The Trade-Off Between Banking Outreach And Profitability: Evidence From Selected Southern African Development Community Countries

Andrew Maredza, Ph.D., North-West University, South Africa

ABSTRACT

In this paper, the fixed effects method known as the least squares dummy variable (LSDV) technique was applied to investigate the possibility of a trade-off between bank profitability indicators and banking outreach (expanding access to banking services) by analysing a panel of 10 Southern African Development Community (SADC). Of the fifteen SADC member countries (Angola, Botswana, Democratic Republic Of Congo, Lesotho, Madagascar, Malawi, Mauritius, Mozambique, Namibia, Seychelles, South Africa, Swaziland, United Republic Of Tanzania, Zambia, and Zimbabwe), five (Botswana, Congo, Lesotho, Malawi and Zimbabwe) had to be excluded for lack of consistent data throughout our period of analysis. The author investigates whether expanding banking access and pursuing profitability are complementary goals in the same direction or are two conflicting goals. For estimation robustness, two indicators of profitability were used namely return on average assets (ROAA) and return on average equity (ROAE). IMF Financial Access Survey (FAS) data for each country namely, deposit accounts per capita and the number of bank branches per 1000 km^2 were used as indicators of bank outreach or access. Operational inefficiency, insolvency risk and credit risk were found to exert a negative impact on both ROA and ROE. Net interest margin a proxy for interest based services and off-balance sheet activities were statistically significant and positively related with bank profitability. Central to the study was that expanding banking access was found to exert a statistically significant and positive impact on profitability for some SADC countries. However, contrary to the author`s expectation, for some countries, the indicator of outreach was inversely related with the chosen indicators of profitability. The researcher however, argues that any form of intervention aimed at improving the state of access to those financially excluded cannot be evaluated from a cost or profit perspective alone but must be all-inclusive taking into account the social and economic benefits to the society as a whole. The major purpose of financial inclusion is to reach the poor and disadvantaged segments of the population. Hence, the author cautions that although attaining high profitability is an important policy objective for ensuring sustainability and financial stability, it is certainly not the only priority. Access to banking services, social inclusion and consumer protection are equally important policy priorities. There is therefore need for government support and a general holistic stakeholder approach to the problem of banking exclusion in order to generate solutions that achieve both profitability and outreach in a balanced fashion.

Keywords: South African Development Countries (SADC); Banking outreach; Bank Profitability; Bank Sustainability

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INTRODUCTION

he 2007/2008 global financial crisis and the recent 2013 Cyprus banking crisis have ignited renewed concern about the performance of the banking sector. These crises, particularly, the US subprime mortgage financial crisis demonstrated how devastating and damaging banking failures within one country can be for the entire global economy. A high level of profitability and efficiency is necessary in order to enable a bank to withstand any form of negative shock as well as assuring investors of a positive return to their investment. Flamini et al (2009) argues that a profitable banking sector is better able to absorb adverse shocks and therefore contribute to financial stability. In addition, capitalisation of profits that are re-invested into the business are an important source of growth and financial stability. One potential area which appears to hold potential for increasing bank profitability is expanding access by reaching out to previously under-served remote and rural areas. Expanding banking access to the unbanked segment of our society has in recent years become one of the most crucial vehicles for reducing poverty. The basic and most important objective of financial inclusion is to touch the lives of the poor and disadvantaged segments of the population by giving them the basic opportunity to financial access. Peachey and Roe (2004) argue that financial access should be viewed as a basic good that is necessary in one`s life in the same way as is access to primary education, basic health services, and safe drinking water. A World Bank (2006, p.146) study, *Making Finance Work for Africa*, noted that it is difficult for African governments to force profit-oriented financial institutions to expand financial access "beyond the point of profitability". However, in recent years, the success stories of Capitec and African bank the largest providers of unsecured lending in South Africa have challenged the existence of the trade-off between expanding bank outreach and profitability. Banks appear to have the potential to extend their services to low-income and difficult markets and still sustain their profitability. This paper therefore discusses and investigates whether bank profitability and expanding access are complementary goals in the same direction or are two conflicting goals. The objective is to investigate the possibility of a trade-off between bank profitability and expanding banking outreach by analysing a panel of 10 selected SADC countries using panel data modelling. This study is confined to the SADC region for two reasons. Firstly, banking within the Southern African region is the most advanced in Africa. In particular, the banking system in South Africa is the largest and most sophisticated in the whole of Africa (AFD, 2011). KPMG (2013) reported that in 2010 South Africa`s big-four namely Standard bank, Absa, FirstRand, and Nedbank represented 49 percent of total assets held by Africa`s largest 100 banks. Hence within the entire Africa and Southern African banking space, South Africa is dominant. Secondly, account penetration is reported to be highest in Southern Africa compared to any other region. Demirgüç-Kunt and Klapper (2012), reported that the proportion of adults with an account at a formal institution is 51% in Southern Africa compared to 11%, 20%, 23% and 28% in Central, North, Western and Eastern Africa respectively. Against this backdrop, it is hoped that the empirical results and policy conclusions from analysing SADC countries will provide strategic lessons for the banking sector in the rest of Africa and other developing economies.

The rest of the paper is organised as follows: The relevant literature relating to banking inclusion and financial sustainability is reviewed in section 2. The model specification, estimation procedures and data analysis are discussed in section 3. The empirical results are presented and discussed in section 4. Section 5 concludes with a discussion of policy positions for the region.

LITERATURE REVIEW

According to World Bank (1995), access to a bank account is generally considered to be a starting point for one to make use of financial services. As such a bank account is considered a necessary gateway to a portfolio of financial services that can be provided by a bank such as personal loans, overdrafts, mortgages, debit orders, savings and insurance. For this reason, it is argued that if a person has any financial product whatsoever, it is usually a bank account.

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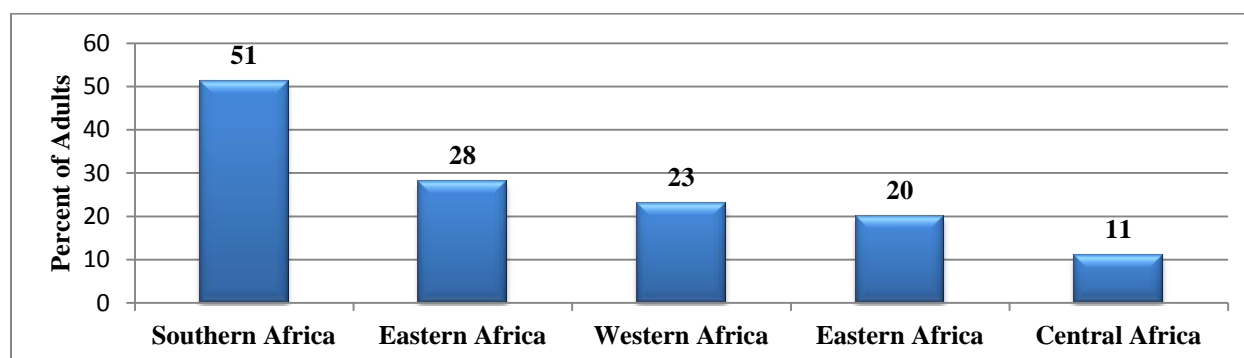
Source: Demirguc-Kunt and Klapper, 2012
Figure 1: Account Penetration At A Formal Institution By Region

Figure 1 depicts the wide variations of the level of financial inclusion within the African region. Beck and Cull (2013) noted that within the Southern African region, South Africa and Mauritius have well developed banking systems while Central African Republic and South Sudan have poorly developed banking systems offering only basic services. The reasons behind the reluctance by banks to serve the low-income segment of the market are two-fold, demand side and supply side.

Demand Side Factors

From the demand side, the World Bank study (2006) identified information asymmetry and transaction costs as two major problems related to reaching the so-called difficult markets. Firstly, poor quality and scarcity of information about individual risks is acknowledged as a greater barrier in assessing creditworthiness. Demirguc-kunt and Klapper, (2012) suggests relaxing documentation requirements as one of the ways to improve accessibility. Their study showed that in Sub-Saharan Africa reducing documentation requirements potentially increase account penetration among adults by up to 23 percentage points. Secondly, the World Bank (2006) also states that from the demand side, high minimum balances and monthly charges prohibits a great proportion of Africans from accessing formal financial services. Hence, higher prices acts as a brake on efforts designed to increase access to banking services. In recent years, advances in technology and innovation such as cell phone banking and mobile branches have helped to reduce transaction costs at the same time improving access. This avenue holds greater potential in South Africa as the majority of people do have a cell phone. Apart from information asymmetry and high bank fees, Paulson and McAndrews (1998) noted that the provision of services to clients of low-income status is problematic to do cost-effectively. They argue that customers in "difficult markets" undertake low-value transactions and yet high in volume driving up operational cost and diminishing bank profits.

Supply Side Factors

This section discusses the arguments from the supply side perspective. Fernando (2007, p. vii) argues that "the biggest challenge for developing economies is to get the banks to the unbanked, rather than to get the unbanked to the banks". A basic and fundamental cause of supply-side constraints stems from the very nature of the prospective market comprising low-income and poor people. Firstly it is argued that given the socio-economic profile of the poor in general, there is little profit potential in serving such a market. As a result, Fernando (2007) argues against the role of the private sector or market-oriented solutions as feasible ways to expand access to low-income people. Secondly, it is rather argued that due to the low socio-economic profile of low-income clients, financial services are best provided through programs of the government and non-governmental organisations (NGOs).

Another important reason for inadequate supply is that banks are generally not geared to serve the low-income financial markets because they have not been organized and established to serve such a market. Their products, costs structures and organizational structures, are designed to serve the high-income clientele. Given this background, banking institutions find that it's relatively more rewarding to move "up-market" than moving "down-market". Therefore, it is usually not in the interest of banks to serve markets in which a large population are low-

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income households because the relative cost of setting up branch networks in such marginalised areas is substantially higher. There is therefore need for banking institutions to innovate in order to produce better priced products and services that are tailor-made to suit the socio-economic characteristics of poor people.

The lack of formal financial institutions near points of actual demand is another important supply side factor. A significant proportion of people in Africa live in marginalised rural and remote parts where banking amenities are not easily accessible within a reasonably short distance. As a result, the majority of people become more reliant on informal financial services which are relatively expensive compared to formal services in developed urban areas. However, Fernando (2007) argues that the availability of such facilities closer to the places of actual demand does not benefit much if financial service providers are not earnestly dedicated to serve the down-market. In other words, proximity does not matter much if the bank`s main activities do not involve the provision of services and products that low-income people need at better prices. Fernando, (2007) states that "geographic access does not necessarily mean economic access." He argues that the mismatch of services and products produced by financial service providers with the specific requirements of people of low-income status has acerbated the challenge of outreach. It is argued that even low-income people who live near financial service providers cannot have access to financial services because of the problem of incompatibility. This incompatibility result from several reasons namely that the offered products may have certain characteristics that are not adapted to the socioeconomic profile of consumers. For example, people with poor literacy skills may need a custom-designed insurance product whose terms and conditions are less complicated but readily simple and straightforward. A loan repayment arrangement for a bank client who earn a weekly income may need to be adjusted to correspond to weekly instalments as opposed to standard monthly instalments.

Finally, banks need sellable collateral security which most households of low-income status are unable to offer thereby constraining them from obtaining the much needed credit. With respect to opening and maintaining savings accounts, most banks impose prohibitive requirements regarding minimum balances and withdrawal frequency. This section has demonstrated the desperate need for a collective and inclusive approach in efforts geared towards expanding access to the unbanked and those financially excluded in general.

While we acknowledge that banks need profits in order to sustain their business and their existence, we also argue that attaining profits is not a bank`s only priority. Banks would be such a huge failure if attaining profits is all there is to it. Traditionally, banks have been perceived as institutions whose sole objective is profit making and therefore lack social responsibility to the society. The final goal of reaching the unbanked is to increase social welfare. Hence social inclusion and consumer protection are equally important social objectives. Against this background, this paper makes the argument that any form of intervention designed to enhance banking outreach to benefit the unbanked cannot be evaluated from a profit or cost perspective alone but must be inclusive taking account the social benefits to the society as a whole. Drawing lessons from African bank and Capitec bank in South Africa, the researcher argue that banks in Africa have the potential to reach the unbanked at a profit if there were earnestly committed to serve the low-income niche. The business models of most banking institutions are designed to serve the up-market. There is therefore need for banks to innovate in order to produce better priced products and services that are tailor-made to suit the socio-economic characteristics of poor people.

METHODOLOGY

To investigate the nature of the relationship between banking outreach and profitability, a panel of 10 SADC countries were analysed using the fixed effects approach. In order to capture cross-section variations, model 1 and model 2 were estimated using the least squares dummy variable technique by including country dummies. Two basic approaches are used to estimate the fixed effects model; the least squares dummy variable (LSDV) technique or the "Within" Q estimation technique. Both approaches produce the same results. However, for purposes of making inferences, the LSDV is preferred as it produces standard errors, *t*-statistics and *p*-values. Out of the 15 SADC countries, Botswana, Congo, Lesotho, Malawi and Zimbabwe were excluded because of lack of consistent data throughout our period of analysis. The data variables used in the analysis were obtained from quantec database, IMF and Federal Reserve Bank of St Louis (Federal Reserve Economic Data). Return on average assets (ROAA) and return on average equity (ROAE) were chosen as indicators of profitability. ROAA is computed by expressing a bank's net income as a percentage of total average assets. Similarly, ROAE represents the

percentage share of a bank`s net income to its average shareholder`s equity. A translog model of the form below was estimated:

$$\ln ROAA_{it} = \alpha_{it} + \beta_1 \ln OR_{it} + \beta_2 \ln ZS_{it} + \beta_3 NPL_{it} + \beta_4 CIR_{it} + \beta_5 NIM_{it} + \beta_6 OBS_{it} +$$
$$\beta_7 RGDP_{it} + \mu_{it}$$

(Model 1)

To check the robustness, regressions are performed again but this time with return on average equity as the profitability indicator variable by following the model:

$$\ln ROAE_{it} = \alpha_{it} + \beta_1 \ln OR_{it} + \beta_2 \ln ZS_{it} + \beta_3 NPL_{it} + \beta_4 CIR_{it} + \beta_5 NIM_{it} + \beta_6 OBS_{it} +$$
$$\beta_7 RGDP_{it} + \mu_{it}$$

(Model 2)

Where profitability indicators: Bank $ROAA_{it}$ of country i in period t and $ROAE_{it}$ of country i in period t are written as a function of bank outreach for country i in period t (OR_{it}) and a vector of other determinant factors representing insolvency (ZS_{it}), credit risk (NPL_{it}), operational inefficiency (CIR_{it}), net interest margin (NIM_{it}), off-balance sheet activities (OBS_{it}), and macroeconomic fundamentals ($RGDP_{it}$). The data variables and their descriptive statistics are presented in Table 1.

Table 1: Descriptive Statistics

	LROA	LROE	LZS	LNPL	LCIR	LNIM	LOBS	LDEPS	LBRAN2
Mean	0.329672	1.334715	0.974551	0.305175	1.725074	0.758902	1.598674	2.223964	0.059705
Maximum	0.653431	1.768335	1.330500	0.968483	1.865040	1.085346	1.911188	3.339804	2.020884
Minimum	-0.338715	0.496251	0.126929	0.000000	1.350238	0.358942	1.242950	1.095088	-0.966163
Std. Dev.	0.196356	0.221058	0.251235	0.314875	0.103936	0.175414	0.105146	0.640497	0.921888
Observations	72	72	72	72	72	72	72	72	72
Cross sections	10	10	10	10	10	10	10	10	10

Outreach Indicators

The logarithm of the product of the number of depositors with commercial banks per 1000 adults and the number of bank branches per 1000 km^2 was used as a proxy for banking outreach. Where data on the number of depositors per 1000 adults was not present, the study employed the number of deposit accounts per 1000 adults. The number of depositors was interacted with the number of bank branches per 1000km^2 in order to capture the number of borrowers with access to the closest branch. These outreach indicators were chosen in line with a World Bank study by Beck et al (2006) which applied deposits per capita and branches per km^2 as outreach indicator variables.

Insolvency Risk (ZS)

A bank`s z-score for each country was used as a measure of insolvency risk. It indicates how far a bank is from default also referred as the distance-to-default. Lown et al (2000, p.45) defines the Z-score as "the number of standard deviations below the mean by which profits must fall to bankrupt the firm". A lower value indicates greater risk. An increase in the z-score is expected to be positively related to profitability.

Credit Risk (NPL)

The ratio of bank non-performing loans to gross loans variable was included to measure the level of credit risk in each country. An increase in credit risk is expected to exert a negative impact on bank profitability due to inefficiency in lending.

Cost-To-Income Ratio (CIR)

A traditional measure of cost efficiency used in empirical studies is the cost-to-income ratio. This efficiency indicator expresses a banks` total operating cost as a proportion of its total operating income. Hence, the

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ratio measures how much it costs the bank to generate a dollar`s worth of income. A bank is regarded as relatively efficient if it incurs less cost to generate $1 of revenue compared to an inefficient one. An increase in the cost-to-income ratio is not desirable since it implies that either costs are increasing or revenue is decreasing. The lower the ratio the better thus banks should strive to drive the ratio down as much as possible. An increase in this ratio is interpreted as cost inefficiency and is expected to be negatively related with profitability.

Net Interest Margin (NIM)

The variable NIM, measured as a proportion of net interest income to total assets was included to capture the traditional role of interest-based activities within banking. A positive sign is expected. Net interest margin (NIM) is the percentage of net interest income to average interesting-earning assets calculated as:

$$NIM = \frac{InterestIncome - InterestExpense}{InterestBearingAssets}$$

Off-Balance Sheet Activities (OBS)

The increasing role of off-balance sheet or commission-based activities within banking in empirical studies can be approximated by the inclusion of non-interest revenue to total gross revenue. In recent times, due to increased competition, the unpredictable economic outlook and the volatility of interest-based income, banks have resorted to diversification or off-balance sheet activities such as foreign currency trading, provision of various insurance products and other commission or fee-based services. While this can be viewed in the positive light, such business ventures may imply undertaking risky activities. Hence, the impact on bank profitability can either be positive or negative.

Macroeconomic Fundamentals (GDP)

In order to control for macroeconomic developments in each country, Real GDP per capita growth was included in the model. A high level of GDP growth is expected to stimulate demand for all forms of credit resulting in bank profitability. Therefore, a positive sign is expected.

PRESENTATION AND DISCUSSION OF RESULTS

Table 2 presents and analyses the findings of estimating model I and model II using the LSDV technique. Model II was reported in order to check for robustness of our model I results. However, the focus of this study is centred on model I. Trujillo-Ponce (2013, p.580) states that in terms of efficiency, return on assets is a better indicator of profitability relative to return on equity based on the fact that it is adjusted for the leverage effect. Baltagi (2008) cautions that, in panel data analysis, the assumption of homoscedasticity may not be plausible due to the different variation in sizes of the cross sections. In order to remedy the problem of heteroscedasticity, the White diagonal standard errors and covariances were used.

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Table 2: Bank outreach & Profitability trade-off: SADC countries

	Fixed Effects (LSDV) **Model 1**	**Fixed Effects (LSDV)** **Model 2**
Dependant Variable	*ROAA*	*ROAE*
Constant	-1.3679*** *(0.0004)*	0.5821 *(0.2366)*
Z-score (ZS)	0.3916*** *(0.0301)*	0.5753*** *(0.0001)*
Credit risk (NPL)	-0.2603** *(0.0100)*	-0.2716** *(0.0265)*
Operational inefficiency (CIR)	-0.7867*** *(0.0000)*	-1.2677*** *(0.0000)*
Net Interest Margin (NIM)	1.4722*** *(0.0000)*	1.1129*** *(0.0000)*
Off-Balance Sheet (OBS)	0.8398*** *(0.0000)*	0.9190*** *(0.0000)*
RGDP growth (RGDP)	2.2115*** *(0.0006)*	0.8463 *(0.1390)*
Fixed Effects – Outreach Indicators:		
Angola	0.0496 *(0.5906)*	0.0484 *(0.6799)*
Madagascar	-0.2463*** *(0.0044)*	-0.0934 *(0.2197)*
Mauritius	0.0657*** *(0.0003)*	-0.0041*** *(0.8502)*
Mozambique	-0.6259*** *(0.0006)*	-0.7737*** *(0.0000)*
South Africa	0.3814*** *(0.0000)*	0.3650*** *(0.0009)*
Swaziland	0.2940** *(0.0445)*	0.0004** *(0.9977)*
Tanzania	-0.1803** *(0.0133)*	-0.1179 *(0.1353)*
Zambia	0.3375** *(0.0402)*	0.4498*** *(0.0005)*
Namibia	-0.2252*** (0.0000)	-0.1042*** (0.0004)
Seychelles	0.0822*** *(0.0003)*	0.0412*** *(0.1223)*
Adjusted R²	**83.9**	**84.3**
D-Watson statistic	**1.71**	**1.50**

Italicised values in parentheses are p-values.

*** / [**]/ (*) denotes significance at 1%, / [5%] / (10%) level of significance respectively.

Outreach Indicators

Central to the present study is to determine the nature of the relationship between banking outreach and profitability. Results in Table 2 presents mixed evidence of the impact of outreach on bank profitability. On the one hand, a positive and significant coefficient for some countries namely South Africa, Mauritius, Swaziland, Zambia, and Seychelles implies that bank profits are positively influenced by the state of banking inclusion. In comparison to all countries whose impact was positive and significant, South Africa had the greatest marginal impact. On average, a 1 percent increase in banking outreach expansion improves ROAA by 0.38 percent in South Africa compared to 0.34, 0.29, 0.08 and 0.06 percent in Zambia, Swaziland, Seychelles and Mauritius respectively. However, Angola had a positive but insignificant marginal coefficient under model I. For South Africa and Zambia, the positive and significant relationship was also consistent under model II. Within model II, expanding outreach in Angola, Swaziland, and Seychelles exerted a positive but insignificant impact on bank profits. On the other hand, contrary to

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the author`s expectation, the indicator of outreach was inversely related with the chosen indicators of profitability for the rest of the countries. Madagascar, Mozambique, Tanzania, and Namibia confirm existence of the outreach-profitability trade-off under both models. On the whole, this study therefore submits that, bank profitability is intricately intertwined with the state of banking outreach in a given country.

Regarding the z-score, the obtained results confirmed evidence of a positive and significant coefficient in both models implying that bank profits are influenced by the state of insolvency risk. On average, a 1 percent increase in the distance-to-default improves ROAA by 0.39 percent. The ratio of non-performing loans to gross loans which is a measure of the quality of loans and lending risk, was reported negative and statistically significant confirming its detrimental effect on profitability. Thus, the lower the quality of loans the lower the level of profitability. The coefficient on operational/cost inefficiency (**CIR**) was significant and negative as expected, indicating that on average increases in cost-to-income ratio are associated with lower levels of profitability. The impact of net interest margin was positive and significant in both models. Hence, traditional lending activities by banks are an important driver of profitability. The coefficient on the bank diversification variable was positive and significant in both models. Hence, off-balance activities by banks play a contributory role on profitability. Lastly, real GDP growth bears the greatest positive impact on profitability in comparison to all determinants included in model I. On average, a 1 percent improvement in real GDP growth positively impacts bank profits by 2.21 percent. Thus, favourable economic conditions in a given country contribute to higher bank profits.

CONCLUSION

In this paper, the least squares dummy variable technique was applied to a sample of 10 SADC countries in order to shed light on the controversy regarding the trade-off between banking outreach and profitability. The evidence in this study revealed mixed results. On the one hand, the researcher found that bank profits are positively influenced inter alia by the depth of banking outreach in a particular country. This means that, when banks improve their outreach programs, profitability tend to increase. This study suggests that banking sector inclusion efforts play a crucial role in generating higher profits for the banking industry. Therefore, banks have the potential to extend their services to low-income and to the poor and still remain profitable. We therefore underscore the need for African banking sectors to invest in rolling out financial inclusion programs to enable the unbanked to have affordable and easily accessible banking services.

The study also uncovered that for some countries expanding access had a detrimental effect on profitability, lending support to existence of a trade-off. Regarding the trade-off behaviour, the researcher postulates that the banking sectors in respective countries may have expanded banking access beyond the so called optimal point of profitability. Calice (2013) noted that the key challenge with African regulators is to strike a balance between promoting financial inclusion and maintaining a stable financial system without compromising the other. In light of the outreach-profitability trade-off, the researcher proposes that the government engage and work closely with the private banking sector in order to balance the profit objective and the corporate social responsibility of banks. Nonetheless, the author argues that improving the state of access to benefit the financially excluded cannot be exclusively analysed from a profit perspective alone but must be all-inclusive taking into account the social and economic benefits to the society as a whole. The major purpose of financial inclusion is to reach the poor and disadvantaged segments of the population. Hence, the author cautions that although attaining high profitability is an important policy objective for ensuring sustainability and financial stability, it is certainly not the only priority. Access to banking services for everyone, social inclusion and consumer protection are equally important policy priorities. There is therefore need for government support and a general holistic stakeholder approach to the problem of banking exclusion in order to generate solutions that achieve both outreach and profitability in a balanced fashion. Bansal (2012, p.1) has argued that the challenge of financial exclusion needs "strategies and business models that are beyond the realm of conventional thinking." Using the case study of India, he advocates for innovation and "out of the box" solutions, arguing that traditional and conventional banking approaches to the challenge of financial inclusion may not yield the best results.

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AUTHOR INFORMATION

Andrew Maredza, Ph.D., North-West University, (Mafikeng Campus), School of Economic & Decision Sciences, Private Bag X2046, Mmabatho, North West, 2735 South Africa. Email: andrew.maredza@nwu.ac.za

REFERENCES

1.   Agence Francaise & Developpement (AFD), (2011). *Contributing to banking services for disadvantaged populations*. Available [Online]: http://www.afd.fr/lang/en/home/pays/afrique/geo-afr/afrique-du-sud/projets-afrique-du-sud/proparco-south-africa/contribuer-bancarisation-populations-defavorisees. [Accessed 1 March 2014].
2.   Baltagi, B., (2008). *Panel Data Econometrics,* 4th Edition. Chichester: John Wiley and Sons.
3.   Bansal, A., (2012). Profitable Models for Financial Inclusion, *Global Journal of Management and Research*, October - December, pp. 1 – 9.
4.   Beck, T., & Cull, R., (2013). Banking in Africa, *CSAE Working Paper WPS/2013/16*, Centre for the Study of African Economies. University of Oxford, UK.
5.   Beck, T., Demirguc-Kunt, A., & Peria, M.S.M., (2006). Reaching Out: Access to and Use of Banking Services Across Countries, Conference on Financial Modernisation and Economic Growth in Europe, 28 – 29 September 2006, Berlin: Germany.
6.   Calice, P., (2013). *The Trade-off Between Financial Inclusion and Financial Stability*, In: TRIKI, T., and FAYE, I., 2013. *Financial Inclusion in Africa*, African Development Bank (AfDB), Ghana.
7.   Demirguc-Kunt, A., & Klapper, l., (2012). *Measuring Financial Inclusion: The Global Findex Database*, Policy Research Working Paper 6025, World Bank, Washington, DC.
8.   Fernando, N.A., (2007). *Low-Income Household's Access to Financial Services: International Experience, Measures for Improvement and the Future*. Asian Development Bank.
9.   Flamini, V., Mcdonald, C., & Schumacher, L., (2009). The Determinants of Commercial Bank Profitability in Sub-Saharan Africa, *IMF Working Paper WP/09/15*, Washington DC: International Monetary Fund.
10.   KPMG, (2013). *Financial Services in Africa*. KPMG Africa Limited.
11.   Lown, C.S., Osler, C.L., Strahan, P.E., & Sufi, A., (2000). The Changing Landscape of the Financial Services Industry: What lies ahead? *FRBNY Economic Policy Review/October 2000*, Federal Reserve Bank of New York.
12.   Paulson, J.A., & McAndrews, J., (1998). *Financial services for the urban poor: South Africa's E Plan.* World Bank Policy Research Working Paper No 2016. Washington, DC: World Bank.
13.   Peachey, S., & Roe, A., (2004). *Access to Finance: A study for the World Savings Banks Institute*, Oxford Policy Management.
14.   Trujillo-Ponce, A., (2013). What Determines the Profitability of Banks? Evidence from Spain, *Accounting and Finance*, 53 (2013), pp. 561 – 586.
15.   World Bank, (1995). *Poverty*. Washington, D.C., Oxford University Press, London.
16.   World Bank, (2006). *Making Finance Work for Africa*, Washington DC.

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APPENDICES

Appendix 1: Model 1

Dependent Variable: ?ROA
Method: Pooled EGLS (Cross-section weights)
Date: 07/12/14   Time: 12:58
Sample (adjusted): 2005 2011
Included observations: 7 after adjustments
Cross-sections included: 10
Total pool (unbalanced) observations: 66
Linear estimation after one-step weighting matrix
White diagonal standard errors & covariance (no d.f. correction)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-1.367996	0.361699	-3.782145	0.0004
?LZS	0.391573	0.175258	2.234258	0.0301
?LNPL	-0.260310	0.097094	-2.681009	0.0100
?LCIR	-0.786728	0.111498	-7.055985	0.0000
?LNIM	1.472208	0.168668	8.728439	0.0000
?LOBS	0.839812	0.137335	6.115054	0.0000
D(?LGDP)	2.211456	0.601200	3.678403	0.0006
ANG_--ANG_DEPS*ANG_BRAN2	0.049599	0.091584	0.541573	0.5906
MAD_--MAD_DEPS*MAD_BRAN2	-0.246306	0.082438	-2.987784	0.0044
MAU_--MAU_DEPS*MAU_BRAN2	0.065690	0.016805	3.909036	0.0003
MOZ_--MOZ_DEPS*MOZ_BRAN2	-0.625916	0.170856	-3.663417	0.0006
SAF_--SAF_DEPS*SAF_BRAN2	0.381357	0.077029	4.950819	0.0000
SWZ_--SWZ_DEPS*SWZ_BRAN2	0.294031	0.142585	2.062153	0.0445
TAZ_--TAZ_DEPS*TAZ_BRAN2	-0.180315	0.070201	-2.568550	0.0133
ZAM_--ZAM_DEPS*ZAM_BRAN2	0.337467	0.160084	2.108059	0.0402
NAM_--NAM_DEPS*NAM_BRAN2	-0.225223	0.036433	-6.181827	0.0000
SEY_--SEY_DEPS*SEY_BRAN2	0.082211	0.021105	3.895359	0.0003
Weighted Statistics				
R-squared	0.839073	Mean dependent var	0.495011	
Adjusted R-squared	0.786526	S.D. dependent var	0.384299	
S.E. of regression	0.130805	Sum squared resid	0.838387	
F-statistic	15.96790	Durbin-Watson stat	1.706212	
Prob (F-statistic)	0.000000			
Unweighted Statistics				
R-squared	0.609410	Mean dependent var	0.322904	
Sum squared resid	0.960756	Durbin-Watson stat	1.457276	

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Appendix 2: Model II

Dependent Variable: ?ROE
Method: Pooled EGLS (Cross-section weights)
Date: 07/12/14   Time: 12:57
Sample (adjusted): 2005 2011
Included observations: 7 after adjustments
Cross-sections included: 10
Total pool (unbalanced) observations: 66
Linear estimation after one-step weighting matrix
White diagonal standard errors & covariance (no d.f. correction)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.582087	0.485772	1.198271	0.2366
?LZS	0.575298	0.137788	4.175249	0.0001
?LNPL	-0.271567	0.118681	-2.288204	0.0265
?LCIR	-1.267668	0.190092	-6.668712	0.0000
?LNIM	1.112882	0.189405	5.875675	0.0000
?LOBS	0.919036	0.201888	4.552214	0.0000
D(?LGDP)	0.846318	0.562748	1.503903	0.1390
ANG_--ANG_DEPS*ANG_BRAN2	0.048483	0.124068	0.390775	0.6977
MAD_--MAD_DEPS*MAD_BRAN2	-0.093381	0.075120	-1.243095	0.2197
MAU_--MAU_DEPS*MAU_BRAN2	-0.004115	0.021669	-0.189914	0.8502
MOZ_--MOZ_DEPS*MOZ_BRAN2	-0.773720	0.099161	-7.802632	0.0000
SAF_--SAF_DEPS*SAF_BRAN2	0.365043	0.103263	3.535089	0.0009
SWZ_--SWZ_DEPS*SWZ_BRAN2	0.000434	0.149068	0.002910	0.9977
TAZ_--TAZ_DEPS*TAZ_BRAN2	-0.117852	0.077616	-1.518393	0.1353
ZAM_--ZAM_DEPS*ZAM_BRAN2	0.449790	0.153057	2.938700	0.0050
NAM_--NAM_DEPS*NAM_BRAN2	-0.104173	0.027234	-3.825149	0.0004
SEY_--SEY_DEPS*SEY_BRAN2	0.041240	0.026231	1.572206	0.1223
		Weighted Statistics		
R-squared	0.843164	Mean dependent var	2.081143	
Adjusted R-squared	0.791952	S.D. dependent var	1.349768	
S.E. of regression	0.144304	Sum squared resid	1.020354	
F-statistic	16.46423	Durbin-Watson stat	1.496383	
Prob(F-statistic)	0.000000			
		Unweighted Statistics		
R-squared	0.655593	Mean dependent var	1.327558	
Sum squared resid	1.081412	Durbin-Watson stat	1.426044	

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NOTES

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