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THE DETERMINANTS OF FINANCIAL PERFORMANCE OF NON-BANK FINANCIAL INSTITUTIONS IN BOTSWANA

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ABSTRACT

Both non-bank financial institutions and commercial banks play a key role in achieving a stable and sound financial system in an economy of a country. This study investigates the determinants of non-bank financial institutions financial performance in Botswana. The analysis used balanced panel data of 30 non-bank financial institutions for the period of 2010-2014. The non-bank financial institutions' financial performance is estimated using both panel random effects method and the Three-Stage-least-squares dynamic model. Return on Assets is used as a proxy for financial performance, whereas capital adequacy, management efficient, firm size, retained profits from the previous year and macro-economic variables of Inflation and GDP growth rate have been used as independent variables. In summary, the empirical results confirm that capital adequacy, management efficiency and inflation have a negative and significant influence on the financial performance of non-bank financial institutions; while retained profits from the previous year have a positive and significant effect on financial performance. A non-linear relationship between firm size and financial performance was revealed in the results; however it displayed a non-significant impact.

1. INTRODUCTION

The financial sector plays a significant role in providing important financial services to the public, such as savings, loans, and insurance (Sutton and Jenkins, 2007). The financial sector is divided into banking sector and non-bank financial sub-sectors. The main focus of this article is on the

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determinants of the financial performance of the Non-bank financial sector in Botswana. Non-bank financial institutions (NBFIs) are companies that carry out a variety of financial activities of a commercial bank without meeting the legal description of a bank (Saunders & Cornett, 2011). According to the Bank of Botswana Banking Act of 2005, an NBFI is defined as a financial institution that is not legally allowed to accept deposits from the public and does not have a full banking license. They aid in the growth of the economy by broadening access to external finance by institutions need them most at minimal cost (Mugume, 2008).

Both Non-bank and commercial bank financial intermediation are key features of a stable and sound financial sector. While commercial banks offer a set of financial services as a bundled deal, NBFIs unbundle and shape these financial services in order to be able to meet the requirements of specific clients (Ongeri, 2014). Financial performance refers to how well a firm utilises its resources to give returns to its investors' (Ongeri, 2014). It can be measured by the Return on Assets (ROA) or the Return-On-Capital Employed (ROCE). Al-Tamimi, (2010) and Aubrime, (2005) argued that the determinants of non-bank financial institutions' performance can be categorised into institution specific (internal) and macroeconomic (external) factors. How a NBFI performs financially has critical effects on the economic growth of a country. When a NBFI performs relatively well, investors are rewarded for their investment. This, therefore, encourages more investment and brings about economic growth.

In the last two decades, studies have shown that NBFIs in Sub-Saharan Africa (SSA) are more profitable as compared to the rest of the world with an average Return on Assets (ROA) of 2% (Flamini *et al.* 2009). World Bank and International Monetary Fund (1999) identified the role of NBFIs as strengthening an economy because they provide "multiple alternatives to transform an economy's savings into a capital investments which act as backup facilities to commercial banks."

Botswana's financial system has experienced a change in its structure over the past decade. It has transformed from being a reasonably uncompetitive duopoly (which included; Barclays Bank and Standard Chartered) in the late 1980s to a more competitive system with the entry of new financial institutions during the 1990s and introduction of innovative products and services. (Jeffries and Tacheba, 2009).

Although the relationship between financial Sector development and economic growth has been examined in many developing countries, the bulk of the studies are mainly concentrated in the area of commercial banks. Specific studies addressing the causal link between non-bank financial institutions and economic growth in sub-Saharan African countries are very scarce. Non-bank financial institutions increase competition in the financial

sector; hence, promote economic efficiency through increased financial intermediation. However, to meet the objective of promoting economic efficiency, and to maintain a healthy andstable financial system, both banks and non-bankingfinancial institutions have to bewell-developed and offer a wide-range of financial services and products. The necessity of promoting the development of the non-bankinginstitutions is important for any developingeconomy, including the Botswana economy. Therefore, it is necessary to understand the behaviour of non-bank financial institutions because of their importance to economic growth and development. This paper is designed to assess the factors that determine the financial performance of non-bank financial institutions sub-sector in Botswana. Specifically, the paper:

i) Identifies and establish the effect of selected variables on the financial performance of the non-bank financial institutions sector in Botswana

ii) Draws policy conclusions that will help promote the growth of the non-bank financial sector in Botswana.

The next section briefly discusses previous studies and section three discusses the empirical methods. Section four presents the empirical results and section five summarises and makes conclusions and policy recommendations.

2. REVIEW OF LITERATURE

Although many studies have been undertaken to analyse the factors that determine the financial performance of commercial banks, only a few have focused attention on non-bank financial institutions.

Ongeri (2012) investigated the effect of selected macroeconomic variables on the financial Performance of non-bank institutions in Kenya. The study employed Return on Assets (ROA) as a measure for financial performance against the macroeconomic variables such as average quarterly interest rate, inflation rate, GDP growth rate and currency exchange growth rate. The study employed correlation and regression analysis, and found out that Return on Assets of NBFIs has a positive and significant relationship with currency exchange growth rate and a weak positive relationship with quarterly GDP, inflation rate and average quarterly interest rate. In a similar study, Mwangi (2013) showed that a negative insignificant correlation exists between Return-On-Assets and annual inflation rate, real exchange rate, and annual average lending rate in the aviation industry in Kenya.

Sufian and Razali (2008) analysed the determinants of profitability of NBFIs in Malaysia. The results suggest that NBFIs with higher risks have lower profitability level than those with lower risks, but those with high

operational costs usually experience higher profitability margins. The results also show that specialization does not significantly influence NBFIs profit margins in the country. Similar study by Rahman and Raul (2008) show that only liquidity conditions and operational efficiency significantly influence NBFIs' profit margin in Bangladesh. Also, Mazumder (2015) shows that net profit as a performance indicator is significantly influenced by the institution size, operating expenses, term deposits and total equity.

From the above studies, it is evident that the determinants of financial institutions profitability differs according to the level of development, and cross country differences in macroeconomic and institution specific. However, it has been consistently shown that ROA, Returns-On-Equity (ROE) are two dependent variables that are used to measure the profitability of a financial institution (NBFI). The macroeconomic variables mostly used in these studies are inflation, GDP, and interest rate. The institution specific variables include size, capital adequacy, or liquidity and deposit ratio.

3. METHODOLOGY

In this section, the theoretical framework and the empirical model are discussed.

3.1.Theoretical framework

This paper follows both the market power and efficient market theories. Market Power Theory captures the role played by internal (institutional-specific) variables in the performance structure of NBFIs while the Efficient Market Theory captures the effects of external (macroeconomic) variables on the financial performance of non-bank financial institutions.

The market power (MP) theory states that only firms with large market share and well-segregated portfolio (product) can win their competitors and earn a monopolistic profit. Moreover, the theory suggests that increased external market forces result in profits. Furthermore, Athanasoglou *et al.*, (2005) states that the MP hypothesis proposes that the performance of a financial institution is influenced by the market structure of the business industry. The market power theory has two approaches; the Structure-Conduct-Performance (SCP) and the Relative Market Power hypothesis (RMP). According to the SCP approach, the level of concentration in the financial transactions market gives rise to possible market power by financial institutions, which may elevate their profitability. Financial institutions in more concentrated markets are most likely to make "abnormal profits" by their ability to lower deposits rates and to charge higher loan rates because of monopolistic reasons, than firms operating in less concentrated markets, regardless of their efficiency (Tregenna, 2009). The RMP hypothesis postulates that bank or non-bank profitability is influenced by market share.

It assumes that only large banks with differentiated products can influence prices and increase revenues. They are able to exercise market power and earn non-competitive profits. A firm with MP has the capacity to independently affect either the total quantity or the prevailing price in the market. The firm usually has market power by virtue of controlling a large portion of the market. Vatiero (2010), argued that highly concentrated markets may be contestable if there are no obstacles to entry or exit, this therefore limits the incumbent firm's ability to increase its price above competitive levels. Market power gives firms the capacity to engage in anti-competitive behaviour. If no individual participant in the market has significant market power, then anti-competitive behaviour can take place only through collusion, or the exercise of a group of participants' collective market power.

The efficient market hypothesis (EMH) states that at any period of time in an efficient market, asset prices fully reflect all available information and competition will cause the full effects of new information on intrinsic values to be reflected instantly in actual prices as quoted by Ortiz, Cabello, Jesús, & Johnson (2005). Using this concept in financial sector context then, the EMH postulates that some firms earn high profits because they are more efficient than others, and that past prices and volume of data have no relationship with the future direction of security prices; hence, one cannot use past prices to make above average returns on earnings.

According to Athanasoglou *et al.*, (2005), more efficient firms are more profitable because of their lower costs. These firms usually gain larger market shares, which may result in higher levels of market concentration, but without any causal relationship between concentration and profitability. The approach emphasises economies of scale rather than differences in production technology or management. Larger firms can have a lower cost per unit and higher profits through economies of scale. This permits large firms to gain market shares.

3.2.Model Specification

This paper adopts a panel regression model to analyse the impact of the selected factors on the financial performance of NBFIs in Botswana. The study uses balanced panel data, as each non-bank financial institution has an equal number of observations over the chosen time period. A Hausman specification test was conducted to determine whether random or fixed-effect estimation is appropriate. However, according to the rule of thumb of the Hausman test, if the number of cross-section is greater than the time (period), the best estimate to use is that of a random effect estimate otherwise fixed effect is preferred (Gujarati and Porter, 2009). Saona (2011) observed that the main advantage of using panel data that it is more efficient over

time-series and cross-sectional data as it contains more degrees of freedom, more variability and less collinearity among variables.

Past studies that examined the relationship between profitability and different explanatory variables followed panel linear regressions, either dynamic or static in their methodologies such as Athanasoglou *et al.* (2008), Mirzaei (2011), Goddard *et al.* (2004) and Flamini *et al.* (2009). The methodologies used in this study are both the static and the dynamic model. Previous literature which utilized the static model usually applied OLS methods on Random or Fixed Effects.

The specification of the static econometric model used in the study is based on the empirical works, and models suggested by Demirgüç-Kunt and Huizinga (1999), Flamini *et al.* (2009) and Obamuyi (2013).

Five explanatory variables were included in the regression analysis. The general empirical model takes the following form;

$$ROA_{i,t} = C + \alpha X_{i,t} + \beta Z_t + \varepsilon_{i,t} \quad (1)$$

$\varepsilon_{i,t} = V_{i,t} + U_{i,t}$

Where:

$ROA_{i,t}$; is the measure of the financial performance of the ith financial institution in a particular year t. This was measured by the Return-On-Asset (ROA) of a financial institution.

'C' is the intercept, 'α' and 'β' are the slope parameters for internal(institution-specific) and external(macroeconomic) variables of a financial institution respectively.'X' represents the internal (institutional specific) factors of a financial institution, which included; firm size, capital adequacy and management efficiency. 'Z' represents the external (macroeconomic) factors of a financial institution

$\varepsilon_{i,t}$ is the error term with $V_{i,t}$ representing the unobserved institution-specific effect and $U_{i,t}$ is the idiosyncratic error that varies over time between non-bank financial institutions.

Previous panel data studies have found out that firm profits tend to indicate persistence over time. That is; current firm profits depend on the profits from the previous year (Athanasoglou, Brissimis and Delis, 2008). This is due to market structure imperfections and/or the high sensitivity of firm profits to macroeconomic shocks which are serially correlated (Berger *et al*., 2000: Flamini *et al.,* 2009). Remoundous and Mamatzakis (2003) argued that an OLS estimation method produces inconsistent and biased estimates in dynamic relationships. Therefore, the study will adopt a dynamic model(a three-stage least square) approach to form the basis of our estimation which will include a one-period lagged value of the dependent variable, among the independent variables. This is done

in order to account for the time persistence of profits and specified as follows:

$$ROA_{i,t} = C + \delta ROA_{i,t-1} + \alpha X_{i,t} + \beta Z_t + \varepsilon_{i,t} \quad (2)$$

Where:

$ROA_{i,t-1}$; is the one-period lagged profitability measure and δ is the coefficient which measures the speed of adjustment to equilibrium. δ has a value between 0 and 1, this implies that profits are persistent; however, they will eventually return to their equilibrium level. A value close to zero shows a high speed of adjustment (thus a fairly competitive industry), whereas a value close to 1, indicates a very slow adjustment speed.

3.3.Definition and description of variables included in the model

Following Sufian and Chong (2008), Flamini *et al*., (2009), Scott and Arias (2011), Ongeri (2012), and Abbasoglu, Aysan and Gunes (2007), this study uses 'ROA' as the dependent variable. The ROA according to Bank of Botswana, (2013b) is defined as the ratio of after-tax profit as a percentage of total assets. The ratio measures the earning capacity of the firm's assets against amount invested in assets. According to Hassan and Bashir (2003), the ROA is used as a reflection of how well management utilised the institutions financial and real investment resources to generate profits. And thus, higher ratio shows the higher performance of the firm. Olalekan and Adeyinka (2013) suggest that financial performance of a financial institution is best measured by ROA as it is not distorted by high equity multipliers. Also ROA represents a better extent of the ability of a firm to make profits on its portfolio of assets. Flamini et al. (2009) also considered ROA as the key proxy for financial performance, instead of the alternative return on equity (ROE), because an analysis of ROE disregards financial leverage and the risks associated with it.

The institution specific variables include firm size, capital adequacy and management efficiency, while the macroeconomic variables include GDP growth rate, inflation rate and money supply.

Firm size (FMS). This variable accounts for the effects and presence of economies and diseconomies of scale. Theory suggests that because market structure affects firm performance a larger institution may be more efficient and enjoy larger earnings from providing services at a lower cost, (Rasiah, 2010a). On the other hand, economic theory argues that increased diversification leads to higher risks, and this may have negative effects on a firm's performance. That is, an institution enjoys economies of scale up to a certain level, beyond which diseconomies of scale set in. Thus the relationship is non-linear, (it can be positive or negative). (Athanasoglou *et al.,* 2005; Dietrich and Wanzenrid, 2009; Flamini *et al.,* 2009; Naceur and

Omran, 2011). To account for the possibility of a non-linear relationship between firm size and profit, we capture firm size by using the log of firm size and its square.

Capital Adequacy Ratio (CAR)

According to (Athanasoglou *et al.* 2005) capital is the amount of own fund available to upkeep the firm's business and act as a buffer in case of adverse situations. Therefore capital acts as a safety net in cases of firm losses, as greater firm capital reduces the chance of firm distress (Diamond and Raguram, 2000). However, Beckmann (2007) argues that high capital results in low revenues since firms with a high capital ratio are risk-averse; they ignore potential (risky) investment opportunities. Capital adequacy ratio is directly proportional to the resilience of the firm in times of economic downturns. It has also a direct effect on the financial performance of institutions by determining its exposure to risky but profitable ventures (Sangmi and Nazir, 2010). The relation between capital and financial performance is ambiguous, as some studies found a positive relationship (Flamini *et al*, 2009; and Obamuyi, 2013), while (Kapunda and Molosiwa, 2012) and (Berger 1995b) found a negative relationship.

Management Efficiency (MGTE):Is the ratio of total operating expenses to total assets of an institution. The fraction of operating expenses to total asset is expected to be negatively related to financial performance of a firm. (Athanasoglou *et al*. 2005) explains that this ratio can be used as a proxy for management quality; that is, when expenses are high, it is a reflection of poor management efficiency and therefore the low performance of the financial institution. However, when the level of operating expenses is low, management is efficient and profits will be high.

GDP growth rate (GDP):GDP growth rate represents the total economic activity in a country and it is adjusted for inflation. It is used as a proxy for the business cycle in which firms operate, and controls for changes in earnings owing to differences in business cycles, which then affects the demand and supply for deposits and loans (Osman, 2011; Obamuyi, 2013).A positive relationship between Real GDP growth rate and the profitability of a financial institution is expected. Bikker and Hu (2002) argue that a positive economic growth facilitates high demand for credit that in turn positively affects the financial institute's profitability. Contrarily, the demand for lending is low during recessions which negatively affect the profitability of financial institutions.

Inflation Rate (IFR):Inflation rate shows the general price level in the economy and measured in terms of changes in consumer prices. Inflation has an impact on both the real value of costs and revenues. The impact of inflation on the financial performance of a firm can be negative or positive, depending

on whether inflation was anticipated or unanticipated. If the financial institutions anticipated well the inflation, the institutions will adjust interest rate to make sure that revenues exceed the costs; in this case, a positive relationship will be expected. If inflation on the other hand was not anticipated the costs increase more rapidly than revenues (Flamini *et al*., 2009). A positive relationship between inflation and profitability of NBFIs is expected.

Money Supply (MSS): is represented by the broad money supply (M2/GDP). The relationship between money supply is expected to be positively related to NBFIs profitability. This is because, as an economy has more money circulating in the economy, the money can be channelled to productive investment and more savings to the NBFIs.

3.4.Data sources

There were 3455 Non-Bank Financial Institutions registered with, and reported in NBFIRA's Statistical Bulletin of 2014. Of this number 7 life insurance companies, 11 general insurance companies, 2 re-insurance companies, 16 brokers, and 4 pensions/retirement fund companies were selected. The selection was based on the number of years these institutions have been in operation in the country. Secondary data is used for each non-bank financial institution for the period 2010-2014. The data is sourced from the financial reports of all the respective non-bank financial institutions, from the NBFIRA Statistical Bulletin (2014), Bank of Botswana and World Bank financial data.

3.5.Pre-estimation tests

To gauge the adequacy and reliability of the data, the following pre-estimation tests were carried out.

- Multicollinearity Test
- Unit Root Test
- Hausman Test
- Autocorrelation Test

4. PRESENTATION AND DISCUSSION OF EMPIRICAL RESULTS

The section presents and discusses the empirical results of the study. It starts with the descriptive statistics and then proceeds to the estimated parameters.

4.1.Descriptive statistics

Table 1 presents the summary statistics of the variables. These include the mean, standard deviation and minimum and maximum values of the variables

Table 1
Descriptive statistics of the variables

	No. of observations (1)	*Mean (2)*	*Maximum (3)*	*Minimum (4)*	*Standard deviation (5)*
ROA	150	0.06	0.43	-0.38	0.12
FMS	150	18.94	23.04	15.39	1.82
MGTE	150	0.15	1.04	0.04	0.18
CAR	150	0.48	5.63	0.01	0.81
GDP	150	0.06	0.09	0.04	0.02
IFR	150	0.06	0.08	0.04	0.02
MSS	150	0.07	0.11	0.04	0.03

Source: Authors' estimations

Looking at the ROA as the key measure of non-bank financial institutions financial performance (profitability), it shows a positive mean of 6 percent. This indicates that most of the non-bank financial institutions have lower levels of profitability. It is also noteworthy that among the variables log of firm size (FMS) has the greatest variation, with mean of 18.94 and a standard deviation of 1.82. This could be due to the fact that the sample includes non-bank financial institutions with different sizes in terms of total assets. Some institutions in the sample are well established and have accumulated assets thus having big sizes while others are newly established NBFIs which have small sizes.

On average the growth rate of GDP is positive, with a maximum GDP of 9% in 2013 and a minimum of 4% in 2014. The yearly inflation on average is 6% and has reached a maximum of 8%.

4.2.Multicollinearity Tests

High degrees of multicollinearity can result in regression coefficients being inaccurately estimated and difficulties separating the influence of individual variables on the dependent variables. (Hair *et al.* 1998). Correlation matrix and the Variance-Inflation Factor (VIF) are used to test for the existence of multicollinearity in this study.

Correlation coefficients between the variables are shown on Table 2

Table 2
Variables Correlation Matrix

	ROA	*FMS*	*MGTE*	*CAR*	*GDP*	*IFR*	*MSS*
ROA	1						
FMS	-0.0187	1					
MGTE	-0.0648	-0.3467	1				
CAR	-0.2379	-0.2497	-0.1156	1			
GDP	0.0959	-0.0375	-0.0294	-0.0411	1		
IFR	-0.0139	-0.0877	-0.0475	0.1768	0.0564	1	
MSS	0.1228	-0.0246	-0.0431	-0.1651	0.8615*	0.680	1

Source: Authors' computations

The results reported in Table 2 suggest that there is a problem of high multicollinearity between money supply (MSS) and inflation rate (IFR), and between GDP and money supply (MSS).. Kennedy (2008) points out that that multicollinearity is a problem when the correlation is above 0.8. The correlation matrix table above suggests that there could be high multicollinearity between money supply and GDP growth rate (correlation coefficient of 0.8615).

Another way to test for correlation was to use the variance inflation factor (VIF). A VIF of more than 10 indicates high correlation; hence, indicates the presence of multicollinearity problem (Gujarati and Porter, 2009).

In Table 3, the results of VIF and tolerance factor shows that there is evidence of high multicollinearity between money supply (MSS) and GDP growth rate. Gujarati and Porter (2009) stated that high multicollinearity has the following remedial measures; one is to drop one of the highly collinear variables and see if that improves the model. Another one is to just use all the variables if economic theory speculates so. The values of VIF of money supply and GDP growth rate are 20 and 10 respectively suggesting the presence of multicollinearity among the variables in the model. In this paper, money supply variable was dropped in order to deal with the problem of high multicollinearity.

Table 3
Variance Inflation Factor (VIF)

Variable	R^2	*VIF*
ROA	0.08	1.06
FMS	0.23	1.29
MGTE	0.19	1.23
CAR	0.23	1.29
GDP	0.90	10.00
IFR	0.07	1.08
MSS	0.95	20.00

Source: Authors' computations

4.3.Panel Unit Root Test

A visual plot of the variables was used to determine which unit root test to conduct. Each variable was plotted to check whether it has an upward/ downward trend over the time or not. If the individual variable series does not follow a pattern, then it is preferable to estimate the model of the unit root test without a trend.

From the graphs, all the variables do not show a time trend except for inflation. Therefore only inflation series were estimated with a trend.

The panel unit root tests utilised in this study includes the Levin, Lin and Chu (LLC) (2002),and Im,Pesaran and Shin (IPS) (2003) that are recommended for a balanced panel. The natural logarithm of firm size and GDP were taken into account to standardize the data and prevent the problems brought about by outliers in the data before the unit root tests were carried out. The LLC and IPS panel unit root results are presented in Table 4 below.

Table 4
Unit Root test results

		LLC		*IPS*	
Variable	*Order of Integration*	*Individual effects (Intercept only)*	*Individual effects and Trend*	*Individual effects (Intercept only)*	*Individual effects and Trend*
ROA	I(0)	(-50.0493)*		(-18.838)*	
FMS	I(1)	(-2.6961)*		(0.4232)	
MGTE	I(0)	(-15.5153)*		(-3.6609)*	
CAR	I(0)	(-51.9177)*		(-7.4701)*	
GDP	I(0)	(-16.7174)*		(-5.7969)*	
IFR	I(1)		(-136.912)*	-	(-18.5361)*
MSS	I(0)	(-16.3323)*		(-5.5789)*	

Source authors' computations
Note: values in the parentheses in columns 4 to 6 are the associated t-values.
Where: * indicates significance at 1% level, ** significance at 5% level, *** significance at 10% level.

All the test produced stationary variables in levels, for all variables except for firm size(FMS) and Inflation (IFR) which where stationary at first difference I(1).

After performing the unit root test and results confirming that there is no unit root present in the data, a Hausman's test was conducted to choose the appropriate estimation technique for the data between the Fixed Effects Model (FEM) and the Random Effects Model (REM).

4.4.The Hausman Test Results

The Hausman test was used to decide whether the Fixed Effect or Random Effect model is best suitable for the data, under the static model. Under Fixed Effects model the error terms are considered fixed parameters to be estimated, whereas under a Random Effects model the error term is assumed to be random (Baltagi, 2008).

The results obtained from the Hausman test shows that a p-value of the chi-square statistic is 1.This shows that the chi-square statistic is insignificant at 10%, 5% and 1% significance level. Therefore we fail to reject the null hypothesis of Random Effects model. This implies that the RE model

is the appropriate choice for this study and will be estimated. The next section will present the results of the random effects model.

4.5.Econometric results

The results of the econometric estimation are presented on Table 5.

Table 5
Econometric Results

Dependent Variable ROA				
	Coefficient (2)	*Standard Error (3)*	*t-statistic (4)*	*P-value (5)*
MGTE	-0.322	0.068	-4.681	0.000
FMS	0.104	0.182	0.568	0.572
FMS2	-0.003	0.004	-0.661	0.511
lag1CAR	-0.023	0.009	-2.539	0.014
lag2CAR	-0.026	0.009	-2.752	0.008
IFR	-0.017	0.021	-0.844	0.403
lag1GDP	-0.460	0.472	-0.972	0.335
C	10.134	11.48	0.882	0.382
Weighted Statistics				
R-squared	0.459365	Mean dependent var		0.015922
Adjusted R-squared	0.377095	S.D. dependent var		0.045580
Prob (F-statistic)	0.000107	Sum squared resid		0.059529
F-statistic	5.583597	Durbin-Watson stat		1.769937

Source: Authors' computations

In the static RE model above, a one and two period lag was introduced to the firm size, annual GDP growth rate, and capital adequacy explanatory variables. Economic theory and previous empirical studies were used to base the decision on which explanatory variables to lag. Gujarati and Porter (2009) argued that economic agents take time to adjust and react to changing conditions in the economy; therefore, some variables might have an influence on other variables after some time.

The Durbin-Watson statistic is 1.76, which indicates the absence of serial correlation, as its value is close to two. The p-value of the F-statistic for the RE model is 0.000107. This means that the null hypothesis that parameters are jointly equal to zero is rejected at 1% significance level. This suggests that more than one variable in the model explains the variation in ROA. The $R^2$of the model is 0.459. This means that 45.9% of the variation in ROA is explained by the chosen explanatory variables.

The estimated results show that there is a negative, but significant relationship between Capital adequacy ratio and NBFIs' with profitability. The coefficient of capital adequacy is significant at first lag, and shows a higher significance level at second lag. This suggests that the profits that are gained by NBFIs are not immediately used for reinvestment or to hedge

against risky conditions, and NBFIs only use their capital to hedge against risky conditions, such as bad loans or for reinvestment only after a considerable lag.

Similarly, there is a negative, but significant relationship between management efficiency and profits. This implies that as management efficiency increases NBFIs profits decrease in Botswana. The possible reason is that improvement in management efficiency has cost implications for NBFIs, hence, reduction in profits.

Both the RE and Three-Stage-Least Squares model results show that firm size has an insignificant influence on profitability in Botswana. This implies that the size of NBFIs in Botswana does impact profitability. This was also supported by Athanasoglou *et al.* (2008), and Sufian Chong (2008), who found an insignificant influence of firm size on profitability in Europe and Philippines.

4.5.Results of the Three-Stage-Least-Squares (3SLS) estimation

The three-stage-least-squares (3SLS) is viewed as a more appropriate dynamic model in order to overcome the problem of biasness and inconsistent estimates produced by the Random Effect Model, as suggested by Arellano and Bond (1991), and that the estimators lack efficiency as a result of not exploiting all the available instruments. However, efficiency of estimates can be achieved by using the lagged value of the dependent variable (in our case the lagged value of ROA), plus the lagged values of the independent variables as instruments.

Table 6
Three Stage Least Squares

	Coefficient (2)	*Standard Error* (3)	*t-statistic* (4)	*P-value* (5)
C(1)	0.100	0.065	1.542	0.127
C(2)	0.518	0.081	6.399	0.000
C(3)	-0.012	0.024	-0.529	0.059
C(4)	-0.164	0.080	-2.059	0.043
C(5)	0.014	0.106	0.131	0.895
C(6)	-0.013	0.006	-0.466	0.783
C(7)	1.347	0.923	1.458	0.149
C(8)	-0.018	0.009	-1.909	0.060

Equation: ROA= C(1) + C(2)*ROA(-1)+ C(3)*CA(-1) + C(4)* Mgte + C(5)*D(FMS)+ C(6)*(FMS2) + C(7)*D(GDP)+ C(8)*INFLTN
Instruments: ROA(-1) CA(-1) Mgte(-1) FMS(-1) GDP(-1) INFLTN(-1)

Number of Observations: 150
R-squared: 0.5074
Adjusted R-Squared: 0.4535
D W: 1.851

The lagged ROA coefficient is significant at 1% level, which confirms the dynamic nature of the model specification. Furthermore the coefficient is positive, which shows a moderate persistence of profit and the highly significant value of the coefficient implies that in Botswana's financial system there exist a fairly competitive structure in the non-bank financial sector. This shows that non-bank financial companies in Botswana are able to preserve a substantial amount of their revenue from one year to another. This results were also reported in empirical studies done by Flamini et al (2009) for Sub-Saharan Africa and Athanasoglou et al. (2008),however they were contradictory to the findings of Goddard et al. (2004) who found out that the statistical evidence for profit persistence was weak among the European banks.

As with the RE model, coefficients of both management efficiency capital adequacy ratio were negative, but significant. The negative coefficient of management efficiency implies that an increase in operation costs reduces the non-bank financial institutions' profits. The negative effect could be due to the fact that the management only passes a smaller portion of the increase in operation cost to customers while the remaining part of the cost reduces their profits, possibly because of competition among the numerous NBFIs in Botswana. This result is consistent with the findings of such William (2012), Athanasoglou et al. (2008), and Obamuyi (2013).

The negative sign of capital adequacy ratio implies that NBFIs in Botswana do not adequate capital to hedge against profit downturns and that NBFIs do not have the average capital for a safe and sound NBFI sector. This is evidenced by the report during the year of study there has been seven liquidated insurance companies, and a total of six acquisition transfers, which included three pension funds and three general insurance companies, and that twenty five micro lenders ceased their operation citing among others challenges of high operational costs and low capital to expand their business opportunities.

With the macroeconomic variables, only inflation rate has a significant effect on the profitability of NBFIs in Botswana. The empirical results show that inflation as a proxy of annual change of the Consumer Price Index negatively and significantly affects profitability. This could be due to either NBFIs do not have adequate capital to hedge against inflation or their inability to forecast the future movements of inflation rate accurately; hence, losing out on the opportunity to adjust their interest rates accordingly to reflect the general increase in price levels so as to increase their profits. Similar findings were also obtained by Sufian and Chong (2008), and Abreu and Mendes, (2002). However, on contrary the study by Athanasoglou et al (2005), Al Manaseer (2007) found a positive relationship between inflation and profitability in Greece and Middle East countries respectively.

5. CONCLUSION

This research endeavours to investigate the effect of institution-specific and macro-economic variables on the financial performance of non-bank financial Institutions in Botswana.

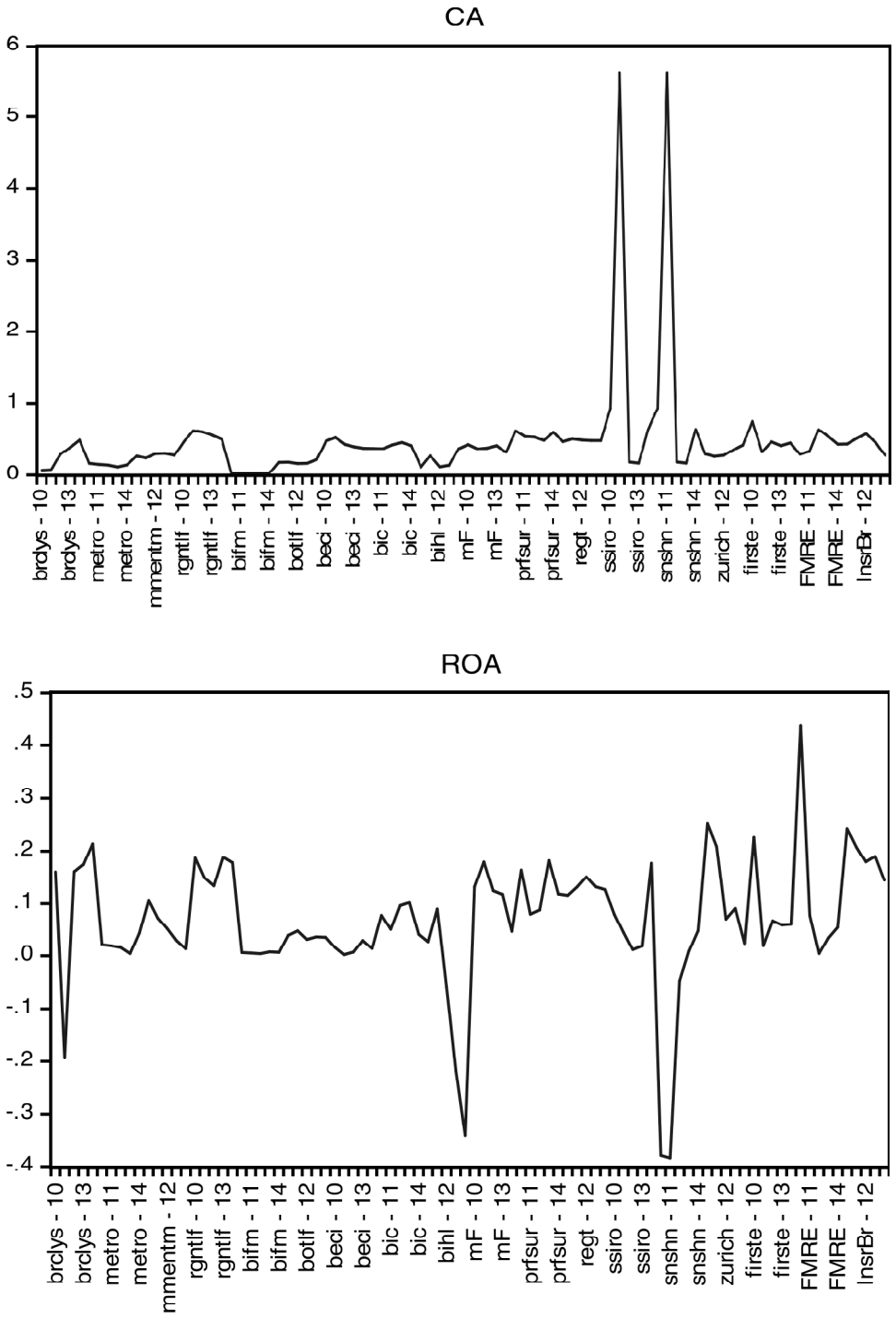
Financial performance (profitability) is measured by Return on Assets (ROA) variable in this study. Firm-size, capital adequacy and management efficiency were the institution-specific variables, while Real GDP growth rate and inflation were taken as macro-economic variables. The analysis employed both the Random Effect static model and the Three-Stage-Least-Squares Dynamic model. Generally, most of the variables were found to be significant determinants of NBFIs' financial performance in Botswana. However, these results add to the notion of ambiguity of the determinants of financial performance of NBFIs. Of specific interest in the empirical findings is the negative relationship between management efficiency and NBFIs profitability. Suggesting that NBFI managers should focus on efficient cost management to improve NBFIs financial performance in the country.

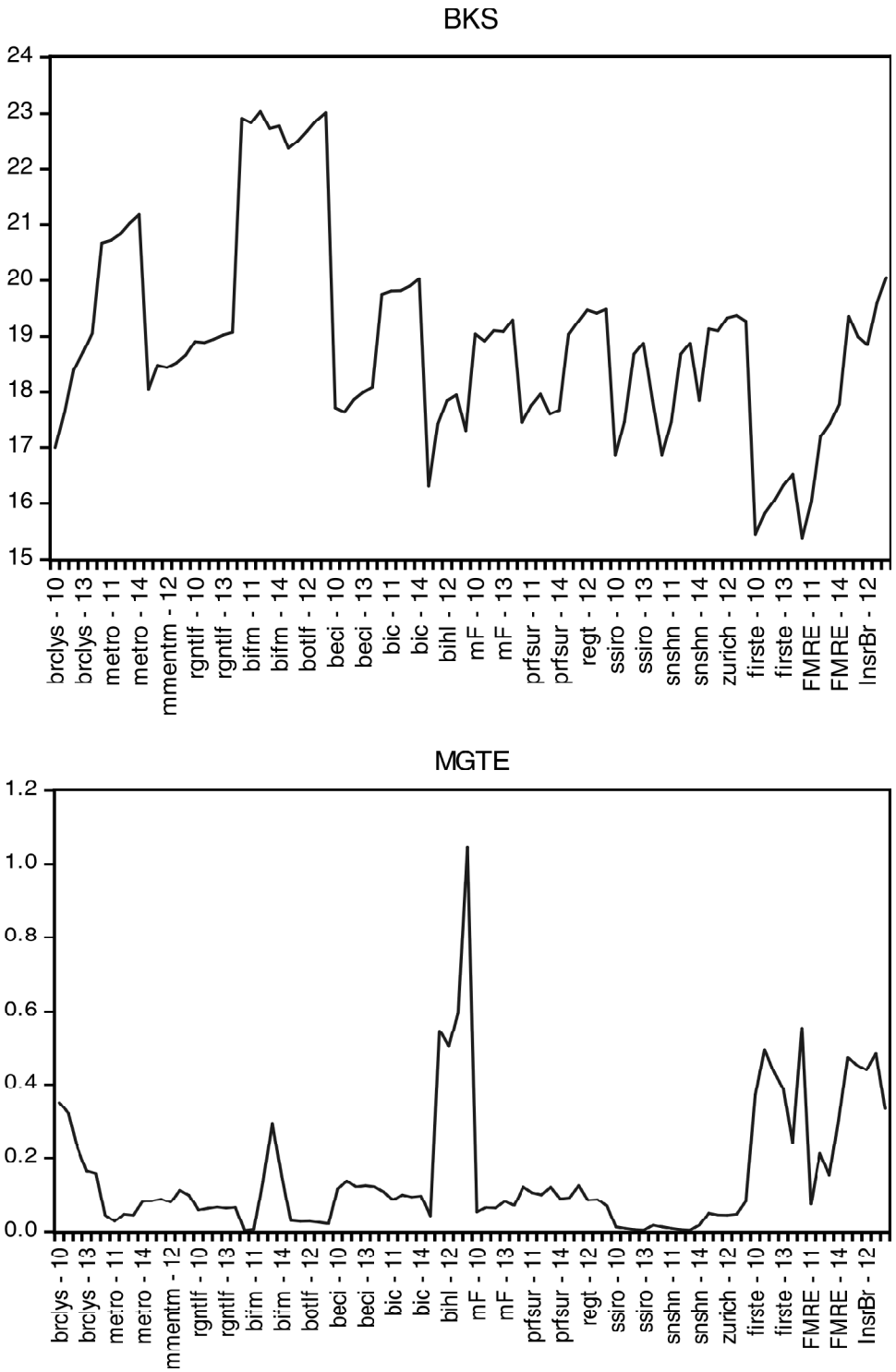
The empirical finding of both capital adequacy and inflation being negative, but significant determinants of NBFIs' financial performance in Botswana suggests that NBFIs do not have enough capital to hedge against the risk of bad loans and unanticipated inflation.

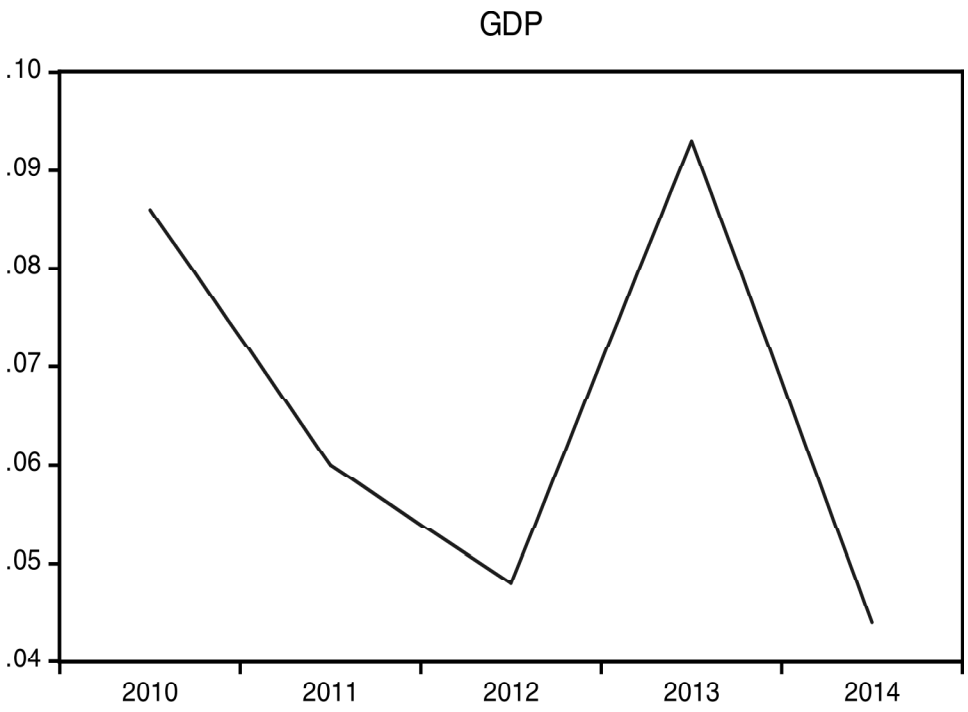
The findings show that Real GDP growth rate from 2010 to 2014 had no significant effect on the financial performance of NBFIs in Botswana. This suggests that although Real GDP has been growing in Botswana, the positive impact could have only been realised by the commercial banks of the country.

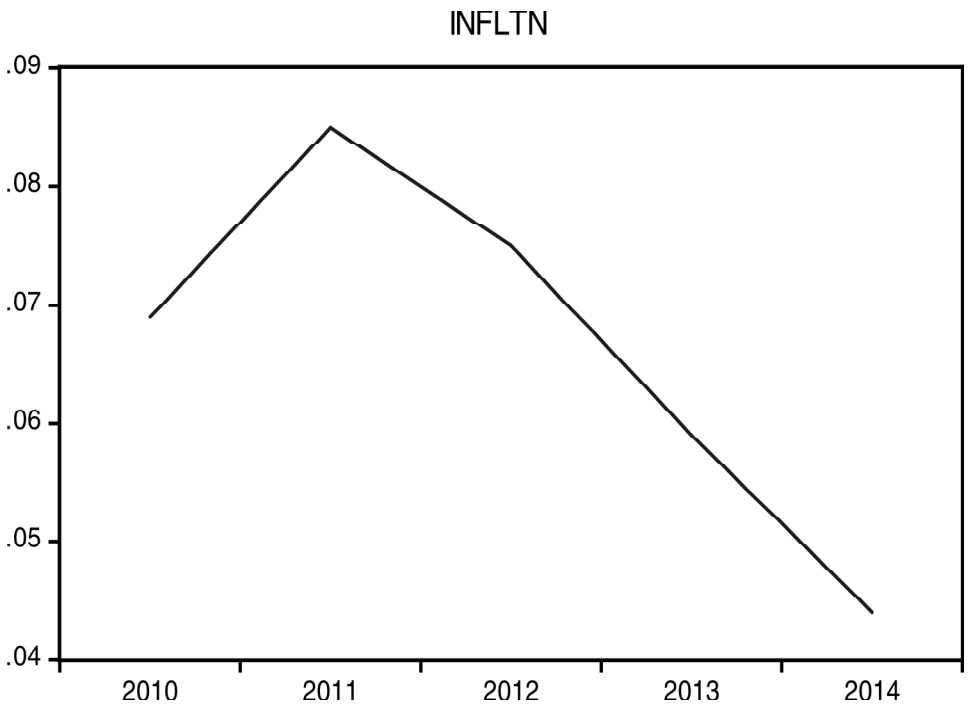
The findings further provide an idea that the one period lagged ROA; that is retained profits from the previous year has a major influence on profitability in the NBFI sector in Botswana. This is indisputably true, as firms profits are also an important source of equity. Therefore, an increase in NBFIs' revenue base will consequently lead to higher overall profits and promotes financial stability.

Appendix I: Panel Unit Root Tests Results (Visual plot of the variables)




BKS
24
23
22
21
20
19
18
17
16
15
brclys - 10
brclys - 13
metro - 11
metro - 14
mmentm - 12
rgntlf - 10
rgntlf - 13
bifm - 11
bifm - 14
botlf - 12
beci - 10
beci - 13
bic - 11
bic - 14
bihl - 12
mF - 10
mF - 13
prfsur - 11
prfsur - 14
regt - 12
ssiro - 10
ssiro - 13
snshn - 11
snshn - 14
zurich - 12
firste - 10
firste - 13
FMRE - 11
FMRE - 14
InstrBr - 12
MGTE
1.2
1.0
0.8
0.6
0.4
0.2
0.0
brclys - 10
brclys - 13
metro - 11
metro - 14
mmentm - 12
rgntlf - 10
rgntlf - 13
birm - 11
birm - 14
botlf - 12
beci - 10
beci - 13
bic - 11
bic - 14
bihl - 12
mF - 10
mF - 13
prfsur - 11
prfsur - 14
regt - 12
ssiro - 10
ssiro - 13
snshn - 11
snshn - 14
zurich - 12
firste - 10
firste - 13
FMRE - 11
FMRE - 14
InstrBr - 12


GDP
.10
.09
.08
.07
.06
.05
.04
2010
2011
2012
2013
2014


INFLTN
.09
.08
.07
.06
.05
.04
2010
2011
2012
2013
2014

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