

Determinants of Interest Rate Spreads in Commercial Banks-A Case of Tanzania

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Abstract

The improvement of financial sector in Tanzania by the introduction of financial reforms was expected to improve the efficiency of the financial sector which includes lowering the Interest rate spread. Beyond the expectations of the reforms the interest rate spread is high with no sign of narrowing down. This study was set to analyse the determinants of Interest rate spread in Tanzania commercial banks focusing on the internal characteristics. Data from commercial banks incorporated before 2002 were extracted and analysed using SPSS 16 and regression model was established. The results indicate that operating costs, loan loss provisioning, and liquidity risk increases the interest rate spread. While factors of required reserve and non-interest income decrease the interest rate spread.

Index terms— interest rate spread, commercial banks.

1 I. Introduction

bank is a financial institution and a financial intermediary that accepts deposits and channels those deposits into lending activities, either directly or through capital markets Hoggson, ??1926). A bank connects customers that have capital deficits (borrowers) to customers with capital surpluses (lenders).

The deposit at the bank will earn interest because the bank is paying for the use of the deposited funds. The Interest is compensation to the lender, for a) risk of principal loss, called credit risk; and b) forgoing other investments that could have been made with the loaned asset. To the bank this interest is known as the lending rate. Since the borrower then enjoys the benefit of using the assets ahead of the effort is required to pay for them in form of an interest known as a borrowing rate, while the lender enjoys the benefit of the fee paid by the borrower for the privilege.

As the bank act as the intermediary, the responsibility of setting the amount to be compensated to lenders (lending rate) and amount to be paid by borrowers (borrowing rate) fall into its hands. The margin between the lending rate and borrowing rate is the interest rate spread. This reflect amount of profit earned by banks as intermediaries. Recently studies conducted by Randall, (1998); Brock and Rojas-Suárez, (2000); Chirwa and Mlachila, (2004) ??Gelos, (2006); Crowley, (2007), have shown that the interest rate spread to be higher in African countries, followed by Latin America, and Caribbean countries than in OECD and other developing countries.

A wide lending-borrowing rate margin is not only the indicative of banking sector profitability it also reflects the banking sector inefficiency and level of development of financial sector Quaden (2004), Ndung'u and Ngugi (2000) Folawewo and Tennant (2009); ??omero and Rodríguez (2011). Therefore, if the banking sector's interest rate spread is large it discourages potential savers due to low returns on deposits and thus limits financing for potential borrowers (Ndung'u and Ngugi, 2000).

Many studies have been attempted in Africa; these include that of Ndung'u and ??gugi, 2000, Collins and Wanjau (2011) in Kenya; Chirwa and Mlachila (2004) in Malawi; Crowley (2007) in English speaking countries in Africa, but few of them were done specifically in Tanzania. Ailkaeli et al (2011) analysed the factors for high IRS in Tanzania, with the focus on the external characteristics that is macroeconomics. But numerous debates and studies in developing countries have shown that there is a pervasive view that high interest rate spreads are caused by the internal characteristics of the banks themselves rather than the external characteristics (Folawewo

and Tennant, 2009). In 2012 Madishetti and Kimeme analysed the reasons for high interest rate spread at CRDB basing solely on the internal characteristics. Using an ex post method, they determine factors such as Loan loss reserves, high operating costs, mounting statutory noninterest bearing reserves, liquid assets and net worth contribute to high interest rate spread. As the study was conducted only at CRDB bank; there is a need to conduct further studies in this area using similar method but including numbers of banks of different size, source of income, amount of capital, market share and ownerships (see appendix 1) in generalising the Tanzania case and this study aim on doing so.

2 II. Background of Financial Sector in Tanzania

Starting in the mid-1970s and 80s Tanzanian economy, experienced a number of internal and external shocks that led to severe macroeconomic imbalances. The shocks include high prices of fuel, war with Iddi Amin, the breakup of East African Community, big government budget deficit, and shortage of foreign exchange. These shockwaves weakened the A performance of the financial sector and therefore its involvement towards economic growth and development. Following these developments, Tanzania embarked in far reaching financial sector reforms in 1991 (BOT, 2009). The general situation of financial sector was considered and the reform has to go through a series of phases in order to attain best transformation. Recently two generations of financial reforms are in place. These are the first generation financial sector reforms (1990) (1991) (1992) (1993) (1994) (1995) (1996) (1997) (1998) (1999) (2000) (2001) (2002) and second generation financial sector reforms (2003-to date).

3 a) First Generation Financial Sector Reform

The first generation financial sector restructurings were commencing the early 1990s to 2002. The key objective of the reforms was to lay in place a conducive environment for the efficient provision of financial services in Tanzania based on free market principles. To achieve this objective some supporting objectives were introduced which were to liberalize the sector in order to improve the capacity of financial institutions to mobilize domestic savings, enhance the effectiveness of monetary policy instruments, and to promote competition among financial institutions in order to improve their efficiency. (BOT, 2012).

Having in place the reforms the financial sector benefited with the following ? Interest rates on deposit and lending have been liberalized with banks enjoying greater independence to determine their rates.

4 b) Second Generation Financial Sector Reform

In the heart of the positive developments of the first generation financial sector reforms, an assessment of the status of the financial sector indicated that the sector still falls short of the needed dynamism, efficiency and depth of a full-fledged market based financial system. Access to financial services by the majority was inadequate and interest rates on loans remained relatively high. The financial markets, which, are expected to bridge the savings-investments gap were largely underdeveloped. To address the remaining challenges in the sector, it was consequently necessary to introduce the Second Generation Financial Sector reforms to be implemented over the medium and long term period. Among the areas that are to be covered in the second phase of reform include; long term financing, access to financial services, financial markets development, insurance and pension schemes, and regulatory and supervision of our financial sector. (BOT 2012).

The second generation of financial sector reforms, which started in 2003, designed at amalgamating the gains of the first phase of the reforms and addressing the remaining bottlenecks and challenges that exist in the financial system. (BOT 2012)III. Literature Review a) Interest Rate

Interest rate is the price a borrower pays for the use of money they borrow from a lender or financial institutions or fee paid on borrowed assets (Crowley, 2007). When money is borrowed from the financial institution, interest is normally paid to the lender as a percentage of the principal, the amount owed to the lender. The fraction of the principal that is paid as a charge over a certain period of time (typically one month or year) is called the interest rate.

Interest can be thought of as "rent of money". Interest rates are fundamental to a 'capitalist society' and 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 (Ngungi, 2001).

5 b) Interest Rate Spread

Financial institutions facilitate mobilization of savings, diversification and pooling of risks and allocation of resources. However, since the receipts for deposits and loans are not synchronized, intermediaries like banks incur certain costs (Ngugi, 2001). They charge a price for the intermediation services offered under uncertainty, and set the interest rate levels for deposits and loans. The difference between the gross costs of borrowing and the net return on lending defines the intermediary costs (information costs, transaction costs (administration and default costs and operational costs) (Rhyne, 2002).

Interest rate spread consists of several components: operating cost, profits, reserves and provisions for bad debts based on the accounting perspective (Perezi 2011). These components are a reflection of micro and macro

variables which impact the spread, such as efficiency, type of ownership, concentration of market power and the regulatory framework under which banks operate. (Perezi 2011).

Interest rate spread can be defined by market microstructure features of the banking sector and the policy environment (Ngugi, 2001). The risk neutral banks operates with larger spread than risk-averse banks since risk aversion increases the bank's optimal interest rate and reduces the amount of credit supplied (Emmanuelle, 2003).

The banking firm is anticipated to maximize either the expected utility of profits or the expected profits; this depends on the market structure and risk management. And, contingent on the assumed market structure, the interest rate spread components differ. Nevertheless with market influence in both markets, the interest rate spread can be defined as the difference between the lending rate and the deposit rate. The magnitude of interest rate spread, nevertheless, varies across the world. It is opposite to the degree of efficiency of the financial sector, which is an offshoot of a competitive environment. The difference in spread in countries across the world has been found to be a function of the nature and efficiency of the financial sectors. The intermediation costs which are involved in deposit mobilisation and channelling them into productive uses are much larger in economies with weak financial sectors (Jayaraman and Sharma, 2003).

6 c) Determinants of Interest Rate Spread

An examination of the literature delivers a wide list of variables that affect the spreads and groups these determinants into five main clusters: bank-specific variables, system-wide measures of market structure, regulatory environment, legal and institutional environment and macro-economic variables. (Perezi 2011).

i

7 Bank-specific variables

Refers to the elements that characterise individual banks and affects the interest rate spreads accumulating to the corresponding institution. The classification comprises features such as credit risk levels, efficiency, bank profitability and excess liquidity. Higher interest rate spreads have been positively correlated with higher operational costs as banks rise mark up on loans to cover operating expenditure. Different scholar works supporting this relationship includes: an international cross-country assessment done by Organisation for Economic Co-operation and Development (OECD), emerging and transitioning economies by Demirguc-Kunt & Huizinga (1999); a regional study on the Caribbean by Craigwell and Moore (2002); and specific country analyses of the economy of Uganda by Beck and Hesse (2006). Additional, greater levels of inefficiency in the financial system of developing countries have been associated larger operating costs established by respective studies by Randall (1998) and Ngugi (2001) Another factor which increases interest rate spreads was found to be increases in loan loss provisions since additional resources must be committed to dealing with bad loans (Randall 1998 and Craigwell and Moore 2002).

Moreover, country-specific studies conducted by Central Bank of Solomon Islands (2007) and Ghosh (2008) on India explains that the holdings of excess liquidity also pushes spreads upwards as higher levels of excess liquidity represents a greater penalty for idle funds on which banks must pay interest to depositors. Separate bank features can also explicate a substantial part of within-country variations in financial intermediation cost, an elevated net interest margins tend to be associated with (i) small banks, (ii) banks without substantial income from fee-based activity, (iii) banks that hold a low amount of capital and (iv) those with a large market share. (Demirguc-Kunt, Laeven & Levine 2003).

ii System-wide measures of market structure Emphasize those qualities that describe the industry and which cause interest rates to change over time. These elements include market power and competition, the level of bank concentration, as well as the effect of foreign possession and state possession. The liaison between market structure and interest rate margins was re-visited in the late nineties, as the thrust for financial liberalization amongst several countries in the 1990s was unsuccessful to bring about the convergence of spreads between developing and industrial economies (Perezi 2011). Cross-national and regional studies were able to establish that the structure of the financial markets can affect variations in spreads. However, results produced were sometimes contradictory and differed across regions. (Perezi 2011).

A study conducted in Belize renowned that inefficient and uncompetitive financial intermediation processes in part contributed to the country's high cost of financing (Martin 2010).

In comparatively poor countries foreign ownership of banks is linked to higher interest rate spreads as foreign banks were repeatedly exempted from unfavourable domestic regulations and their use of superior banking techniques would allow them to earn higher margins than domestic owned banks (Demirguc-Kunt and Huizinga, 1999). In contrast, a study on Latin America determined that foreign banks were able to charge lower spreads relative to domestic banks and indirectly influence intermediation through lowering costs of operation (Martinez, Peria and Mody's 2004).

iii Regulatory Environment Explicitly consist of both profit tax and implicit taxation via reserve requirements or explicit taxation via corporate income tax (Perezi 2011).

iv The legal and institutional environment Refers to the primary code under which all national institutions operate. The philosophy affects the perception of risk specifically credit risk and loan loss provisioning.

Commercial laws, adequate institutional enforcement, index of corruption and level of institutional development are variables studied under this category.

According to Tennant and Folawewo 2009 rises in reserve requirements are linked with growth in interest rate spreads since banks pass on the cost of holding unloanable funds to consumers via an increase in lending rates or a reduction in deposit rates. Nevertheless, reserve requirements relative to the magnitude of the spread were insignificant for the OECS accounting for less than 10% of the average spread between the period 1991 to 1996 (Randall1998). On another instance, it is estimated that 50% of the spread in Belize is attributable to reserve requirements, based on the zero-profit methodology (Martin 2010).

The level of country risk was another key factor that boosted spreads as severe socio-political instability in the Solomon Islands was a key factor behind commercial banks' high spreads (Central Bank of Solomon Islands 2007). Moreover, the accumulation of non-performing loans in Kenya is contributed by a weak legal system, which in turn pushed up lending rates and increased net interest margins (Ngugi, 2001).

8 Macro-Economic

Aspects such as interest rates on alternative financial instruments, inflation, GDP growth and exchange rates were used as control variables across most studies such as Perez (2011) and Beck and Hesse (2006). Conversely, explicitly studied the effect of macroeconomic influences on nominal and real interest rate spreads in the Caribbean region. The study determined that differences in interest rate spreads across the region may be due to variations in economic cycles, inflation and liquidity conditions, though the differences in the exchange rate regime affected the magnitude of the spreads. The study also realised that countries with pegged exchange rates unveiled lower inflation rates and the highest real spreads. (Birchwood 2004).

9 IV. Methodology

Annual data of commercial banks with more than ten (10) In the literature, there are alternative ways of measuring the dependent variable, IRS. In this paper, we start with two rather broad definitions of interest rate spreads the ex ante and ex post. In the ex ante interest rate spread (IRS1) is calculated by drawing an inference from the difference between the quoted rates on loans and on deposits. The second definition ex post (IRS2) takes it as a difference between two ratios: (i) ratio of interest received and all interest bearing assets; and (ii) ratio of interest paid and all interest earning liabilities. The ex ante measures of spread are biased to the extent that differences in perceived risks are reflected in the ex ante yields. Since bearing of risk is an important dimension of banking services, any differences in the risks faced by bankers will tend to distort spread comparisons. An additional problem with using ex ante spread measures is that data are generally available at the aggregate industry level and are put together from a variety of different sources and thus are not completely consistent. For these reasons, we focus on ex post interest spreads in this study.

10 b) Independent Variables i Regulatory Variable-The reserve requirement

Commercial banks are required to maintain a certain percentage of total deposits and other similar liabilities to which reserve ratios are made applicable, as the Monetary Council may determine from time to time. Whereas reserve requirements are used as monetary policy instruments to ensure the safety and soundness of the banking system, these non-interest bearing reserves in essence impose an implicit financial tax on banks thereby reducing commercial banks revenues. Banks can either pass on this loss of revenue to depositors, who will receive lower interest rates on deposits, or they can pass it on to borrowers who will face higher interest rates on loans, thereby increasing the spread between the two rates. However, because the reserve ratio is applied to total loans at a point in time, the shilling amount that each bank holds with the Central Bank would be different, thus allowing for some variation in the empirical estimations.

A positive correlation between such reserves and IRS is expected, as high liquidity reserve requirements act as an implicit financial tax by keeping interest rates high. Chirwa and Mlachila (2004) explain by noting that, 'the opportunity cost of holding reserves at the central bank, where they earn no or little interest, increases the economic cost of funds above the recorded interest expenses that banks tend to shift to customers.' They further argue that the large pool of resources created by high reserve requirements allow for the financing of high fiscal deficits, and thereby creates an environment of high inflation and persistently high intermediation margins. Because data on required reserves are not widely available, actual reserves of commercial banks are used as a proxy.

ii

11 Liquidity Risk

Where there is excess liquidity in the banking system, banks' exposures to liquidity risks is low and this should contribute to lowering spreads. Liquidity risk is proxied by the total liquid assets kept in the bank to meet contingency of payments. Such assets usually earn no returns as they are balance kept in the bank. Brock

and Franken (2002) found that bank liquidity was associated with lower spreads in Chile. The expected sign is negative.

iii Operating Costs

Operating costs arise in processing loans and the servicing of deposits. International standards normally identify 3.6 per cent as an average. In this research this variable is taken as total non-interest expenditure as reported in annual financial statements of the bank. A positive relationship between operating costs and bank spreads is expected.

12 iv Loan Loss Provisioning

For the aggregate banking system, on average, the ratio of provision for loan losses to total earning assets is below 2 percent. Higher percentage may be attributed to the elevated provision for loan losses following the en-mass crop failures and business losses and natural calamities. A positive relationship is expected between this variable and bank spreads reflecting the notion that banks tend to push the cost of nonperforming loans to customers. For this study the provision for loan losses is used as the proxy for quality of loans.

13 Non-Interest Income

After economic liberalization banks are increasingly resorting to providing intermediary functions like transfer of funds in different forms, electronic based services by charging fees and commission, leading to substantial increase in non-interest income. This should help bank for cross subsidization and in turn reduce the interest rate spreads. A negative relationship is expected between non-interest income and interest rate spread. In this study non-interest income derived from foreign exchange, fees and commission are taken as proxy.

14 V. Estimation Technique

The following multiple regression equation is used for identifying the determinants of interest rate spread.
$$I_{it} = \alpha_0 + \beta_1 RR_{it} + \beta_2 OC_{it} + \beta_3 PROV_{it} + \beta_4 NII_{it} + \beta_5 LIQ_{it} + \epsilon$$

Where I_{it} is the ex-post spread for bank i at time t . RR_{it} is the required reserve of bank i at time t , OC_{it} is the operating cost of bank i at time t , $PROV_{it}$ is the provision for loan losses of bank i at time t , NII_{it} is Non interest income of bank i at time t and LIQ_{it} is the ratio of liquid assets to total assets of bank i at time t , and ϵ is error term.

This study includes a total of seven commercial banks in Tanzania as a sample during the period of 2002, 2004-2009. A total of 56 observations were recorded. The regression model was made using SPSS 16.

15 VI. Discussion of Results

Mean and standard deviation of the six variables of the study are presented in table 2 below. The descriptive statistics from the above table provides valuable information about the normality of the data. The dependent variable IRS which is 11.61% has deviated from the mean by 3.39%. With the exception of Operating cost (OC) and Non-Interest Income (NII) which have a higher standard deviation, the rest independent variables had lower deviation from the mean. This implies that most commercial banks have more or less the same ratio in terms of Provision for Loan Loss (PROV), required reserve (RR) and Liquidity (LIQ).

16 a) Correlation Matrix

Karl Pearson's coefficient of correlation was performed to determine linear relationship between dependent and independent variable and between independent variables. The results are shown on table 3 below.

17 Table 3: Correlation

According to Pearson +1 coefficient represent a perfect positive relationship while -1 represent a perfect negative relationship and 0 represent a zero (no) correlation (Kothari, 2004). From the results of table 3 all independent factors showed a positive relationship with IRS although the relationship is not much of significant (below +0.5). Similar results are obtained on correlation between the independent variables with exception between NII and OC which showed a strong positive relationship of 0.962. In general, small correlation coefficients between independent variables showed that the problem of multicollinearity was avoided.

18 b) Regression Analysis

Table 4 shows model fit results; the coefficient of determination (R^2) stand at 0.655 showing 65.5% of the variability of IRS are explained by factors of NII, RR, PROV, LIQ and OC. When adding other variables in the model still the IRS prediction stood high at 62%. From the results on table 5 the operating cost showed a positive relationship with IRS at a significant level of 5 percent. With a coefficient of 2.57 points it showed in aggregate the commercial banks use the operating costs as an important factor when setting IRS. This reflects that IRS will increase by 25.7% for every 100% increase in operating costs. An increase of that much in interest rate

spread must by any means bring a significant impact on magnitude of interest rate spread in a specific bank. The results are supported by other findings like: an international cross-country comparison of OECD, developing and transitioning economies by Demirguc-Kunt & Huizinga (1999); a regional study on the Caribbean by Craigwell and Moore (2002); and individual country analyses of the Ugandan economy by Beck and Hesse (2006) and Central Bank of Solomon Islands (2007).

As expected provision for loan loss has a positively relationship with IRS; with a coefficient of 0.088 points becomes the second contributor in increasing the IRS. This shows that for every 100% increase in provision for loan loss results to an increase of 8.8% in IRS. This is due to the additional resources that must be committed to dealing with bad loans which most banks pass the burden to the last customer. Though at 5 percent level this factor significance was not yet well established. Barajas, Steiner and Salazar (1998) had the same observation.

With a positive coefficient of 0.066, means that for every 100% increase in liquid assets results to 6.6% increase in IRS. In this study liquidity risk is measured by taking the ratio of liquid assets over total assets. The increase in liquid assets will result to the decrease in liquid risks and therefore, according to this study the decrease in liquid risk will result to the increase in IRS. Banks decrease their liquidity risks by increasing the amount of cash. This as results increases the interest rate spread. Contrary to expectation and other study finding like that of Rock and Franken (2000) who observe a negative relationship.

Against the expectations of having a positive influence to IRS required reserve showed a significant negative relationship with the IRS, with coefficient of -0.054 for required reserve. This is contrary to the findings by Demirguc-Kunt and Huizinga 1999, Demirguc-Kunt, Laeven and Levine 2003 and Tennant and Folawewo 2009 where they found that an increases in reserve requirements are associated with a growth in interest rate spreads since banks pass on the cost of holding unloanable funds to consumers via an increase in lending rates or a reduction in deposit rates.

NII as per prediction showed a significant negative relationship with IRS. A banks increases NII increases their income and this result to decrease in IRS. With a coefficient of -2.185 points NII prove to be the most significant factor in reducing the IRS at a 5 percent significant level.

19 VII. Conclusion and Recommendations

In this paper we have attempted to analyse the determinants of Interest Rate Spread in Tanzania from internal characteristics view point. Using a linear regression analysis and data covering 7 commercial banks over a period of eight years; the results obtained from the paper shows factors such as operating cost, provision for loan loss, tax expenses, liquidity risk, and profitability play a major role in increasing the interest rate spread while on the other hand factors of required reserve, administration expenses and non interest income decrease the interest rate spread.

The results support the need for the banks to find the optimum level for the operating costs, increase the level of operational efficiency and effectiveness. This can be achieved by ensuring proper motivation and treatment of human capital and providing good management packages. The increase will help to increase the Human resources efficiency thereby minimising loan defaults and operating costs. None the less the bank should be innovative enough to develop enough product lines which will help to raise the amount of non interest income in order to minimise the burden brought to customers.

Figure 1:

1

Variable	Proxy	Predicted coefficient Sign	Rationale
Opportunity cost of non-interest bearing reserves	RR: non-interest bearing reserves	Positive	RR?? Opportunity cost?? Spread?
Liquidity risk	LIQ: Liquid assets Total assets	Negative	LIQ?? Liquid- ity riskâ??”? Spreadâ??”
Operating Cost	OC: Operating costs Total earning assets	Positive	OC?? Operating efficiencyâ??”? Spread?
Provision for loan losses	PROV: Provision for Loan loss Total earn- ing assets	Positive	PL?? Cost of bad debts write offs?? Spread?
Non-interest income	NII: Non interest in- come Total Earning Assets	Negative	NII?? Earning capability ?? Spreadâ??”

Source: Grenade (2007) "Determinants of Commercial Banks Interest Rate Spreads: Some Empirical Evidence from the Caribbean Currency Union"

a) Dependent Variables

i Interest Rate Spread

Figure 2: Table 1 :

2

	Mean	Std. Deviation	N
IRS	0.116053242	0.0638765796	56
OC	0.207387984	0.3028717122	56
PROV	0.015173348	0.0260214750	56
RR	0.943884165	0.0929188781	56
LIQ	0.033502603	0.0171572608	56
NII	0.138629125	0.2524317772	56

Source: Surveyed data of commercial banks in Tanzania 2002, 2004 -2009

Figure 3: Table 2 :

4

	Determinants of Interest Rate Spreads in Commercial Banks-A Case of Tanzania											
Year												
2018												
16												
Volume	Source: Surveyed Data of Commercial Banks in Tanzania 2002, 2004-2009											
XVIII	IRS OC PROV RR LIQ NII Pearson Correlation IRS 1.000 OC 0.495 1.000											
Issue	PROV 0.426 0.235 1.000 RR 0.235 0.167 0.076 1.000 LIQ 0.306 0.232 0.029											
VI	0.409 1.000 NII 0.304 0.962 0.120 0.079 0.153 1.000											
Ver-												
sion												
I												
() C												
Global	a. Predictors: (Constant), NII, RR, PROV, LIQ, OC, b. Dependent											
Jour-	Variable: IRS Source: Surveyed Data of Commercial Banks in Tanzania											
nal of	2002, 2004-2009 The Durban Watson statistic range from 0 to 4. Value											
Man-	near 2 indicates non autocorrelation; value reserve, operation costs, liquidity											
age-	risk, provisional for loan loss and non-interest income. Model R R Square											
ment	Adjusted R Square Std. Error of the Estimate Change Statistics R Square											
and	Change F Change df1 df2 Sig. F Change Durbin-Watson 1 0.809 a 0.655											
Busi-	0.620 0.0393722589 0.655 18.953 5 50 0.000 1.085											
ness												
Re-												
search												
	towards 0 indicates positive autocorrelation; value											
	towards 4 indicates negative autocorrelation. In this											
	study the Durban Watson statistic range is 1.085, this											
	indicates there is no autocorrelation between variables											
	and the model clearly represent that IRS in commercial											
	of Tanzania are determined by factors of required											
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Figure 4: Table 4 :

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Figure 5: Table 5 :

Model	Unstandardized Coefficients		B	Std. Error	Standardized Coefficients	Sig				95% Confidence Interval for B			
					Beta								
(Constant)	0.104			0.058	1.800	0.078				-0.012			0.219
OC	0.542			0.078	2.570	6.944	0.000			0.385			0.699 0.495 0.701
PROV	0.215			0.232	0.088	0.929	0.357			-0.250			0.680 0.426 0.130
RR	-0.037			0.065	-0.054	-0.570	0.571			-0.166			0.093 0.235 -0.080
LIQ	0.245			0.352	0.066	0.695	0.490			-0.463			0.952 0.306 0.098
NII	-0.553			0.090	-2.185	-6.140	0.000			-0.734			-0.372 0.304 -0.656 -0.510
Variable:													
IRS													

Figure 6: C

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