Deciphering the Causes of High Interest Rates Spreads in Zimbabwe

Tafirei Mashamba

Department of Banking & Finance
Great Zimbabwe University,
Masvingo,
Zimbabwe

Abstract

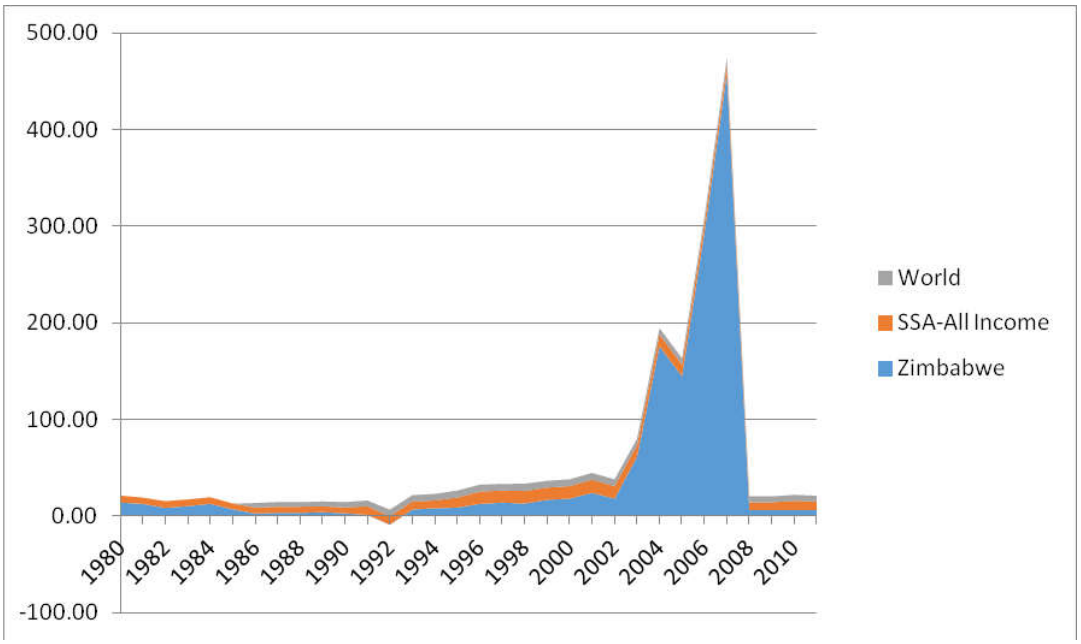
This study sought to decipher the causes of very high interest rate spreads and also examine the causal effect of very high interest rate spreads on savings mobilisation in Zimbabwe. The random effect estimator was used for statistical inference. Results suggest that interest rate spreads in Zimbabwe are mainly driven by macroeconomic fundamentals. Bank specific factors were found to be weak explanatory variables. Contrary to theory, a positive relationship was established between interest rate spreads and savings. Based on these findings it was suggested that policy makers should address several factors that are affecting the economy. As the economy stabilises interest rates spreads are likely to come down. Furthermore, there is need for policy makers to address the country's risk profile in order to attract cheap and abundant foreign funds for investments. Due to the country's perceived high country risk, the cost of borrowing has remained significantly high. On the other hand, the fact that interest rate spreads were found to be positively related to credit risk, there is need for bankers to prudently manage their loan portfolio in order to reduce defaults. This will significantly reduce lending costs, hence interest very high rate spreads can be addressed.

Key Words: Interest rate spread, savings mobilisation, Random Effect, Zimbabwe

Introduction

Despite the adoption of costly financial sector reforms in the early 1990s and subsequent *defacto dollarisation* (officially known as the multiple currency era) of the economy in 2009 to address several macroeconomic challenges, interest rate spreads continue to be very high in Zimbabwe compared to other Sub Saharan Africa economies and the world at large. IMF statistics reveal that from 1997 to 2007 Zimbabwe had the highest spreads in the region and the world at large. A comparison of Zimbabwe, Sub Saharan Africa and the world interest rate spreads provides some insight into this view. Figure 1 clearly shows that indeed interest rate spreads are very high in Zimbabwe.

Figure 1: Comparison of Interest Rate Spread



Source: IMF

Since the early works of Schumpeter (1934) a positive relationship between finance and growth has been identified. In light of this interest rate spreads are believed to determine the level of savings and investment in an economy and ultimately economic growth and development (Shahzad et al, 2012). Accordingly, interest rate spreads contribute to efficient financial intermediation. It follows that countries characterised by high interest rate spreads suffer high intermediation costs and depressed flow of funds to banks for onward lending to the productive sectors of the economy. In concurrence to this view Koivu (2002) highlight that a decrease in interest rate spreads as a result of reduced transaction costs tends to increase the share of savings to be channelled towards productive ventures. Koivu supports this notion by arguing that a positive relationship exists between economic growth and funds available for investment as a result of reduced transaction costs. More so, Aboagye et al (2008) reason that very low deposit rates move away potential depositors to other markets depriving banks of the much needed liquidity to perform their intermediation function.

Furthermore, Aysan et al (2012) and Maudos & Guevara (2003) observed that for banks to effectively play their intermediation role and for the society to achieve greater welfare (*Pareto Optimality*) intermediation costs should be very low. High interest rate spreads manifest in two ways; either through very low interest rates on deposits or charging very high rates to borrowers or both. Both factors are detrimental for the savers, investors and the society at large. On the other hand, lower margins give entrepreneurs and households access to credit and facilitate economic growth. Aryeetey (2004) stressed the important role of domestic savings in an economy in the wake of the 2007 to 2009 world recession. The crisis has greatly reduced external inflows to African economies, made it difficult and costly to attract offshore resources than before. This, in Aryeetey's view warrants the need for Less Developed Countries (LDCs) to tap into their existing domestic savings for capital which is desperately needed to accelerate the pace of economic growth.

However, according to Bank of Albania (2009), narrowing of the spread does not necessarily imply efficiency. The reduction in spreads strongly hinges on the degree of competition among the banks. In light of this, the World Bank Development Report of 1989 argues that interest rate liberalisation coupled with monetary policy stabilisation policies is not enough to remove financial repression. In order to improve financial sector allocative efficiency there must be a decrease in intermediation costs in conjunction with increased competition in the banking sector (Sell & Wohlgemuth, 1992). In addition, Boldbaatar (2006) suggests banks should consolidate through mergers acquisitions in order to lower their spreads. In this vein Boldbaatar notes that; initially, fewer but bigger banks can achieve higher operational efficiency due to economies of scale. Secondly, as the bank's balance sheet grow stronger and become more capitalised, consumer confidence is enhanced hence depositors are prepared to take naive deposit rates. On the contrary, Maudos & Guevara (2003) cautions that in the context of theoretic models, interest rate spreads do not fall away as a result of competition intensity, but also as a result of other factors such as interest rate risk, credit risk and operational costs. Actually, Boldbaatar (2006) views the spread as an incentive for banks to take liquidity risk of maturity transformation and information premium for borrowers screening and monitoring enabling banks to continue business.

Although Zimbabwe has been experiencing some positive economic growth (GDP averaging 7.17% between 2009 & 2012) the savings ratio (as a percentage of GDP) has been declining since 1995 (see Figure 2).

Figure 2: Zimbabwe Gross Domestic Savings as a percentage of GDP

Source: IMF Statistics on Zimbabwe

From the graph (Figure 2) it can be observed that since 2007 the savings ratio in Zimbabwe has been negative. What could explain the poor performance of savings on the background of improved economic performance? Similarly, a survey by Finscope in 2011 revealed that 31% of Zimbabweans hardly save and those who save (69%) are most likely to save at home. This makes it difficult for bankers to finance Greenfield projects hence their focus of working capital (Chanakira, 2012 cited in (Esterhuizen, 2012)). For Zimbabwe to achieve sustainable economic grow a savings ratio of at least 25% is needed (Esterhuizen, 2012). Of late regulators (Reserve Bank of Zimbabwe) have been calling on the bankers to reduce their lending rates and increase the deposit rates. Such action is supported by Sarr (2000) who observed that high deposit rates stimulate household savings through reductions in cash holdings, inflation hedges (real goods holdings) and unproductive self-financed investments. Accordingly, the volume and quantity of investments are expected to rise for the betterment of the households and the economy at large. Given the benefits of high deposit rates and low lending rates we may ask; why are Zimbabwean bankers insensitive? Can we attribute their resilience to corporate greediness? On the contrary, the bankers justify themselves by highlighting factors such as the cost of funds from offshore markets, high operational costs and political risk as the major drivers of high bank margins in

Zimbabwe. But, are they justified? This study seeks to illuminate the causes of very high interest rate spreads in Zimbabwe and go further to examine whether there exists a causal relationship between interest rate spreads and savings mobilisation in Zimbabwean context.

Literature Review

Definition of Interest Rate Spreads

Adriana et al (2009) defines interest rate spread as the difference between the lending and deposit rate, which can be measured at two different levels: macro and micro level. The former also known as overall spread of the banking system is computed as the difference between the average lending and deposit rate for the aggregate financial sector. Due to the unavailability of actual lending and deposit rates in most LDCs banks many researchers have adopted this measure. The latter level also known as bank spread is calculated in the same way but contextualised to each bank. These spreads can be calculated using two approaches *ex-ante* and *ex-post*.

The *ex-ante* spread is derived from actual loan and deposit rates, while the *ex-post* spread is approximated from the bank's financial statements (Bank of Albania, 2009). Using IMF's Financial Soundness Indicator the spread is calculated as the weighted average lending and deposit rate of the whole banking system on the *ex-ante* and *ex-post* spread. These two measures differ due to loan defaults. The ex-post method is recommended by the Bank of Albania because of its source and it provides a clearer picture of the actual spread. The ex-ante spread was criticised by Demirguc-Kunt and Huizinga (1998) on the basis of different perceived risks incorporated in the ex-ante spread and aggregating data from different sources may not be consistent hence may provide a poor measure. Due to the dearth of actual data very few authors use actual loan & deposit rates from the individual commercial banks (Brock & Franken, 2003). The authors argued that because banks do not supply all the pertinent information on their financial statements, it becomes very difficult to obtain accurate statistics. The few studies that have attempted to incorporate actual loan and deposit rates are (Brock & Franken, 2003). Accordingly, this study will use ex-post spreads due to the unavailability of the actual data.

Theory: Models of Interest Rate Spread Determination

Conventional theoretical literature on interest rate spreads determination is modelled around two influential papers: Klein (1971) and Monti (1972) - the *Monti-Klein model* and Ho & Saunders (1981) model - the *Dealership Model*.

Monti-Klein Model

The Monti-Klein firm theoretic approach views a bank as a firm in a static setting where demand and supplies of deposits and loans clear both markets simultaneously. In this model focus is made on the modelling of the Balance Sheet Assets and Liabilities separately. Banks are expected to maximise profits in a monopolistic market by detecting the price of loans and deposits. Given that banks have the ability to set prices in the credit markets they enjoy monopoly power. This monopoly power is expected to determine the scale of a bank's operations and its assets & liabilities composition. This approach treats the bank's spread to be a function of its monopoly power i.e. its ability to charge a higher price of its services.

Dealership Model

The second optimal interest rate spread model came out of Ho & Saunders (1981) article. Their model which is widely known as the *Dealership model* views banks as risk-averse agents that accept deposits and extend loans. These loans and deposits are probabilistic with the probability of deposits arrival given as a function of a bank's marginal and elasticity of demand for credit and deposits supply (Bank of Albania, 2009). Ho & Saunders identified four variables that affect a bank's setting of its deposit and lending rates namely; risk appetite of the bank, market power of the bank, volume of the bank's transactions, and interest rates volatility. In this case the bank seeks to maximise shareholder wealth utility, then applying symmetric and linear deposit supply and demand function. This model has been extended by a number of researchers to capture other variables not incorporated in the model (Gelos (2009); Maudos & Guevara (2004); Martinez & Mody (2004); Brock & Suarez (2000); Angbazo, (1997)).

This study is built on the Monti-Klein model developed by Klein (1971) and Monti (1972) adjusted for other variables.

Empirical Literature

The determination of interest rate spreads has been widely studied to date. Scholars have identified the industry market structure, bank-specific variables, macroeconomic variables and financial regulation as the salient determinants of interest rate spreads. However, to date the researchers have not been conclusive in highlighting the real sources of high spreads among these salient variables. (Khawaya, 2011; Khumaloand et al 2011; Demirguc-Kunt et al 2003) are of the opinion that industrial concentration, (whereby in an oligopolistic market banks may charge very high rates to borrowers and naive rates to depositors) is the real cause for very high bank spreads. The authors' views grew out of the monopoly model developed by Klein (1971) and Monti (1972) better known as the Monti-Klein model. In the Monti-Klein framework banks because of their monopoly power can set rates they desire with little or no market resistance.

Khawaya & Din (2007) provide opposing evidence. Using a panel data of 29 banks in Pakistan, they identified industry concentration to have no significant impact on interest spreads. On the other hand, Were & Wambua (2013) investigated the source of high spreads in Kenya. Applying panel data analysis they found bank-specific factors as the major determinants of interest rate spreads in Kenya. Financial regulation and macroeconomic variables were found to be of little significance in explaining high spreads in Kenya. These results were identified earlier by (Doliente, 2003). Doliente found that net interest margins in four Southeast Asian countries are explained by bank specific variables namely operating expenses, capital, loan quality, collateral and liquid assets.

Interestingly, Aysan et al (2012) contradict these results. In their study of net interest margin determination for Turkish banks between 2001 and 2009, operating environment and banks' market structure were precedent over bank specific variables in explaining the causes of high net interest margins. Chirwa & Mlachila (2002) add dilemma to this subject. They argue convincingly that the observed high spreads in SSA are attributed to financial regulation (in the context of high reserve requirements, high central bank discount rates) and macroeconomic variables (precisely the inflation rate) largely explain the high spreads observed. This is contrary to current findings of Were & Wambua (2013).

Clearly, existing studies provide conflicting findings on the major determinants of interest rate spreads. Furthermore, to date very little literature has explored the relationship between interest rate spreads and savings mobilisation. This study seek to fill this gap by investigating the sources of very high spreads in Zimbabwe and further explore the impact of these spreads on savings mobilisation in Zimbabwe.

Methodology

Method of the Study

The aims of this study are twofold as discussed in the objectives of the study. Firstly the researcher, seek to unveil the sources of very high interest rate spreads in Zimbabwe. The second objective entail an analysis of the impact of high spreads on savings mobilisation. These two objectives are satisfied by estimating the following panel regression model based on a dataset of five listed commercial banks on the Zimbabwe Stock Exchange.

$$Y_{it} = \propto + X'_{it}\beta + \mu_i + \lambda_t + \varepsilon_{it} \quad (1)$$

Where: Y_{it} = dependent variable-interest rate spreads (IRS).

α = intercept.

X'_{it} = vector of explanatory variables.

β = various coefficients of the explanatory variables.

μ_i = individual effects.

λ_t = time effects.

ε_{it} = idiosyncratic error term.

Equation (6) can be estimated using a pooled Ordinary Least Squares, Fixed Effects (FE) or Random Effects (RE) model. The pooled Ordinary Least Squares estimator assumes that covariates are uncorrelated with firm specific (individual) effects and the idiosyncratic error term. However, this approach suffers from the problem of unobserved heterogeneity, hence the researcher drop it and consider either a fixed effect or a random effect model. The fixed effect model assume that there is a correlation between the entity's error term and covariates and it controls time invariant characteristics so that we can infer the net effect of explanatory variables on the dependent variable. On the other hand the random effect model assumes that the variation across firms is random and uncorrelated with individual effects and the covariates (Green, 2008). Therefore, to make a choice between the fixed effect and random effect model the Hausman specification test was utilised. The Hausman test checks for orthogonality of the individual effects and the covariates. The null hypothesis states that the random effect model is the appropriate model against the alternative hypothesis which prefers the fixed effect model over the random effect model. The Hausman test points towards a Random Effect model. Accordingly I specify the following Random Effect model for this study.

$$IRS_{it} = \alpha + SIZE_{it} + CR_{it} + ROA_{it} + OC_{it} + GDP_{it} + INF_{it} + MSG_{it} + D_{it} + \mu_{it} + \varepsilon_{it} \quad (2)$$

The relationship between interest rate spreads and savings is estimated with the following univariate panel regression model.

$$SR_t = IRS_{it} + \mu_{it} + \varepsilon_{it} \quad (3)$$

Where: SR_t = the savings rate at time t, expressed as savings over the GDP

IRS_{it} = interest rate spread for bank i at time t.

μ_i = individual effects.

ε_{it} = idiosyncratic error term.

Variables

Dependent Variable

The dependent variable for this research is interest rate spread. This ratio is measured as the difference between lending and deposit rate for each respective bank.

Independent Variables

Bank specific

Size
This is normally measured by sales volume, profits or total assets. This study uses total assets as the proxy for bank size. The greater the size of the bank, the greater its power in both the deposit and loan markets, hence a negative relationship is expected between interest rate spreads and bank size.

Credit risk (CR)
Credit risk was proxied by non-performing loans (NPL) ratio. It measures the ability of the bank to collect outstanding loans. In general, as NPL ratio rises the bank is expected to increase its lending rate to compensate for the losses, hence a positive relationship is expected between interest rate spreads and credit risk, *apriori.*

Return on Assets (ROA)
Measure the profitability of the bank. Profitable banks are expected to have narrow spreads as they have low lending rates and higher deposit rates.

Operating Costs (OC)
Represent intermediation costs, and they are used in the determination of both borrowing and deposit rates. The higher the intermediation costs, the greater the loan rates and the lower the deposit rates hence higher interest rate spreads. Thus a positive relationship is expected between interest rate spreads and operating costs.

Ownership structure (D)
State whether a bank is foreign or locally owned. By virtue of parent bank support foreign banks are expected to be more liquidity compared to local banks. As such they should have low interest rate spreads compared to their local counterparties. It is given by a dummy variable 1 for a foreign owned bank and zero for a local bank.

Macroeconomic variables

Inflation (INF)
This was measured in terms of consumer price index. It indicated the cost of doing business. Ordinarily, the higher the inflation level the greater the interest rate spreads, as banks increase their lending rates to cope up with rising prices.

Money supply growth (MSG)
This variable is measured by the annual growth in money supply, specifically M2. As money supply increase, interest rates are expected to fall; hence a negative relationship is expected between interest rate spreads and money supply.

Data

The study made use of yearly data on interest rate spreads, bank characteristics and macroeconomic fundamentals from banks financial statements and the International Financial Statistics (IFS) CD ROM for Zimbabwe commercial banks respectively, for the period 2009-2015.

Results and Discussion of Results

Descriptive Statistics Summary

Table 1: Summary of descriptive statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
company	35	3	1.43486	1	5
year	35	2012	2.029199	2009	2015
irs	35	25.02857	5.265513	18	34
size	35	465.6436	458.9557	39.707	1964.31
cr	35	8.575143	7.768176	.28	30
roa	35	1.678857	1.930713	-2.56	5.74
oc	35	77.61943	12.80263	56.5	104.7
gdp	35	5.958571	3.370593	1.81	11.9
inf	35	2.552857	2.939561	-2.76	5.4
msg	35	17.95429	8.928439	5	33.2
sr	30	-12.03333	4.971528	-16.9	-2.8
d	35	.8	.4058397	0	1

The average interest rate spreads for the period is 25%. This suggests that interest rate spreads have been persistently high since the adoption of the multicurrency regime in 2009. The savings ratio has remained negative, averaging -12% for the period. This implies that Zimbabweans are hardly saving, in part due to unattractive deposit rates and too much uncertainty as far as government policies are concerned and the direction the economy is heading towards. Economic growth has been positive averaging approximately 6% for the period. This can be attributed to adoption of multicurrencies which contained runaway inflation. Banks have not recorded significant profits. Return on assets has averaged 1.68% for the period, which is significantly low. On the other hand, inflation has been stable at 2.55% over the period, which is fairly good compared to other Sub-Saharan economies.

Panel regression model results

Table 2 present the results of the random effect regression model. The option 'robust' was added to control for heteroscedasticity.

```
. xtreg irs size cr roa oc gdp inf msg d, re robust

Random-effects GLS regression                   Number of obs      =        35
Group variable: company                         Number of groups   =         5

R-sq:  within  = 0.0000                         Obs per group: min =         7
       between = 0.0000                                        avg =       7.0
       overall = 0.9630                                        max =         7

                                                Wald chi2(4)       =         .
corr(u_i, X)   = 0 (assumed)                    Prob > chi2        =         .

                                (Std. Err. adjusted for 5 clusters in company)
------------------------------------------------------------------------------
             |               Robust
         irs |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
        size |  -.0003707    .000405    -0.92   0.360    -.0011644    .0004231
          cr |  -.0557781   .0317678    -1.76   0.079     -.118042    .0064857
         roa |   .0344232   .1492353     0.23   0.818    -.2580726     .326919
          oc |  -.0028547    .022419    -0.13   0.899    -.0467951    .0410857
         gdp |   .4344612   .0188867    23.00   0.000     .397444    .4714783
         inf |   1.250569   .0578328    21.62   0.000     1.137219    1.363919
         msg |  -.2339228   .0093884   -24.92   0.000    -.2523237   -.2155218
           d |   .5310934   .4807809     1.10   0.269      -.41122    1.473407
       _cons |   23.83702   2.442655     9.76   0.000     19.04951    28.62454
-------------+----------------------------------------------------------------
     sigma_u |          0
     sigma_e |  1.2257582
         rho |          0   (fraction of variance due to u_i)
------------------------------------------------------------------------------
```

Table 2: Random effect model results

The Wald test statistic turned out to be zero implying that the model is good. This test is used check whether each coefficient in the model is significantly different from zero. The two tail p-value test indicates the following variables to have a significant influence on the dependent variable: Gross domestic product (GDP), Inflation (INF) and Money supply growth (MSG). Based on p-values test results macroeconomic variables have a significant influence on interest rate spreads in Zimbabwe compared to bank specific factors. The coefficient for GDP was estimated to be 40.82%, which means a one unit increase in GDP leads to a corresponding rise in interest rate spreads by 40.82%. However, a negative relationship was expected. The coefficient for inflation turned out to be 193.40% i.e. positive as expected, which means a one unit increase in inflation rate causes interest rate spreads to rise by 193.40% which is quite significant. The coefficient for money supply growth was estimated to be -29.16% i.e. negative as expected, which means a one unit increase in money supply leads to a corresponding decrease in interest rate spreads by 29.16%. Thus a negative relationship was found between interest rate spreads and the level of money supply growth.

Bank specific variables that include size, credit risk, return on assets and operating costs were found to have an insignificant influence on interest rate spreads in Zimbabwe. Their coefficients indicate a strong negative relationship. Although insignificant to explain interest rate spreads a look at bank specific factors shows that established relationship seem to contradict expectations. A negative relationship between interest rate spreads and return on assets was expected, but results prove otherwise. Similarly, the relationship between and operating costs was expected to be negative but it turned out to be positive. Only credit risk turned out to have the expected relationship with interest rate spreads. These results can be explained by anomalies that characterise the Zimbabwean economy.

The second objective of this study was to examine the relationship between interest rate spreads and savings in Zimbabwean context. The results of this objective are presented in table 2.

Table 3: Regression results of the relationship between interest rate spreads and savings

```
. xtreg sr irs, re robust

Random-effects GLS regression                   Number of obs      =        30
Group variable: company                         Number of groups   =         5

R-sq:  within  = 0.0000                         Obs per group: min =         6
       between = 0.0000                                        avg =       6.0
       overall = 0.5679                                        max =         6

                                                Wald chi2(0)       =         .
corr(u_i, X)   = 0 (assumed)                    Prob > chi2        =         .

                                (Std. Err. adjusted for 5 clusters in company)
------------------------------------------------------------------------------
             |               Robust
          sr |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         irs |   .7886172   8.99e-17  8.8e+15   0.000     .7886172    .7886172
       _cons |  -32.6951    2.86e-15 -1.1e+16   0.000     -32.6951    -32.6951
-------------+----------------------------------------------------------------
     sigma_u |          0
     sigma_e |  3.5923641
         rho |          0   (fraction of variance due to u_i)
------------------------------------------------------------------------------
```

Results indicate a strong positive relationship between interest rate spreads and savings with a coefficient of 78.86%. These findings suggest that a one unit increase in interest rate spreads cause savings to rise by 78.86%. Such results refute economic theory which state that *apriori* a negative relationship exists between interest rate spreads and savings. This can be attributed to numerous anomalies in Zimbabwe's economy.

Conclusion and Recommendations

The study sought to find out the main drivers of interest rate spreads in Zimbabwe and the effect of interest rate spreads on savings mobilisation. This research was motivated by the fact that interest rate spreads have remained relatively high in Zimbabwe, hence the need to establish their drivers. Research findings indicate that macroeconomic variables namely gross domestic product, inflation level and money supply growth are significant drivers of interest rate spreads in Zimbabwe. Bank specific variables such as size, operating costs, non-performing loans (credit

risk), and ownership structure were found to have little influence on interest rate spreads in Zimbabwe. Contrary to economic theory the relationship between interest rate spreads and savings was found to be very positive in Zimbabwe. The following recommendations are put forward. Policy makers are recommended to come up with policies that stabilise the economy. As the economy stabilises interest rates spreads are likely to come down. Furthermore, there is need for policy makers to address the country's risk profile to attract cheap and abundant foreign funds for investments. Due to the country's perceived high country risk, the cost of borrowing has remained significantly high. On the other hand, the fact that interest rate spreads were found to be positively related to credit risk, there is need for bankers to lend prudently in order to reduce defaults. This will significantly reduce their lending cost, hence very high rate spreads can be addressed.

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