is non-interest operating expenses as a percentage of total income. The coefficient of *CER* is expected to bear a positive sign since increased cost inefficiency (or operating costs) puts pressure on a commercial bank to widen its interest margin in order to contain increased expenses.

5. Estimation and interpretation of the results

5.1 Stationarity Results

The Fisher Augmented Dickey-Fuller (ADF) panel unit root test was applied to determine the stationarity properties of the bank-specific variables. Table 1 depicts the results of the ADF unit root test.

Table 1: Fisher ADF unit root test results for the bank-specific variables

Series	NIM	LIQ	NPL	CR	TAX	DMS	CER
t-statistic	30.264	19.969	31.182	21.764	119.610	20.643	76.315
Probability	0.0002	0.0115	0.0001	0.0054	0.0000	0.0082	0.000

The results in Table 1 indicate that all the variables are stationary in levels, thus, the concerned variables are integrated of order zero, that is, $I(0)$. Since the variables are stationary in levels; this is a special case in which the variables are co-integrated. In this case, there is no need for a co-integration test (Asteriou & Hall, 2007).

5.2 Regression results

The estimated results are presented in Table 2. The Hausman test was applied to test whether the random effects model is preferred over the fixed effects model. The results indicate that the fixed effects model is the correct model for determining net interest margin in Namibia.

Table 2: Regression results

Variable	Coefficient	t-Statistic
Constant	10.775 [1.508]***	7.14
NPL	-0.054[0.989]	-0.54
LIQ	0.104[0.047]**	2.22
DMS	-0.1784[0.054]***	-3.65
CER	-0.034[1.135]***	-3.80
CR	-0.051[0.059]	-0.55
TAX	-0.0016[0.011]	-0.86

Standard errors in square brackets; ***, **, and * denote significance at 1 per cent, 5 per cent and 10 per cent levels respectively
Adj. R-squared = 0.64, Hausman test = 42.13 (Prob. = 0.000).

The results in Table 2 indicate that non-performing loans, capital ratio and tax are not important whilst liquidity, deposit market share and cost efficiency are significant determinants of net interest margin in Namibia's commercial banking industry. The negative sign and significant coefficient of the deposit market share is consistent with the efficient markets hypothesis, which states that, as a commercial bank becomes bigger in terms of market share, it improves its operational efficiency and therefore gains economies of scale, which enables it to maintain narrower interest margins. The results refutes the claims of the monopoly model, which suggest that a bigger market share would enable a commercial bank to widen its interest margin because it is able to charge a price that is greater than its marginal cost. Thus, a 1 per cent increase in the market share of a commercial bank, leads to a 0.18 per cent decrease in its net interest margin.

The positive and significant relationship between net interest margins and liquidity is consistent with expectations and implies that the liquidity position of a commercial bank is important and influences its interest margin decisions. The positive sign of the coefficient suggest that an increase in the liquidity position of a commercial bank leads to an increase in its net interest margin. Therefore, a 1 per cent increase in the liquidity ratio causes a 0.10 per cent increase in the net interest margin of a commercial bank. This is the case because excess liquidity is an implicit tax to banks because of the opportunity cost associated with excess liquidity.

Contrary to theoretical expectations, the coefficient for cost efficiency ratio is negative and statistically significant implying that as the cost efficiency of a commercial bank deteriorates by 1per cent,its net interest margin reduces by 0.034 per cent. This result suggests that commercial banks which face increased operating costs do not shift their burden to their consumers through wider net interest margins. The negative sign of the coefficient may be due to the fact that there has been a gradual shift toward non-interest sources of income in the past five years among commercial banks.PSG Namibia (2013) reported that in the past five years when interest rates were low or declining,non-interest income has grown faster than interest income. Thus, banks resorted to non-interest sources such as fee and commission income to improve profitability during periods of low interest rates. This implies that in low interest rate environments, deterioration in cost efficiency encourages banks to expand their non-interest income rather than interest income, which in turn, leads low interest margins.

6. Conclusion

The main objective of this study was to explore the main determinants of interest rate spread in Namibia's commercial banking industry using a panel data analysis of bank level data. The literature surveyed suggests that the interest rate spread is influenced by several bank-specific, bank-industry and macroeconomic variables. The results reveal that the fixed effects model is the appropriate model for net interest margin in Namibia. The empirical results suggest that the deposit market share and cost efficiency ratio narrow the interest rate spread whilst excess liquidity widens the interest rate spread. Furthermore, it was found that the tax paid by a commercial bank, non-performing loans and the capital adequacy are not important determinants of interest rate spread.

These findings have several policy implications. First, policies aimed at reducing the liquidity levels in the banking industry will reduce the net interest margins. This is especially important for both banks and consumers alike. Excess liquidity acts as an implicit tax to banks since it is an opportunity cost to them, therefore reducing excess liquidity will definitely help the

banks. Consumers in turn, will benefit in terms of reduced interest rates. Second, policies that promote low interest rates tend to encourage commercial banks to diversify their income sources by shifting from interest income to non-interest income, thereby benefiting, consumers and banks.

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