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Banking sector development and economic growth: evidence from Zimbabwe

Abstract

In this study the causality relationship of banking sector development and economic growth in Zimbabwe is investigated. The jagged performance of the Zimbabwean economy presents an interest in unravelling the state of banking development in a stunted economic growth state. Prior to 1991 the Zimbabwean financial sector went through years of financial repression and then after 1991 a raft of financial liberalization strategies were implemented. Around 2004 the financial sector was hit by numerous corporate governance scandals which led to a reintroduction of stricter financial regulations. In the same vein Zimbabwe has experienced a rapid decline in its economic growth in the past two decades. With this background, this study investigated the causal relationship between banking sector development and economic growth by testing for Granger causality based on a vector error correction model. The proxies used for banking development sector are real broad money (M2) to real GDP ratio denoted by YM2 and the real domestic credit to real GDP ratio represented by YCRED. More so, the proxies used for economic growth are absolute values of real gross domestic product (RGDP), real domestic credit (RCRED) and real broad money (RM2) as proxies for financial intermediary development as well. The study established a long-run relationship between economic growth and banking sector development. Therefore, economic growth spurs banking sector development in Zimbabwe. This is consistent with the “demand following” finance-growth hypothesis.

Keywords: banking sector development, economic growth, Zimbabwe, Granger causality.

JEL Classification: G16.

Introduction

The evolving nature of financial markets and their impact on economic growth has raised much curiosity on whether they lead to economic growth or economic growth precipitates financial development. Furthermore, the aspects of financial development and economic growth on a developing country and a developed country have attracted a lot of research. The variances of a developed country with a deep financial system and capital markets and a developing country with a shallow financial system gives a hunch to find out the dynamics of financial development and economic growth.

It could be argued that Zimbabwe which once had a vibrant economy when it attained its independence in 1980 fits such a billing. Zimbabwe had a more sophisticated financial sector than any other African country other than South Africa (UNDP, 2009). The Zimbabwean financial sector went through several transitions thereafter during the period from 1980 to 2008. These ranged from periods which were characterized by tight controls and a highly oligopolistic banking sector. Subsequently a raft of financial reforms was implemented in the 1990s, with a view to liberalizing the financial sector, when the government embraced the World Bank/IMF sponsored Economic Structural Adjustment Program (ESAP) (UNDP, 2009). The later period (2000s) can be described as a period of financial repression. It was characterized by financial sector re-regulation, interest rate controls and lending restrictions.

Notwithstanding that the relationship between financial sector development and economic growth has received much attention from academics; not much focus has been given to the developing economies. At worst the results have been contradictory (Akinboade and Makina, 2006). Whereas studies that have used cross-section and panel data generally support the positive effect of financial development on economic growth, studies based on time series data often give contradictory results (Jecheche, 2011).

Comparatively little research has been carried out to interrogate the link between finance and economic growth in Zimbabwe. In some instances such research has taken the form of panel studies. Amongst others Ahmed (2013) reports a unidirectional causality from finance to growth in Central Africa Republic, Malawi, South Africa and Zimbabwe. Moreover previous studies have not focused specifically on the banking sector, yet it is the driving force in economic growth. According to Foo (2005) banks play an important role in long-term economic role by promoting an efficient payments mechanism and providing savers a means of saving and investment, all of which promote long-term economic growth. Banks mobilize savings efficiently and channel credit to the best investment opportunities.

The present study aims to contribute to the finance-growth nexus literature by specifically focusing on the banking sector in the context of Zimbabwe and other developing countries. We also hope to chat the way forward for policy makers in Zimbabwe as they grapple with policies that are aimed at recovering its economy and specifically targeted at the banking sector. We intend to investigate the causal relation-

ship between banking sector development and economic growth by first testing for cointegration amongst the variables for a long run relationship by applying the Johansen procedure. Secondly we will then conduct Granger causality tests to determine the direction of flow or the nature of causality.

The remainder of paper is arranged as follows. The next section reviews both the theoretical and empirical literature about the finance-growth nexus. Section 2 gives an overview of the Zimbabwe banking sector. Section 3 describes the data, methodology and presents the empirical results and the final section concludes.

1. Review of theoretical and empirical literature

The financial development report (2012) defines financial development as:

“...the factors, policies, and institutions that lead to effective financial intermediation and markets, as well as deep and broad access to capital and financial services...”

Khan and Senhadji (2000) define financial development as the measure of financial depth of a country's financial markets. On the other hand, economic growth is defined as an increase in real national income, gross domestic product and real income per capita. This assertion is well presented in the empirical studies of economic growth done by Kormendi and Mequire (1985), Barro (1991) and Levine and Renelt (1992).

1.1. Theoretical framework. Theoretical foundations of financial development and economic growth mainly stem from works by Schumpeter (1912) and McKinnon (1973). Most literature argue on points of financial repression and financial liberalization, bordering on the extent that they promote economic growth. The main argument by Schumpeter was the important role played by financial institutions in spurring technological innovation and economic activities. The financial activities of savings mobilization, project evaluation, risk monitoring and management facilitate these two functions. The school of thought advocated by McKinnon posit that financial development is stunted by restrictive government regulations, interest rate ceilings, loan subsidies and high reserve requirements for the banking sector.

The relationship between the financial sector and the real sector could be classified in terms of causality with respect to five possible hypotheses: (1) there is no causal relationship; (2) the causal relationship is demand-following, that is, economic growth leads to a demand in financial service; (3) the causal relation-

ship is supply-leading, that is growth in financial services will spur economic growth; (4) negative causal relationship from finance to growth; (5) interdependence (Blum et al., 2002).

However there are three major views in literature with regards to the relationship between financial development and economic growth. The first view supports the proposition of a positive link between financial development and economic activity (Schumpeter, 1912; Goldsmith, 1969; McKinnon, 1973, Romer, 1986; Barro, 1991; Jappelli and Pagano, 1994). However Khan and Senhadji (2003) suggest the size of the effect of financial development on economic growth is dependent on different indicators of financial development, estimation method, data frequency and the functional form of the relationship. The second view is the proposition that financial development is relatively less important for economic growth (Robinson, 1953; Lucas, 1988; Chandavkrar, 1992; and Lewis, 2013). The third view is that financial liberalization retards economic growth and increases the inflation rate. Thus in this view financial liberalization causes increases in interest rates and production costs resulting in price rises (Van Wijbergen, 1983; and Buffie, 1984).

Patrick (1966) explains the casual relationship between financial development and economic growth in two modes; “demand following” and “supplying leading”. The demand following mode explains the increase in the supply of financial services as a response to the increase in demand of financial intermediation caused by increased economic growth. Therefore in this mode, economic growth precedes financial development and financial development is a consequence of economic growth. This consequential response is deemed to be automatic. Supply leading is a mode that presents itself in two ways, firstly as a resource transfer between traditional (non-growth) sectors and modern sectors and secondly to lure modern enterprises to financial intermediation and develop their activities through offering diversified financial services. Thus through channelling funds from small savers to large investors, financial innovation in the process allows entrepreneurs to conjure new business enterprises that stimulate and increase economic growth. As an example the supply leading mode can be characterized by credit subsidies, low reserve requirements for banks and sanctioned lending to critical economic sectors in developing countries.

McKinnon's complementarity hypothesis stems from the inadequacy of the Keynesian and Monetary theories in explaining the dominance of real money balances in the operation of capital markets in poor countries. The assumption made by the

Keynesian and Monetary theories to the effect that capital markets are perfect is not realistic in developing countries. Thus the complementarity theory of McKinnon emphasises on the relationship between monetary processes and capital accumulation in the developing countries. The complementarity hypothesis suggests the notion of financial repression inhibiting economic growth. The characteristics of financial repression (interest rate restrictions, sanctioned credit allocations) presented by Patrick (1966) as a precipitator of economic growth as discussed earlier seem to be what McKinnon identifies as inhibitors of economic growth. They seem to differ on reserve requirements where Patrick indicates low reserve requirements as a favorable condition for supply leading mode for economic growth by the financial sector and McKinnon indicates heavy reserve requirement as an inhibitor (among other factors) of economic growth.

1.2. Empirical literature review. Most empirical studies done have emphasised on finding the causality direction of flow between Financial Development (FD) and economic growth (EG). One of the major findings is the causality directional flow between FD and EG in the short run and long run. The data sets are varied and thus bring mixed results and these vary from panel data across sub regions, developing countries and a mixture of developing countries and developed countries. The most prominent method of testing the causality between FD and EG is the Granger causality test in most studies.

Hassan et al. (2011) did an empirical study of FD and EG a panel data time series for 168 countries panelled into 8 regions being East Asia and Pacific; Europe and Central Europe; Latin America and Caribbean; Middle East and North Africa; South Asia; Sub-Saharan Africa and High Income OECD. They established a short run two way causality relationship between FD and EG in all regions except for Sub-Saharan Africa and East Asia where the causality running from EG to FD. This alludes to low GDP per capita growth also underdeveloped financial systems that do not granger cause economic growth. However Calderon and Liu (2003) split their panel data set of 109 industrial and developing countries into developing and industrialized countries resulting in a bi-directional causality direction being obtained and with developing countries having FD being more effective in causing EG.

Odedokun (1996) did a time series study of 71 least developed countries (LDC) divided into high income and low income. Using an Ordinary Least Squares, Durbin Watson statistic first order serial correlation establishes that FD promotes EG in 85% of the 71 LDCs. Odedokun concurs with Calderon and Lui in that FD effect on EG is more prominent

in the low income developing countries than in high income developing countries.

Dawson (2008) makes unique findings on FD effect on EG by using three sources of growth equations that are based on aggregate production to find the sources of growth on a panel data of 44 developing countries. The first equation had FD as an additional input EG is determined inter alia by the growth in money supply. The second equation had the ratio of M3 (broad money) to GDP (Gross Domestic Product) as the ad hoc proxy for FD. The third equation had a two sector economy where the output of the financial sector produces positive externalities in the real sector. The findings were that FD promotes EG using the first and second equations which are juxtaposed as fixed and random effects models. However when liquid liabilities to GDP is employed as a proxy for FD, this gives a poorly specified sources-of-growth equation, therefore suggesting that alternative measures of FD will give conflicting results about its empirical relationship with EG.

Kar et al. (2011) did a study using a panel data of Middle East and North African (MENA) Countries using a panel causality test approach. Their results support both demand-following and supply-leading hypotheses and show that the direction of causality is country and FD specific. They interpret these findings to suggest that the financial sector and the real sector are interrelated to each other in most cases. They also assert that for the MENA countries there is no strong evidence that FD is an important determinant of EG sighting Islamic banking laws being an inhibitor of FD.

Wolde-Rufael (2009) examined the casual relationship of FD and EG in Kenya using a quadivariate Vector Auto Regressive framework in which exports and imports are included as additional variables. In the three of the four measures of FD there is a bi-directional Granger causality. The three measures are domestic credit provided by the banking sector and EG; Total domestic credit provided by the banking sector and EG liquid liabilities and EG. The study for Kenya also concluded that the demand – following and supplying-following hypotheses do not hold in this Kenya studies. The findings of FD and international trade indicated that FD causes Exports and Imports, but the causality relationship was weak in the opposite direction (Export and Imports → FD) and further the evidence is limited to support bi-direction causality between FD, Exports and Imports.

Liu and Shu (2002) using a multivariate Granger causality tests conducted within a cointegration framework established a two way casual relationship both in the long run and short run between FD and EG. They analyzed this as an indicator of the

financial and real sectors stimulating development in each other in the last two decades in China under China's open door policy. Hye and Dolgoplova (2011) did a study on China and used the Johansen-Juselius cointegration approach to establish the type of relationship that existed between FD and EG. The findings show varied results of negative and positive long run relationship between FD and EG. As an example FD and EG relationship was negative in 1991, 1992, 1994, 1995, 1999, 2000, 2003 to 2005. They allude these results to implying that FD is being explained by EG in the context of China.

Jecheche (2011) investigates the relationship of FD and EG from 1999 to 2008 in Zimbabwe. Using the autoregressive distributed lag (ARDL) approach it is suggested that a unique cointegrating relationship exists among real GDP, financial development, investment and real deposit rate. Both the long and short runs show that FD, ratio of investment to GDP and real deposit rate had a positive influence on economic growth. The implication being that FD causes EG through the conduit of increased investment. The study proffered economic growth policy suggestions of, increasing credit supply to the private sector especially in the rural areas where access to financial services is limited. It also advocates for the creation of a conducive legal environment that will facilitate the efficient allocation of credit to the private sector. This would be underpinned by reforms in creditors' rights and enforcements of commercial contracts. Furthermore, the stimulation of the Zimbabwe Stock Exchange operations was deemed paramount in increasing sources of medium and long term finance. These suggestions were partially in sync with Gregorio and Guidotti (1995) findings which establish that the main channel of transmission from FD to EG is the efficiency of investment rather than the volume. However Jecheche in this instance propounds the need for increased volume in investment within FD in Zimbabwe in order to stimulate EG. More so Jecheche seems to agree with Gregorio and Guidotti to the effect that the adequate regulatory framework is required following the removal of financial repression to avoid costly financial crises.

Overall, the studies with large sample cross country samples seem to favor a positive correction between FD and EG whilst negative relationship is evidenced in panel data of developing countries.

2. An overview of the Zimbabwe banking sector

In 2008 the banking sector comprised of the Reserve Bank of Zimbabwe (the central bank) and twenty-eight (28) banking institutions. These were comprised of the following: fifteen (15) commercial banks, six (6) merchant banks, three (3) discount

houses, and four (4) building societies (RBZ, 2008). They represented 65 percent of the entire financial sector in terms of assets. The commercial banking sector is the major player with 80 percent of all assets followed by merchant banks and then building societies.

It is trite to posit that the banking sector in Zimbabwe had experienced phenomenal growth in the aftermath of the deregulation of the sector with the advent of the Economical Structural Program (ESAP) reforms in the aftermath of 1991. This saw new indigenous banks come into the fray notably amongst these being Trust Bank, Barbican Bank and Royal Bank and Time Bank. However this trend was to be reversed with the banking sector experiencing challenges that related to poor levels of capitalization, poor corporate governance and risk management practices, regulatory arbitrage amongst others. A combination of these factors precipitated the collapse of some banking institutions in the last quarter of 2003 resulting in four institutions being liquidated and nine placed under curatorship (UNDP, 2009).

This necessitated the reregulation of the sector which was achieved in the main by the promulgation of the Financial Laws Amendment Act of 2004 which transferred the powers of the Registrar of Banks from the Ministry of Finance to the Central Bank. Thus the licensing of new banks role now vested with the central bank. Further the central bank also strengthened its banking supervision and surveillance with a corset of new guidelines that were introduced. These focused on the introduction of risk-focused supervision and consolidated supervision of banking groups as well as the minimum standards for corporate governance and internal audits. The central bank also revised the minimum capital requirements, statutory reserve requirements and interest rates from time to time. The downside to this was that, this led to an unpredictable financial landscape with banks finding it difficult to perform their main role, that of financial intermediation. The central bank occupied central stage in lending through its quasi-fiscal interventions. According to the UNDP (2009) report this led to an anomalous position whereby the central bank had increasingly become a major lender to the private sector. Before 2004 the RBZ's private sector loans were minimal before shooting to 43 percent in 2007. During the same period the bank credit going towards the private sector declined from 80 percent in 2003 to 45 percent in 2007.

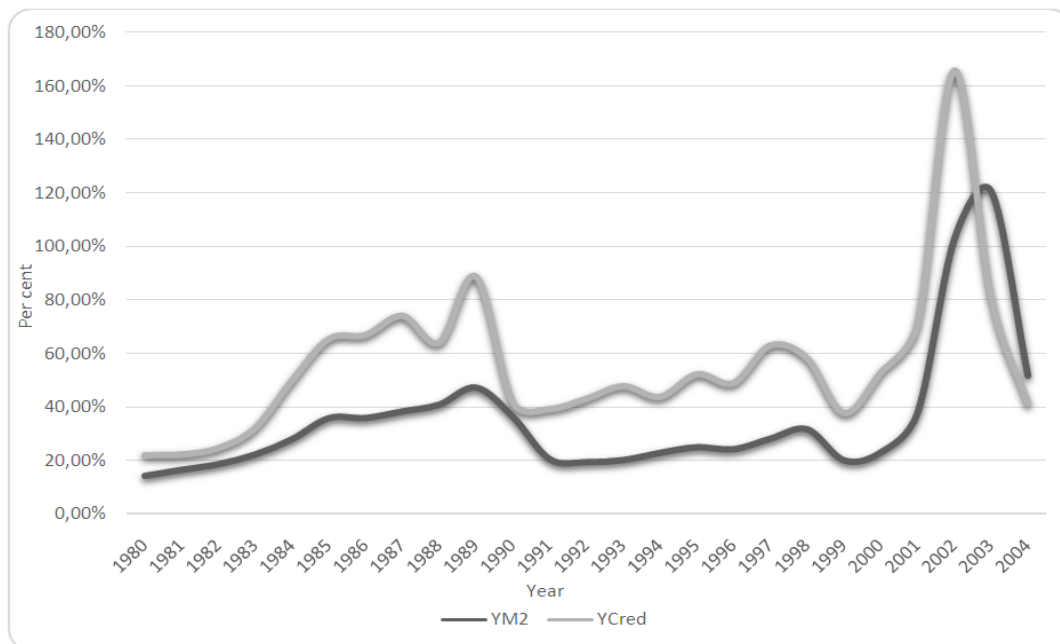
3. Data and methodology

3.1. Measures of banking sector development. In this paper we make use of two proxies to gauge the level of banking sector development in Zimbabwe. We follow the procedure adopted by Levine and Zervos (1998), Rousseau and Wachtel (2000), Beck

and Levine (2004) and Caldero'n and Liu (2003). These indicators are the real broad money (M2) to real GDP ratio denoted by YM2 and the real domestic credit to real GDP ratio represented by YCRED. A higher YM2 ratio implies a larger financial sector and therefore greater financial intermediary development (Caldero'n and Liu, 2003). Further a high YCRED ratio is indicative of more financial services and hence greater banking sector development. The trend is depicted in Figure 1. The financial deepening ratios show an upward trend from 1980 to 1989. This corresponds to the period post the war and hence the early years of independence when the country was rebuilding her economy. However there is a decline in the ratios between the years 1990 and 1992. This corresponds to the period of droughts that bedevilled the country. This resulted in a slow down to economic activity. Between 1992 and 1997 there is a sustained increase in the financial deepening ratios which can largely be attributed to financial liberalization and the entry of new players into the financial sector, thereby increasing the

provision of financial services. This trend is reversed again between 1997 and 1998. This can largely be explained by the massive devaluation of the dollar and its knock on effect it had on the economy in the aftermath of the dolling out of war veterans' gratuities in November 1997. After this period the ratios would rebound and show an upward trend until 2002 which coincided with the presidential election year. Beyond 2002 the ratios continue to tumble as the status quo of government and hence economic policy was maintained.

In our model we will however make use of the absolute values of real gross domestic product (RGDP) as a proxy for economic growth, real domestic credit (RCRED) and real broad money (RM2) as proxies for financial intermediary development. The nominal broad money (M2), gross domestic product and domestic credit data for the years 1980 to 2004 was obtained from the International Financial Statistics database. A GDP deflator was applied on the nominal values to calculate the real values, with the year 2000 being set as the base year.



Source: International Financial Statistics (2013).

Fig. 1. Trends of banking sector development indicators in Zimbabwe during the period 1980 to 2004

3.2. Empirical model specification and estimation techniques. In order to investigate the relationship between banking sector development and economic growth, we make use of the Granger causality test. The Granger causality test is based on the vector error correction model between banking sector development and economic growth.

A vector error correction (VEC) model is a restricted VAR designed for use with non-stationary

series that are known to be cointegrated. The VEC has cointegration relations built into the specification so that it restricts the long-run behavior of the endogenous variables to converge to their cointegrating relationships while allowing for short-run adjustment dynamics. We adopt the procedure followed by Odhiambo (2008) and test for Granger causality based on the error correction model which can be expressed as follows:

$$\Delta LR GDP = \alpha_0 + \sum_{i=1}^n \alpha_{1i} \Delta LR GDP_{t-i} + \sum_{i=1}^n \alpha_{2i} \Delta LRM 2_{t-i} + \sum_{i=1}^n \alpha_{3i} \Delta LRCRED_{t-i} + \alpha_4 ECT_{t-1} + \mu_t, \tag{1}$$

$$\Delta LRCRED = b_0 + \sum_{i=1}^n b_{1i} \Delta LRCRED_{t-i} + \sum_{i=1}^n b_{2i} \Delta LRM 2_{t-i} + \sum_{i=1}^n b_{3i} \Delta LR GDP_{t-i} + b_4 ECT_{t-1} + \varepsilon_t, \tag{2}$$

$$\Delta LRM 2 = c_0 + \sum_{i=1}^n c_{1i} \Delta LRM 2_{t-i} + \sum_{i=1}^n c_{2i} \Delta LRCRED_{t-i} + \sum_{i=1}^n c_{3i} \Delta LR GDP_{t-i} + c_4 ECT_{t-1} + \varphi_t. \tag{3}$$

where *LR GDP* is the logarithm of the real gross domestic product (economic growth) variable. *LRM 2* is the logarithm of the broad money (financial depth) variable. *LRCRED* is the logarithm of the domestic credit to private sector (banking sector development) variable. *ECT_{T-1}* is the error correction term lagged one period. μ , ε , φ are the mutually uncorrelated white noise residuals.

3.2.1. Stationarity tests. The variables were subjected to stationarity tests. These were the Phillips-Perron, Dickey-Fuller and Augmented Dickey-Fuller tests. The results of the stationarity tests are presented in Table 1. All variables were found to be non-stationary when tested at their levels. They became stationary when differenced once. As such it can be concluded that the variables are integrated and of order one.

3.2.2. Cointegration analysis. Thus having established that all the variables are non-stationary and integrated of order one, we proceed and test for the

number of cointegrating relationships by applying the Johansen Test for Cointegration. Cointegrated variables ensure that we eliminate spurious relations and as such share common stochastic trends. Further than that, they enable us to formulate an error correction model as we determine the long-run relationship among the variables. We first estimate a restricted VAR and determine the lag length selection criteria. The optimum lag length selected is 2. The results are as presented in Table 2. We thus then apply the Johansen test using the optimum lag length of 2. The results as presented in Table 3 suggest that there is one cointegrating relationship amongst the variables. The null hypothesis that there is no cointegrating vector is rejected as the trace statistic is greater than the critical value from the Johansen tables. We conclude therefore, that there is one cointegrating vector. Using the maximum eigenvalues we also come to the same conclusion that there is one cointegrating relationship.

Table 1. Stationarity tests

Variable	Phillips-Perron		Dickey-Fuller		Augmented Dickey-Fuller		Order of integration
	With constant	With constant and trend	With constant	With constant and trend	With constant	With trend and constant	
LRGDP	6.04410	5.6905	0.5598	-1.0470	8.3442	5.6902	I (1)
DLRGDP	-4.3024***	-4.7593***	-4.3778***	-4.8803***	-4.3025***	-4.7369***	I (0)
LRM2	2.8896	0.4150	0.9493	-0.6571	2.8988	0.7759	I (1)
DLRM2	-0.6666	-1.5077*	-1.6410*	-3.1177**	-1.3148*	-2.7541**	I (0)
LRCRED	4.4536	2.0369	1.1319	0.7950	4.4536	2.0369	I (1)
DLRCRED	-1.2620*	-2.5551**	-1.6255**	-2.8937**	-1.4456*	-2.5517*	I (0)

Source: * Represents a stationary variable at 10% level of significance. ** Represents a stationary variable at 5% level of significance. *** Represents a stationary variable at 1% level of significance.

Table 2. Lag length selection criteria

Lag	Log L	LR	FPE	AIC	SC	HQ
0	-57.01488	NA	0.047003	5.455898	5.604677	5.490946
1	15.97054	119.4307	0.000142	-0.360959	0.234155	-0.220768
2	37.43565	29.27060*	4.82e-05*	-1.494150*	-0.452701*	-1.248816*
3	42.36347	5.375805	8.09e-05	-1.123952	0.363833	-0.773475

Source: * Indicates lag order selected by the criterion

Table 3. Cointegration tests

Rank	Trace statistic	Trace critical value 0.05	Prob.	Max-eigen statistic	Eigen critical value 0.05	Prob.
<i>P</i> = 0	24.39**	24.27	0.0484**	18.61**	17.79	0.0376**
<i>P</i> = 1	5.77	12.32	0.4638	5.29	11.22	0.4374

3.2.3. Granger causality. Having established that there is at least one cointegrating relationship be-

tween the economic growth and banking sector variables, the authors proceeded to test for causali-

ty. The results are reported in Table 4. The results show that there is a causal flow from economic-growth to banking sector development as proxied by real credit and real broad money supply. However

there is no feedback – that is, banking sector development does not Granger cause economic growth. Further real credit does Granger cause real broad money supply with no feedback.

Table 4. Granger causality tests

Null hypothesis	F-statistic	Prob.	Inference
LRM2 does not Granger cause LRGDP	0.37349	0.6935	
LRGDP does not Granger cause LRM2	11.8877	0.0005	LRGDP → LRM2
LRCRED does not Granger cause LRGDP	0.74670	0.4880	
LRGDP does not Granger cause LRCRED	6.88252	0.0060	LRGDP → LRCRED
LRCRED does not Granger cause LRM2	9.21632	0.0018	LRCRED → LRM2
LRM2 does not Granger cause LRCRED	2.52569	0.1079	

Conclusions

This paper examines the causal link between banking sector development and economic growth in Zimbabwe as understanding the link will be critical to policy makers in their quest to rehabilitate the economy and spread the envelope of indigenization to the financial sector. The empirical results suggest that there is a long run relationship between economic growth and banking sector development. Economic growth spurs banking sector development in Zimbabwe. This is consistent with the “demand following” finance-growth hypothesis.

The research results present a number of implications of the role of banking development and its role in

reviving the fragile Zimbabwean economy. The main implication is that Zimbabwe must grow her economy in order to attain sustained increased demand of financial services and hence leading to the development of the banking sector. The other important implication is the need to restrain the wanton indigenisation of the banking sector as this may curtail the development of the banking sector. From these research results it is imperative that there is a greater need of foreign direct investment to trigger the local Zimbabwe economy in order to spark the growth of the banking sector which will also provide a required proper feedback to the economy. The current situation of limited credit granting inhibits the banking sector and hence limiting the money supply needed to grow the local economy.

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