DETERMINANTS OF COMMERCIAL BANK LENDING BEHAVIOUR IN ZIMBABWE: AN EMPIRICAL INVESTIGATION OF THE POST DOLLARIZATION ERA (2009-2015).

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ABSTRACT

The paper examines the lending behaviour of eleven Zimbabwe's commercial banks for the period 2009-2015(post dollarization) to estimate a balanced random effect model. The main objective of the paper is to determine the determinants of commercial bank lending in post dollarization era. Lending has been highly skewed to the individuals which is mostly consumptive loans instead of manufacturing, mining, services and other sectors. Confidence in the banking sector was indicated by growing deposits, however the banks were sceptical in advancing loans especially the medium and long term nevertheless this was on the background of growing deposits (demand deposits and time deposits). The research found that, capital worthy, cash reserve required, non-performing loans and total deposits were statistically significant in explaining variations in the loan supply. However, GDP, inflation and return on assets were insignificant. Total deposits had a greater impact on volume of loans extended by commercial banks. Hence the research advises authorities that macroeconomic fundamentals need to accommodate strategies that encourage medium to long term deposits, so as to boost loans in all economic sectors.

KEY WORDS

Bank lending, deposits, post dollarization

1.0 Introduction

The core business of banks is accepting deposits and advancing loans to both private sector and public sector. Banks play a very crucial intermediary role of bringing together economic agents who have excess financial assets and those in need of it. Bank lending itself influences consumer spending, investment and economic growth. A healthy financial system ushers its economy with easy and affordable capital for investment purposes and stimulating domestic demand. For this particular review paper, the researcher is mainly looking into the published information on behaviour of bank lending and nature of deposits in the dollarization era. The theoretical and empirical literature stipulates that growing deposits and loan advances of banking institutions is the key to economy's revival. The introduction of a multicurrency system in 2009, saw a growing confidence in the banking sector, with foreign investors entering the financial sector as well (Monetary policy statement, 2009). The sector recorded 27 Banking institutions, 16 licenced asset management and 95 operating microfinance institutions (Monetary policy statement, 2010). Researches from dollarized economies such as Ecuador, Panama, and Elsavador confirm that the main variables that affected stability in the banking sector are GDP, liquidity, non-performing loans and the ratio of total assets and total liabilities Mauro, (2015). The main effects of dollarization in most developing economies like Zimbabwe is the immediate stabilization in inflation, banking sector stability, removal of currency risk and removal of lender of last resort.

An Overview of the Bank Lending and deposits - post dollarization

A growing confidence in the banking sector was recorded since the introduction of US dollar in 2009. According to the table below, credit is on a growth trajectory to individuals than any other sector. This suggests that the commercial banking sector has been promoting credit for consumptive purposes instead of extending loans to productive sectors like mining, agriculture, manufacturing etc. Construction and the transport sector got least credit among all other sectors On the other hand, the strategic sectors had credit that fell progressively since 2009, that is manufacturing, agriculture and mining.

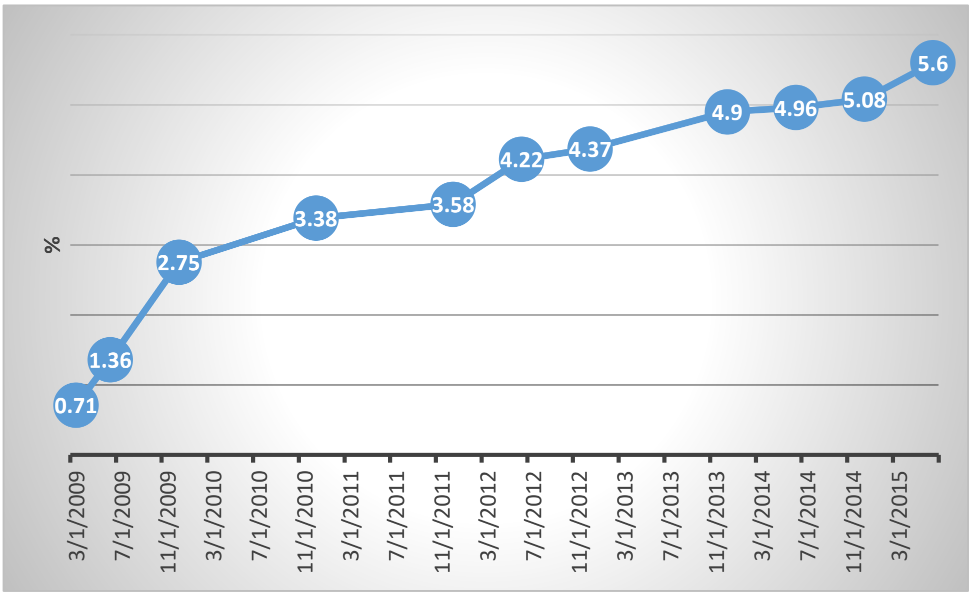
Table 1: Sectoral Distribution of Credit (%)

Sector	**Jan 2009**	**Jan 2010**	**31 Dec 2011**	**31 Dec 2012**	**31 Dec 2013**	**30 Jun 2014**	**31 Dec 2014**	**26 Jun 2015**	**31 Dec 2015**	**30 Jun 2016**
Individuals	5	8	15	18	24	25	25	25	28	29
Services	15	8	18	18	17	18	16	17	14	18
Agriculture	19	22	18	15	16	16	16	17	17	16
Manufacturing	22	20	20	17	15	14	13	12	12	11
Communication	5	4	1	7	8	7	2	2	2	1
Mining	6.77	7	6	7	5	4	4	6	5	4
Distribution	19.96	20	7	9	8	8	8	13	15	13
Financial Firms	2.27	7	3	3	3	2	2	3	2	2
Construction	2	2	4	4	4	4	4	3	3	4
Transport	3	2	3	3	2	3	3	2	2	3
Total	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

Source: Author's compilation: Adapted from monetary policy statements and the fiscal policy statement from 2009 -2016 January.

The banking sector deposits growth rate percentages, were a strong indicator of growing confidence in the banking sector. This overshadowed the era of daily bank runs witnessed during the economic meltdown of 2005-2008. Deposits grew from as low as 0.71% to 5.6% since 2009 up to 2015 as shown in the graph below;

Figure 1: Banking sector deposits growth rate (2009-2015)



Source: Author's compilation: Adapted from the 2016 fiscal policy statement

2.0 Problem Statement

The researcher was motivated by a number of factors to carry out this research. The first factor is the nature of distribution of credit to different sectors of the economy in the dollarization era. The mining sector, agriculture, and manufacturing got loans and advances that progressively fell since 2009 with minimum loans and advance received in the mining sector as compared to the loans and advances that were channelled to individuals that increased progressively since dollarization, which tells that the commercial banking sector was more flexible to issue loans for consumptive purposes than we could expect in a usual conditions. This was on background of growing bank deposits (demand deposits 49.83%, time deposits 37.45%, savings deposits 4.4%, call deposits 5.73% and others) and also deposit growth rate as shown in Figure 1. Commercial banks struggled to fund long term investment projects however the banking sector for the past 5 years has been reported to be sound and stable but bank credit has not significantly changed (Monetary policy statement, 2009-2013). The research is therefore seeking to answer, what factors determine commercial bank credit and investigating the main reasons behind falling loans to crucial sectors of the economy.

Research Objectives

- To determine the determinants of bank lending in post dollarization era.
- To investigate the reasons behind falling loans to the manufacturing sector and increased bank lending to short term consumptive purposes.

3.0 Empirical Literature Review

The empirical literature on bank lending is quite mixed with writers presenting varying conclusions on the factors that determine the levels of bank credit from country to country. In that respect, Moussa and Chedia, (2016) in Tunisia using panel data investigated the external and internal factors of bank credit of 18 commercial banks for a period (2000-2013) and they concluded that return on assets, net interest margin growth, capital, equity to total assets and total deposits were significant in explaining variations in credit and external factors like inflation was also significant.

Jonas et al (2013), used GMM system estimator developed by Arellano and Bover (1995) and Brundell and Bond (1998) in Ghana and concluded that bank size, capital structure was statistically significant with a positive relationship with bank lending. Again the macroeconomic indicators like central bank lending and exchange rate were negative and statistically significant. The industry characteristics which is an index of competition (HHI) was found to have a positive and significant impact on bank lending behaviour, however only two variables were insignificant that is real GDP and bank spread-which measures the volatility among borrowers and that determines levels of loans banks can issue to individuals and firms basing on ability to pay back (Jonas et al., (2013).

Olokoyo (2011), investigated Nigerian commercial banks' lending behaviour using time series data to estimate an ordinary least squares model for a period (1980 -2005) for the 89 banks. Conclusion from the study pointed that bank deposits have a greatest impact on lending behaviour. Other statistically significant variables included, investment portfolio, gross domestic product, and annual average official exchange rate of the Naira vis-à-vis the United States' dollar.

4.0 Research Methodology

The research uses annual panel data to estimate random effects model that explains the commercial bank lending behaviour in Zimbabwe in the post dollarization era (2009-2015) for a sample of eleven 11 out of 14 commercial banks was selected basing on availability of data. The banks sample in table 3 in appendix. The main sources of the data in this research is secondary data from the Reserve Bank of Zimbabwe (RBZ) and the Ministry of Finance and Economic Development.

4.1 Model specification

The research follows the theoretical model adapted from Oscar (2007)

$Y_{it} = \beta_1 \ X_{it} + \alpha_i \ + \mu_{it}$…………eq1, fixed effect model

$Y_{it} = \beta_1 \ X_{it} + \alpha_i \ + \mu_{it} + \varepsilon_{it}$……eq2, random effects model

Y_{it}…..Dependent variable, where .i…is entity and t...time

α_i …. (i=1), the unknown intercept for each entity

β_1 ….Coefficient

μ_{it}… Between entity error

ε_{it}… Within entity error

For this research the model is as follows;

Loans and Advance = f (capital, cash reserves, on-performing loans, total deposits, bank spread, GDP, inflation, Liquidity ratio, Return on Assets ,bank size, net interest income)

$LAA_{it} = \ \beta_1 \, capital_{it}$- $\beta_2 cash\ reserves\ required_{it}$- $\beta_3 non\ performing\ loans_{it}$ + β_4 $total\ deposits_{it}$- $\beta_5\ inflation_{it}$+$\beta_6\ \ gdp_{it}$ + $\beta_7 return\ on\ asset_{it}$+$\mu_{it}$+$\varepsilon_{it}$

Expected signs of the coefficients are as follows, $\beta 1, \beta 4, \beta 6, \beta 7$ > 0 and $\beta 2, \beta 3, \beta 5 < 0$

To decide between fixed or random effects a Hausman test is used where the null hypothesis is that the preferred model is random effects vs the alternative the fixed effects (Green, 2008, chapter 9). It basically tests whether the unique errors (ui) are correlated with the regressors, the null hypothesis is that they are not. Multicollinearity test, as well as heteroscedasticity checks, were done to check on correlation of predictor variables.

5.0 Results analysis

The research estimated a balanced random effect model, since the Hausman test is showing a P value that is >5% meaning we cannot reject the $H_{O,}$ which is the Random effect model. A Bruesch Pagan test indicated that there is no problem of heteroscedasticity in the model, with a corresponding probability value that is >5%. Multicollinearity test was done, variables like interest income, bank size, HHI (Competition) index were dropped from the model for having shown signs of multicollinearity as indicated in the coefficient variance decomposition table. The estimated model is as follows;

Loans and Advance = -46.38045 + 2.47450 Capital -1.55976 Cash reserves required + 2.56511 GDPP - 132.43858 inflation + 3.03865 NPLs - 1.63389 ROA + 4.410667 Total Deposit

Several variables can be used to determine bank lending, the empirical literature confirmed many of them, however this research choose to use variables like gross domestic product and inflation as the only the macroeconomic factors because these variable instantly responded positively to the dollarization, GDP grew steadily and inflation stabilised. Surprisingly, both inflation and GDP are statistically insignificant in explaining variations in the bank lending. According to the stylised facts of real business cycle theory, inflation and GDP are procyclical. A research by Tomak (2013), confirmed the different results with that of Zimbabwe under the study period, Bank size, total liabilities and inflation were positive and statistically significant in explaining variations in bank lending in Turkey. However, GDP was insignificant confirming a similar result with this research.

An unusual result seen on the non-performing loans that is there is a positive and significant relationship between loans and non-performing loans. A 1% increase in the NPLs led to a 3.03% increase in the in loans advances. The result reflected a true picture of what was going on during the period under study. Non-performing loans constantly grew i.e. from 2009 -2015 (1.62% ,3.20%,6,17% ,12.28,15.9%,18.5%,10.82%) respectively.(RBZ, Monetary policy statement 2014).The situation was rescued by ZAMCO(Zimbabwe Asset Management Company) which purchased non-performing loans worth US$528.4M . (Mid-year fiscal policy 2016).

Delpachitra and Dai (2014), concluded that non-performing loans were not a significant variable to determine loan supply in Vietnam's commercial banking sector. In the case of Zimbabwe, some of the banks struggled to post profits and others went to extent of closing Rababah (2015), confirmed that non-performing loans have a negative and significant impact

Dependent variable: Loans and Advance

Observations:77

	Coefficient	Std.Error	t-statistic	Probability
C	-46.38049	30.48233	-1.521554	0.1327
CAPITAL	2.47E-06*	3.71E-07	6.661982	0.0000
CASH_RESERVES	-1.56E-06*	4.65E-07	-3.354384	0.0013
GDPP	2.565111	5.346609	0.479764	0.6329
INLF	-132.4386	999.6537	-0.132484	0.8950
NPLS	3.04E-06 *	3.83E-07	7.943535	0.0000
ROA	-1.633894	2.652062	-0.616084	0.5399
TOTAL_DEP	4.41E-07*	6.42E-08	6.875367	0.0000
R-squared	0.861048			
D.W Stat	2.319485			
F-Statistic	61.08223			

*significant at 5% level

Hausman Test

Chi-Sq statistics =1.953349 Probability = 0.9624

on the ratio of credit facility.

Table: 2 Regression results

Total deposits confirmed to be strongest determinant of bank lending in this paper, a positive and significant variable in explaining variations in loan supply. A 1% increase in deposits result in 4.41% increase in loan supply.Onyango (2016), Olusanya *et al* (2012) and this paper agree with the loanable funds theory that says the bank loans depend on accrued savings.

The higher the reserve requirement set, the less funds banks will have to loan out. Towbin and Grockler (2012). A 1% increase in the cash reserve required will reduce commercial bank credit by 1,44% in Zimbabwe under study period .This was not the case with Olutoye and Emmanuel (2015) and Malede (2014),cash reserve required does not affect Nigerian commercial banks, Ethiopian commercial banks respectively. The transition to dollarization was meant to stabilise an economic crisis meaning commercial banks needed to meet minimum capitalization and again adhering to set percentage of total bank deposits (cash required reserves) that has to be kept in the current account by the central bank. Hence this gave also pressure on supply of loans. Capital of a commercial bank, in this case is the net worth, the amount of equity in relation to its assets. A 1% increase in capital result in 2.47% increase in loan and advance. Stable banks in this sample increased loan advances however banks which struggled to capitalise had to face mergers, acquisition and voluntarily surrender their licences such as AfrAsia, Intermarket, Tetrad, Kingdom Financial holdings.

The second objective of this research seeks to answer, the main reasons behind increasing credit towards individuals instead of the manufacturing sector and other sectors. It’s true that total deposits impacted significantly supply of bank loans, however, the composition of deposits had high proportion of demand deposits and transitory amounting to an average of 50% of the total deposits and saving deposits, time deposits and call deposits had list proportions of the total deposit. Majority of the short term loans to individuals were on salary based system thus all loans extended largely never exceeded five years. Consequently, commercial banks had limited capacity to extend their lending to long-term capital intensive projects (construction, mining, communication, and manufacturing). On another angle, the industrial sector during the period had all signs of under capacity utilisation. Hence most banks were very sceptical to supply loans to ailing organisation in fear of non-performing loans. Lastly the indigenization policy, encroached to the banking sector seeking foreign banks to cede fifty one majority shareholding to the local investors. This was on an opinion that foreign banks discriminate against indigenous business and development projects in the allocation of loans Brownbridge (2012). It created a lot of uncertainty in the sector, and disturbed financial stability, confidence and inclusion.

5.1 Conclusions and Recommendations

The research's main findings are that, the determinants of bank lending under the period of study are, total deposits, cash required reserves, capital (net worth) and non-performing loans .Variables like liquidity, interest income, bank spread, Return on Assets failed to give an economic meaning to the study. Hence some were dropped in the process.

- The macroeconomic fundamentals need accommodate strategies that encourage medium to long term deposits. For instance bank charges should always be less than the interest earned by the depositors on account balance.
- Commercial banks should achieve Tier I, minimum capital requirements of US$ 100m by 2020 as this would allow these institutions to extend additional financial services like mortgage lending, leasing and hire purchase.
- Indigenisation policy and economic empowerment policy, should never be implemented in the banking sector, as it is a most sensitive sector that may contagiously affect the rest of the economy, if not carefully monitored. A vibrant economy needs a financially stable banking sector that would support all other sectors with credit lines and any other financial services needed in production.
- Embracing of plastic money by all economic agents and of course at affordable charges per transaction.
- Consumptive loans are relatively not desirable, if the banking sector has to play a role in revamping the economy.

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Appendix

Table 3

COMMERCIAL BANKS (SAMPLE)

	Commercial banks
1	Agricultural development Bank of Zimbabwe
2	Banc ABC Zimbabwe
3	Barclays Bank of Zimbabwe
4	CBZ Bank Ltd
5	ZB Bank
6	Standard Chartered Zimbabwe
7	StanBic Bank Zimbabwe Ltd
8	NMB Bank Ltd
9	Met Bank
10	FBC Bank Ltd
11	MBCA Bank Ltd