



DEPARTMENT OF ECONOMICS

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

BY

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DECLARATION

I hereby declare that the contents of this thesis are based on my original work, except for citations which are fully referenced. I also certify that this study has not been done before in Botswana.

APPROVAL

This dissertation has been examined and approved as meeting the requirements for the partial fulfillment of the Master of Arts Degree in Economics.

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DEDICATION

I dedicate this research project to my lovely mother, who offered me unconditional love, support and encouragement to proceed with this programme despite the challenges I came through.

“I am forever grateful mom”.

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LIST OF ABBREVIATIONS AND ACRONYMS

BoB	Bank of Botswana
BSE	Botswana Stock Exchange
DCI	Domestic companies Index
EMH	Efficiency Market Hypothesis
EU	European Union
GDP	Gross Domestic Product
NBFI	Non-bank financial Institution
NBFIRA	Non-bank financial Institution Regulatory Authority
NDP	National Development Plan
OLS	Ordinary Least Squares
RMP	Relative Market Power
ROA	Return on Assets
SCP	Structure Conduct Performance
SSA	Sub-Saharan Africa
VIF	Variance Inflation Factor

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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 201-2014. The non-bank financial institution financial performance is estimated using both panel random effects method and Three Stage least squared dynamic. 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.

CHAPTER ONE

INTRODUCTION

1.0 Background

The financial sector is one of the important sectors in an economy and has a significant impact on the development and productivity of other sectors. It 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 of Botswana is separated into two sectors: the banking sector, and the non-bank financial sector. This study focuses on factors influencing the financial performance of the Non-bank financial sector in Botswana. According to Saunders and Cornett (2011), 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. 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.

However, NBFIs specialise in providing alternative financial services, financial brokering, risk pooling, consultation and money transmission. Examples of non-bank financial institutions include; pensions and insurance companies, pawn shops, stock exchange market and microloan firms.

A competent financial system aids economies to grow, partly by broadening access to external finance that then help direct resources to the sectors that 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. NBFIs are vital as they introduce competition in delivering financial services. Commercial banks offer a set of financial services as a bundled deal, whereas NBFIs unbundle and shape these financial services in order to be able to meet the requirements of specific clients (Ongeri, 2014). Furthermore, most NBFIs specialize in a single specific sector and hence develop an informational advantage. Through the process of targeting, and specializing, NBFIs enhance competition within the financial services industry.

NBFIs also play an important role in the economic resource allocation of countries as they channel funds from depositors to investors continuously. Investorwords (2015) defined financial performance “as the level of performance of a firm, conveyed in terms of overall net profits and losses over a certain period of time. It is a term used to refer to how well a firm utilises its resources to give returns to its investor’s (Ongeri, 2014).It can be measured by the Return on Assets (ROA) or the Return On Capital Employed (ROCE). Al-Tamimi, (2010) and Aburime, (2005) argued that the determinants of non-bank financial institution 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. Since the Great Depression in the 1930’s the financial performance analysis of Non-Bank Financial Institution has been of great importance to academic research. 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 investment which act as backup facilities should the commercial banks which mostly are the leading form of intermediation fail.

NBFIs also enhance banks by providing the infrastructure to allocate surplus resources to companies and the public with deficits. Albertazzi and Gambacorta (2009) emphasized that identifying the determinants of a financial institution performance is an important predictor of unstable economic conditions. Athanasoglou *et al.* (2005) also pointed out that, a profitable financial system is likely to absorb the negative shocks, and so the stability of financial system. Finally, as Dietrich and Wanzenried (2009) discussed; identifying the main factors on non-bank performance may help the management and shareholders to present professional plans and achieve their long-term aims more rapidly. Diamond (1984) put emphasis on the fact that a financial system with a higher diversification of services spread their lending risks and reduce the monitoring costs and hence increase their profits.

1.1 Problem Statement

The financial system is one of the most vital sectors of the economy as it facilitates the transfer of limited loanable funds from surplus to deficit economic sectors for use in investment and consumption. By enabling lending and borrowing, the financial system hence

provides an impetus to economic growth. Several authors (Levine, 1997, Loayza, and Beck, 2000, Demirgüç-Kunt and Asli, 2001, Rajan and Zingales, 1998) have argued that the degree of financial sector development is an important driver and contributor to economic growth by converting deposits into productive investments. Furthermore, Beck and Levine (2000) proved that regarding a country with a developing financial system, the degree of financial development is linked not only with the present growth but also with the future economic growth. Botswana's financial sector has been developing in both size and range of financial products and services in recent years. 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. With the entry of new financial institutions during the 1990s, the sector transformed to a competitive environment and introduced innovative products and services. (Botswana Financial Sector Overview, 2009). The most developments have been the growth of the pension funds industry, an increase in innovation and advanced technology, and direct loaning by the government. In 1996, the Government's Public Debt Service Fund was by far the largest financial institution in Botswana. Owing to the establishment of a new pension fund scheme for government employees, in 2008, assets share of pension funds industry increased from 11 percent to 31 percent, (Botswana, NDP9 Report).

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 are important in the development of the financial sector in the sense that they are of much more importance as a destination for household savings. Non-bank financial institutions also increase competition in the financial sector and thus promoting economic efficiency through increased financial intermediation and economic growth. Therefore to maintain a healthy and stable financial system, both banks and non-banking financial institutions have to be well-developed and offer wide-ranging financial services and products. The necessity of promoting the development of the non-banking institutions is important for any developing economy, including the Botswana economy. It is thus of importance to understand the behaviour of non-bank financial institutions because of their importance to economic growth and development.

1.2 Motivation of the Study

In Botswana, the Non-Bank Financial Institutions represents a small fraction in the financial sector. In a country where the commercial banks dominate the financial, failure in the system will adversely impact the economic growth of a country. Bankruptcy in the financial sector will have a contagion effect that can lead to financial crises, bank runs and real sector losses. However, a multi-faceted financial system that includes non-bank financial institutions can shelter economies from financial shocks and aid speedy recovery when these shocks take place (Claessens, 1998). Also, given the goal of Botswana of being the leading country regarding the stability of the financial system in the Southern African region, and given the role of the NBFIs to the improvement and diversification of the financial system in Botswana, due to increased competition. This thereof motivated this study, on the factors influencing the financial performance of NBFIs in Botswana.

1.3 Objectives of the Study

The general objective of the study is to assess the factors that determine the financial performance of non-bank financial institutions sub-sector in Botswana.

1.3.1 Specific Objectives

- To identify and establish the effect of selected variables on the financial performance of the non-bank financial institutions sector in Botswana
- To draw policy conclusions that will promote the growth of the non-bank financial sector in Botswana.

1.4 Significance and Scope of the Study

The financial industry in Botswana has been a vital accelerator to the growth of other industries and sectors through their intermediation role of regulating the demand and supply of credit. Although there are studies that have been done in Botswana on the factors influencing the profitability of banking industry, there is no study that exclusively focused on the NBFIs which forms part of the financial system other than commercial banks. Given the importance of the NBFIs sector, to the improvement of a country's economic growth, it is therefore, imperative to understand the factors that influence the sector's performance. This study's dataset covers 30 non-bank financial institutions in Botswana for the period 2010 to 2014. This paper would help fill a major literature gap and also provide empirically supported findings, which are expected to be of importance for policy implementation.

1.5 Organization of the Study

The study is presented in six chapters. Chapter two entails the economic background and the developments of Botswana's financial sector with much emphasis on the Non-bank Financial Sector. The third chapter presents a critical review of the relevant theoretical and empirical literature, i.e. evidence from past related studies carried out elsewhere. Chapter four will discuss fully the econometric methodology adapted to analyse the profitability of non-bank financial institutions in Botswana; it also gives the data type and source. The estimation and discussion of the empirical results are reported in chapter five. Finally, chapter six reports the summary of the findings, policy implications and recommendation(s) from the study findings.

CHAPTER TWO

AN OVERVIEW OF THE FINANCIAL SECTOR IN BOTSWANA

2.0 Introduction

This chapter presents an overview of the financial sector in Botswana with more emphasis on the non-banking financial sector. The chapter is divided into two sections: an overview of the Botswana's financial sector development and the development and structure of the non-bank financial sector.

2.1 Botswana's Financial Sector Structure and Development

The financial sector in Botswana has been a key accelerator to the growth of other industries and sectors through their intermediation role of regulating the demand and supply of credit. The development in this sector a few years prior to independence was slow. At the time Botswana gained her independence, only two commercial banks operated; Barclays Bank and Standard Chartered Bank. After gaining independence, Botswana did not have a central bank; hence it was part of the South Africa Monetary System and used the South African Currency. With the discovery of diamonds in Botswana, the mining sector led to the growth of the economy. The government then saw it imperative to have an independent monetary policy and currency so as to manage revenue from diamond exports. In 1975, the central bank (Bank of Botswana) was established, and local currency (Pula) was introduced in 1976. (Amusa and Kayawe, 2003). The financial sector in Botswana comprises of both the banking and Non-Bank Financial Institutions, (NBFIs) sectors. The Non-bank Financial Institution sector is regulated by the Non-bank Financial Institution Regulatory Authority (NBFIRA) which was created in 2008 include; pension funds, insurance Industry, stock exchange and other investment advisory services, as well as micro-lending businesses.

Botswana has a small but thriving financial sector that has experienced significant growth in the past decade; this is primarily a reflection of the significant accumulation of national resources and the associated high degree of liquidity. The country's financial sector has a range of financial institutions, with pension funds and commercial banks being the two most important segments as measured by asset size. The government is actively promoting further development and growth of the financial sector, having identified it as one of the significant sectors of activity to promote economic growth and diversification efforts

(Overview of the Botswana Banking Sector, 2009). The financial system in Botswana by the commercial banking, even though the sector has also realised a rapid growth and development of the NBFi industry of the financial sector, such as insurance and pension funds (Botswana Financial Sector Overview, 2009/10).

2.2 The Development and Structure of the Non-Bank Financial Sector

In April 2008, the Non-Bank Financial Institutions Regulatory Authority (NBFIRA) was established. It is the country's regulator for insurances, pensions and capital markets.

The regulatory was established in the National Development Plan 10 framework. This was in line with Botswana's development vision of setting the country to become the financial service hub of Southern Africa region. The establishment and expansion of the Non-Bank Financial Institutions (NBFi) Sector plays a vital part in attaining these goals.

One of the essential steps that the government saw as important towards achieving the country's economic diversification strategy in the financial sector was setting up an efficient and well-organised regulator for NBFi sector. NBFIRA aims at promoting the safety and soundness, fairness and efficiency of the non-bank financial sector, and therefore enhancing its attractiveness. Currently, the NBFIRA has six members of the Board appointed by the Minister of Finance. Previously the NBFi sector was regulated by the Ministry of Finance and the Bank of Botswana, the Permanent Secretary in the Ministry of Finance and the Governor of the Bank of Botswana. The NBFi sector is an imperative contributor to the Botswana economy in terms of the Gross Domestic Product (GDP), employment and also in terms of its linkages to other sectors, including investment facilitation. The sector encourages entrepreneurship - through available business and funding opportunities - which assists to develop the economy. It considers that entrepreneurs and businesses need funding to, establish and harness their business ideas, for financial development, innovation and establishment and expansion of business projects.

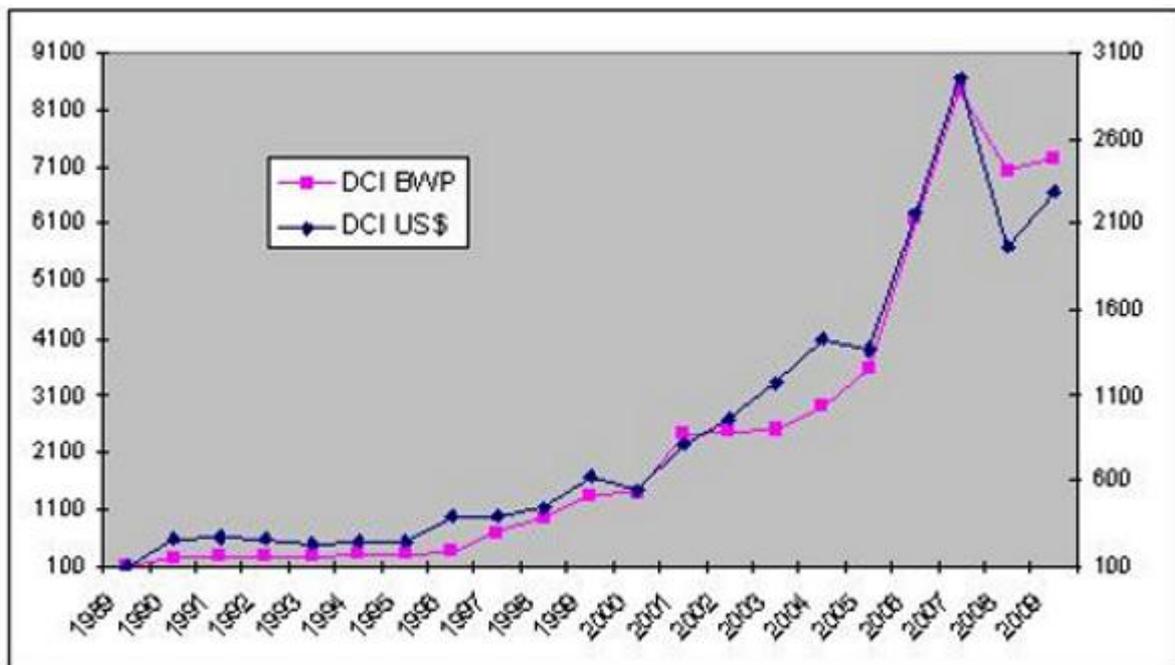
The NBFi Sector in Botswana has experienced rapid growth over the last five years, with the Pension funds industry developing to become one of the significant sectors of the financial system. Over the past 20 years, the legal framework for the pension systems has provided a good basis for the development of the sector. Since the development of the Pension and Provident Funds Act in 1987, 159 pension funds operate in Botswana, with total assets amounting to 60% of GDP with total assets of some US\$4.5 million (Botswana National Development Plan 9). In 2009, the Pension Fund industry realised a growth of 7% which was 3% above GDP growth. The insurance sector In Botswana is also relatively well developed

and supervised. By July 2002, the insurance industry showed some growth from 4 insurers in 1999 to 12 insurers, 75 corporate insurance agencies and 18 insurance brokers. Between 1997 and 2001, the assets of the insurance industry increased from P780 million to P2.9 billion. In 2010, the sector had total assets equivalent to 16 percent of GDP and insurance premiums amounting to 3.4 percent of GDP. The total assets of pension and insurance companies combined accounted for 49.5 percent of GDP as at July 2014. (NBF Annual report, 2014).

Botswana Stock Exchange

The BSE was formally established in 1995 after passing the BSE Act with the responsibility to operate and regulate the equities and fixed interest market in Botswana. The BSE is an essential market for the country’s financial system, specifically the capital market. The capital market is a vital sector in the non-bank financial industry which provides an opportunity where the government and the private sector can raise capital by debt or through issuing of stocks (equities).

Figure 1: Botswana Stock Exchange DCI (pula and US Dollar)



Source; Botswana Stock Exchange Website

The BSE has been doing relatively well over the past years. Its Domestic Companies Index (DCI) has been increasing from 1989 to 2007, as seen in the graph above. The Stock

exchange then experienced a decline in DCI in 2008. This was common in most stock markets in the world as this was the time of global economic recession.

The BSE has turned out to be one of the best performing stock exchanges in Africa, with an aggregate return averaging 24% from 1990-2008 (Botswana financial sector review, 2008). It has also grown to be the third largest stock exchange in Southern Africa in terms of market capitalization. Even though the BSE has less than 40 listed companies (as at January 2016), companies listed represent a wide range of the economic sector such as; manufacturing, banking, property, mining, retail, Tourism and Information Technology. In 1999, the government of Botswana eliminated all the exchange controls, this, along with stable currency and well performing stock market made the financial sector in the country to attract global investors looking for returns. The government of Botswana has taken a number of good initiatives in order to improve the capital market.

In April 2000, the BSE was established as an independent Secretariat. This was done so that the BSE can be more responsive to global events and remain competitive and better serve its stakeholders (Botswana Review, 2000). In 2007, the BSE also established a Central Securities Depository (CSD) as a way of injecting liquidity into the BSE, thus; making it easier and quicker to process buying and selling of securities transactions in the capital market. These developments enhanced competition, gave customers a greater choice and innovations in services and products. The Stock Market Capitalization increased from 60.8% of GDP in 2008 to 87.6% in 2009.

2.3 An overview of Botswana's Economy

Among the SSA countries, Botswana has been able to achieve high economic growth rate for the past 40 years, through its blossoming diamond deposits. Botswana's key to sustainable development and economic growth centres' on good governance, sound macroeconomic policies and good management of its natural resources (UNCTAD, 2003). The nation has been committed in implementing sound economic reforms, prudent macroeconomic management of monetary and fiscal policies. To get a view of the structure of an economy, its GDP or national income is one of the prominent features usually used. Graph 1 below will give us the trend of GDP growth for the selected years in Botswana.

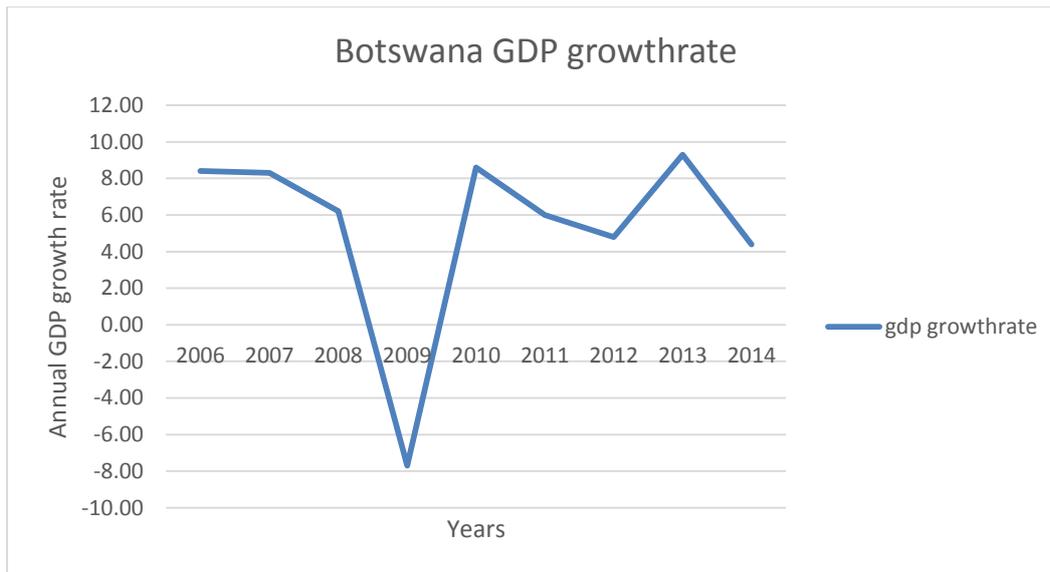


Figure 2: Botswana GDP Growth Rate

The figures above shows the GDP annual growth rate of Botswana within the period of 2008 and 2014. The county's national Income registered a positive growth in 2008; however a negative growth of (7.7%) was registered in 2009. This was mainly due to the global financial crisis, which led to the collapse of world demand for diamonds. Although the crisis led to the country's real GDP contradicting in 2009, with the aid of timely prudent policies, the nation's economy rebounded in 2010 with real GDP growth reaching 8.4% in 2010.

CHAPTER THREE

LITERATURE REVIEW

3.0 Introduction

The goal of this section is to establish what literature, (both theoretical and empirical) academic and all available sources of data to assistance get a better understanding of the financial performance of non-bank financial institutions and the determinants of or factors that influence their financial performance. The theoretical literature addresses theories and models which focused on the financial performance of the non-bank financial sector. Whereas the empirical literature will focus on the evidence obtained from the past and recent studies related to the subject matter.

Given that the determinants of a financial institutions' performance can be classified into institutional specific (internal) and macroeconomic (external) factors (Al-Tamimi, 2010; Aburime, 2005); Internal factors are individual features which have an influence on the financial institute's performance. These factors are influenced mainly by internal decisions of business management and the board. The external factors are sector-wide or country-wide factors which are beyond the control of the company and have an influence on the profitability of firms such as interest rate, economic growth, inflation, population rate and unemployment rate. (Ally, 2013) (Athanasoglou *et.al* 2005) (Francis, 2011) (Mirzaei, 2011) (Ongeri, 2014).

3.1 Theoretical literature

Market power theory

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 MP 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 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. Vatiello (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.

Efficient Market Theory

This market theory that was developed by Fama (1970), the Efficient Market Hypothesis (EMH) states that at any period of time in an efficient market, asset prices fully reflect all available data 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 Efficient Market Hypothesis (EMH) postulates that firms earn high profits because they are more efficient than others. The theory states that past price 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), using the EMH, more efficient firms are more profitable as a result 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 from concentration to 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, which may patent in higher concentration and then profitability.

Although the ES theory is regarded as the cornerstone of modern financial theory, is highly controversial and often disputed. In support of the theory, evidence from investors, such as Warren Buffett has regularly beaten the market, which by definition is impossible according to the EMH theory (Bourke, 1989). Critics of the ESH pointed to events, such as the 1987 stock market crash when the Dow Jones Industrial Average (DJIA) dropped by over 20% in a single day, as an indication that security prices can extremely diverge from their fair values.

Pecking Order Theory

The pecking order theory was proposed in 1984 by Myers and Majluf. The theory assumes that there is asymmetric information, that is, managers in non-bank financial institutions have inside information about the firms' value and risks than the outside investors. The theory predicts that firms prefer internal financing to external financing (i.e. by issuing of securities such as shares). If the need for external financing rises, a company will prefer the least risky securities for raising external funds/capital. In particular companies will deploy default-risk-free debt which is the safest to external equity which is the riskiest. Accordingly the pecking order theory predicts a negative correlation between profitability and leverage. The theory suggests that non-bank financial institutions will use retained earnings as first resort of investment and the move to bonds and equity last, thus profitable firms will make use of debt far less. Many empirical studies have found that leverage is negatively related to the profitability of a firm. Rajan and Zingales (1998) , Demirgus-Kunt and Maksimovic (2001), Helwedge and Liang (1996). Haung and Song (2006) are in support of the pecking order theory and argued that more profitable firms will use more debt as they have greater need to shield the income from corporate taxes.

3.2 Empirical Literature Review

Empirical literature on the factors affecting the financial performance of banks has been done in different countries, while some focused on a regional basis. However most the studies focused on the performance of commercial banks, only a few focused on the NBFBI sector. The findings on the factors affecting the financial performance of a firm were different among studies. This may be due to the fact that different countries will be affected by different factors.

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, as macroeconomic variables. The study employed correlation and regression analysis, and found out that Return on Assets of NBFIs has a positive significant relationship with currency exchange growth rate and a weak positive relationship with quarterly GDP, inflation rate and average quarterly interest rate.

Mwangi (2013) embarked on a research in non-financial sector, where the study was on the macroeconomic variables that influenced the financial performance of aviation industry in Kenya. The study found out that there is a negative insignificant correlation between Return on Asset and annual inflation rate, real exchange rate, and annual average lending rate. The study also concluded that macroeconomic factors influence the financial performance of firms in the aviation industry in Kenya at 20 percent, level of significance (5%).

Sufian and Razali (2008) analysed the determinants of profitability on NBFIs in a developed country: empirical evidence from Malaysia. The Author found that “Non-bank financial Institutions in Malaysian with higher risks display lower profitability level. Also, large Malaysian NBFIs which have high operational costs exhibits higher profitability level, thus supporting the structure-conduct-performance hypothesis”. The author also stated that specialization had no significant relationship with Malaysian NBFIs profitability.

Rahman and Raul (2012), in their research paper titled “Non-Bank Financial Institution’s Profitability Indicators: Evidence from Bangladesh” analysed factors affecting the profitability of companies in the NBFIs industry of Bangladesh. The study used net profit as their profitability indicator. Financial Expense, Current Asset, Interest Income, Long term liability and Operating revenue were used as independent variables. The study employed statistical techniques such as correlation matrix and multiple regression analysis to determine the relationships between the dependent variable and the independent variables. The study used quarterly panel data for all the listed companies in the NBFIs sector from 2008-2011. The results indicated that their chosen independent variables explain more than 98.30% changes in net profit of non-bank financial institutions in Bangladesh. From the results, Liquidity Condition and Operating Efficiency had a significant effect on Profitability of Non-Bank Financial sector in Bangladesh.

Mazumder (2015) also investigated the stimulants of profitability of non-bank financial institutions: evidence from Bangladesh, using annual panel data on 6 companies

from the year 2005-2014. The study used net profit as the profitability indicator and firm size, operating expenses, term deposits and total equity as independent variables. It employed the panel regression and correlation matrix to determine the relationships between variables. The results indicated that about 94.90% fluctuations in the net profit are explained by the selected independent variables. The results concluded that all the independent variables except operating expenses have a strong and positive relationship with the dependent variable.

According to Athanasoglou *et al*(2008), examined the bank-specific, industry-related and external determinants of the profitability of credit institutions in South Eastern European (SEE) region. The dataset was unbalanced panel for over the period of 1998-2002. Using Return on Asset as a measure of bank profitability the study employed both the static and three-stage least squared dynamic model of specification. The study results indicates that credit risk, equity, overheads efficiency, bank size, foreign ownership had a statistically significant influence on profitability, while liquidity was the only bank-specific variable which was insignificant. With regard to macroeconomic explanatory variables, inflation was found out to be of importance, and carried a positive coefficient. This suggests that bank managers in SSE region where able to forecast well inflation, hence bank revenue increased more than bank expenses.

Pervan *et al* (2015) applied a dynamic model specification to determine profit persistence and factors influencing bank profitability in Croatia. This study was carried out over the period of 2002-2010. The findings that profit persist in Croatia, and (credit risk, size, operation expense management) and inflation and GDP growth have significant contribution to the profitability of croatian banks. That is, the success of Croatian banks is influenced by bank-specific, industry-specific and macro-economic factors.

According to Pasiouras and Kusmido (2007) examined the factors influencing the profitability of commercial banks in the European Union for the period of 1995-2001. The study used balanced panel to investigate how internal and macro-economic characteristics affected bank profitability in the EU, using Return on Asset as a measure of bank profitability. The study employed a fixed effects regression after applying the Hausman test. The study concluded that capital adequacy and management efficiency in handling bank expenses are the main determinants of bank profitability, as they have relatively high significant coefficients. Regarding external independent variables, GDP and Inflation had a positive and significant influence on bank profitability. However firm size had a negative but

significant coefficient. This shows that there is economies of scale and scope for smaller banks or diseconomies of scale for the smallest banks.

Sufian (2011) examined the influence of internal (institution-specific) and macroeconomic variables on the profitability of Korean commercial banking sector during the pre- and post-Asian financial crisis. The research analysed the data using panel random and fixed effect regression technique.

The results indicated that regarding macro economic variables, inflation has a positive significant relationship with the Korean banks profitability. This implies that Korean banks were able to anticipate inflation well during this period of study, and this enabled them to adjust their interest rates and earn higher returns. The results also showed a positive significant association between Stock Market Development in Korea and bank profitability. This implies that Korean Stock Market presents an indirect opportunity for Korean banks to finance their banks through issuing of equities.

Using balanced panel data, Saeed M.S (2014) did a study titled “Bank-Related, Industry related and Macroeconomic factors affecting bank: A case of the United Kingdom” using a data set of 73 commercial, for the period of 2006-2012. The study employed Return on asset and Return on Equity as the main profitability indicators. The results were analysed using a panel Fixed Effect model and ANOVA. With regard to macroeconomic variables, the results showed a negative significant association between Inflation, GDP and bank profitability both at 5% significance level. The negative relationship between inflation and bank profitability suggests that lower level of inflation rate can attain a competitive advantage and thus can realize higher bank returns. The regression results also showed a positive and significant association between firm size, capital ratio, deposits, loan interest rates and liquidity and bank profitability in the United Kingdom commercial banks.

Francis (2011) investigated the determinants of commercial banks in Sub-Saharan Africa. The study used unbalanced panel data for the period of 1999 to 2006, drawn from 42 countries, giving a sample data of 216 commercial banks. The study employed a panel random effects model used to analyse data. The chosen specific variables included capital adequacy, operational efficiency, growth in bank deposits and used inflation and GDP growth as their macro-economic independent variables. Return on Assets and Return on Equity, where used as the main profitability indicators. The summary results indicate that both the internal and external variables chosen have an influence on the variation of bank profitability

in Sub-Saharan Africa. Specifically, the results show that capital adequacy, growth in bank deposits have a positive influence on bank profitability while Inflation and GDP have a negative influence on bank profitability in the SSA countries.

According to Gul, Irshad, Zama,(2011) examined the relationship between factors affecting bank profitability in Pakistan using data on top fifteen commercial banks in Pakistani for the period 2005-2009. The study used Return on asset, return on equity and net interest margin as the major profitability indicators. The study employed the pooled Ordinary Least Square (POLS) method to investigate the impact of factors such as loans, equity, deposits, economic growth, market capitalization and inflation on the profitability of the banks. The results showed that, Banks with more deposits, equity capital, Total Assets, Loans, and external factors; which included inflation, economic growth, and stock market capitalization have an advantage, and such it can therefore be translated into higher influence on profitability.

According to investigate (Ally, 2013) d the effects of internal and external factors on the financial performance of commercial banks in Tanzania, and used financial ratios, (ROA,ROE and NIM) to measure the profitability and liquidity of banks for the period of 7 years from 2006-2012. The results were analyzed using Analysis of Variance (ANOVA) to test the significance differences of profitability. The study found that there is no significant means difference of profitability among of peer banks groups in terms of ROA, though a significance differences among banks group was present in terms of ROE and NIM. The study further found out that the overall bank financial performance increased noticeably in the first two years of their analysis. A significant change in trend was also observed at the onset of the global financial crisis from 2008 to 2009.

CHAPTER FOUR

METHODOLOGY

4.0 Introduction

This chapter presents the methodology used in the empirical analysis of this study. This chapter also discusses the conceptual framework that informs the empirical model. The chapter also presents the model adopted in the study in order to be able to analyse and discuss the solution to the research objectives and arrive at conclusions, and be able to recommend policies. The data will be analysed using descriptive analysis, and panel regressions to answer the research objective using Eviews.

4.1 Theoretical Framework

With the distinct theories that try to explain the factors influencing financial performance of financial institutions, as discussed in chapter three (literature review). This study follows both the Market Power Theory because this theory captures the effects of internal (institutional-specific) and the Efficient market Theory by capturing effects of external (macroeconomic) variables on the financial performance of non-bank financial institutions in Botswana. The empirical model below was used.

Sample Population and Sources: The target population for this study as at 31st December 2014, the non-bank financial institutions sub-sector of Botswana. As of December 2014, the Non-Bank Financial Regulatory authority comprised of 3455 institutions. Because of data availability, the study used a sample size of 30 non-bank financial institutions, reported on the NBFIRA Statistical Bulletin (2014). The 30 NBFIs sample includes; 7 life insurance companies, 11 general insurance companies, 2 re-insurance companies, 16 brokers, and 4 pensions/retirement fund companies. This study used secondary data for each non-bank financial institution for the period 2010-2014. The data for institution-specific and macroeconomic variables is sourced from the financial reports of all the respective non-bank financial institution, from the NBFIRA Statistical Bulletin (2014), Bank of Botswana and World Bank.

4.2 Model Specification

The study adopts a panel regression model as an econometric 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 before deciding to which estimate to use, that is, whether it is a random or fixed-effect estimate. However, according to the rule of thumb of the Hausman test, if the number of R 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, 2009). Saona (2011) observed that the advantages of using panel data includes; 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).

The Model

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

$$ROA_{i,t} = C + \alpha X_{i,t} + \beta Z_t + \varepsilon_{i,t} \text{-----} (4.1)$$

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

Where ;

$ROA_{i,t}$; is the measure of the financial performance of the *i*th 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 = 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

$\varepsilon_{i,t}$ = 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 macro economic shocks which are serially correlated (Berger *et.al.*, 2000) and (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 regressors'. This is done in order to account for the time persistence of profits.

The Three Stage Least Squared dynamic model specification with lagged profitability will be specified as follows;

$$ROA_{i,t} = C + \delta ROA_{i,t-1} + \alpha X_{i,t} + \beta Z_t + \varepsilon_{i,t} \text{ --- (4.2)}$$

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.

4.3 Chosen Variables, Justification and Expected signs of Variables

4.3.1 Dependent Variable: *Financial Performance Measure*

Following Sufian and Chong (2008), Flamini *et al.*, (2009), Scott and Arias (2011), Onger (2012), and Abbasoglu, Aysan and Gunes (2007) among others, this study uses Return On Asset (ROA) as the dependent variable.

The Return on Asset according to the (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 & Bashir (2003), the ROA is used as a reflection of how well the 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. This is because ROA is not distorted by high equity multipliers and 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.

4.3.2 Independent Variables

Institution-Specific Variables

Firm Size

This is an important variable that influences the financial performance of an institution. It accounts for the effects and presence of economies and diseconomies of scale. Theory suggests that because market structure affects firm performance (Haron,1966), a larger institution may be more efficient and enjoy larger earnings from providing services at a lower cost (economies of scale). (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, the theory asserts that an institution enjoys economies of scale up to a

certain level, beyond which diseconomies of scale set in. Literature therefore, has shown that 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 their square.

Capital Adequacy Ratio

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, thus greater firm capital reduces the chance of firm distress (Diamond, 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 to 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 found to be 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: Management efficiency can be measured by assessing the efficiency in cost management. It is measured as a 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 with financial performance of a firm. (Athanasoglou *et al.* 2005) this ratio can be used as a proxy or 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, this implies that the management is efficient and profits will be high.

Macroeconomic Factors Affecting Financial Performance

Macroeconomic variables are factors that apply to a broad economy at a national or regional level and their effects affect a larger population, and have been argued to be the vital indicators of economic performance. From the relevant studies, It is often argued that financial performance is determined by some fundamental macroeconomic variables, and the

most external factors that affect financial performance have been found to be; GDP growth rate, Inflation rate and money supply. (Athanasoglou *et al*, 2008) (Ally, 2013) (Mirzaei, 2011)

GDP growth rate: GDP growth rate represents the total economic activity in Botswana 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 recession periods which negatively affect the profitability of financial institutions.

Inflation Rate: Inflation shows the general price level in the economy. In this study inflation will be 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). As some studies support, a positive relationship between inflation and profitability of NBFIs is expected.

Money Supply; In this study money supply will be 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.

Table 4.1: Variables, Definitions and their expected Signs

<i>Variable</i>	<i>Description</i>	<i>Expected Sign</i>
DEPENDENT VARIABLE		
Return on Assets (ROA)	Ratio of net income to total assets of an NBFIs	N/A
INSTITUTION SPECIFIC VARIABLES		
Capital Adequacy (CA)	Capital and reserve to total assets ratio	Positive/Negative
Management Efficiency (Mgte)	Ratio of total operating expenses to total assets	Negative
Firm Size (FMS)	Log of total assets	Positive/Negative
Firm Size Squared(FMS2)	Squared of log of total assets	Positive/Negative
MACRO ECONOMIC VARIABLES		
GDP Growth rate(GDP)	annual real GDP growth rate	Positive
Inflation Rate(Infltn)	Annual change of the CPI	Positive/Negative
Money Supply (MSS)	Broad money supply represented as a ratio of M2 to GDP	Positive

4.4 Diagnostic Tests

The following Test were Conducted;

4.4.1 Multicollinearity Test

This is a situation where two or more of the explanatory variables in a regression model are highly or moderately correlated (Gujarati and Potter,2009). When high multicollinearity exists, it poses some problems when estimating a model, such as increasing the variance of the coefficient estimates, making them highly sensitive to smaller changes in the model. It is therefore vital to detect multicollinearity to prevent such problems. Kennedy (2008) states that when correlation between variables is above 0.80, this indicates the presence of high multicollinearity. Variance Inflation Factor and Correlation coefficient matrix will be adopted in this study to check for the presence of multicollinearity between regressors.

4.4.2 Unit root Test

The presence of a unit root is one of the main concerns when dealing with panel data analysis. This is because if non-stationary variables are used in the analysis, this would result in spurious results and biased estimates. This would therefore lead to misleading results and hence produce improper conclusions.

4.4.3 Hausman Test

This test is used to decide which static panel model between Fixed Effects and Random Effects model is suitable for given panel data set. It tests the consistency and efficiency between the FE and RE estimators. This test is based on the significance or insignificance of the p-value of the chi-square statistics. If the p-value is significant at any given level, then the decision will be to reject the null hypothesis of Random Effect model and conclude that the Fixed Effects model is more appropriate for the data set. However, if the p-value is insignificant then we fail to reject the null hypothesis and conclude that Random Effects is more appropriate.

4.4.4 Autocorrelation Test

The Durbin-Watson (D-W) statistic was carried out to find out whether autocorrelation exists among the variables in the model. The existence of autocorrelation in the model implies that the estimated coefficients are biased, inefficient hence not reliable. The DW tests statistic is the most celebrated statistic for detecting serial correlation and it is also used for detecting some model specification errors such as mis-specified dynamics (Gujarati and Porter, 2009; O'Sullivan 1985). The limits of the DW statistic range from 0 to 4 in value. A value in close proximity to 2 indicates non-autocorrelation; a value near 0 indicates positive autocorrelation and a value towards 4 shows negative autocorrelation.

CHAPTER FIVE

DATA ANALYSIS, RESULTS AND INTERPRETATIONS

5.0 Introduction

This chapter presents the data analysis, estimation of the model of study, the tests conducted as well as interpretations of the results. Section 5.1 reports the descriptive statistics of the data analysed, and some statistical tests which enables us to understand the structure of the analysed data, such as multicollinearity test and the unit root tests. Section 5.2 provides the random effect model and the three-stage least dynamic model results and their economic interpretation. The conclusion of the chapter is reported in Section 5.3.

5.1 Descriptive Analysis

Table 1 presents the summary statistics of the dependent and explanatory variables (mean, maximum, minimum, Standard Deviation (Std dev) for all the variables.

Table 5.1 Descriptive Statistics

	Number of Observations	Mean	Maximum	Minimum	Std dev
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
CA	150	0.48	5.63	0.01	0.81
GDP	150	0.06	0.09	0.04	0.02
Infltn	150	0.06	0.08	0.04	0.02
MSS	150	0.07	0.11	0.04	0.03

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 since long periods 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 %.

5.2 Multicollinearity Tests

According to Gujarati and Potter, (2009) multicollinearity refers to the existence of a perfect and a less than perfect linear relationship between some or all explanatory variables in a regression model. 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 independent variables and the dependent variable are highlighted in table 5.2 below.

TABLE 5.2: Variables Correlation Matrix

	ROA	FMS	Mgte	CA	GDP	Infltn	MSS
ROA	1						
FMS	-0.0187	1					
Mgte	-0.0648	-0.3467	1				
CA	-0.2379	-0.2497	-0.1156	1			
GDP	0.0959	-0.0375	-0.0294	-0.0411	1		
Infltn	-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

The results reported in table 5.2 suggest that there is a problem of high multicollinearity between the variables, as there are two variables which are highly correlated. 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).

VIF is another method of testing for the possibility of multicollinearity. It does that by estimating how much the variance of an estimated parameter of the regression model increases if your predictors are correlated. A VIF of more than 10 indicates high correlation and hence refers to the presence of multicollinearity problem (Gujarati, 2003).

In table 5.3 below, the results of VIF and tolerance factor shows that there is evidence of high multicollinearity between money supply and GDP growth rate. Gujarati and Potter(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.

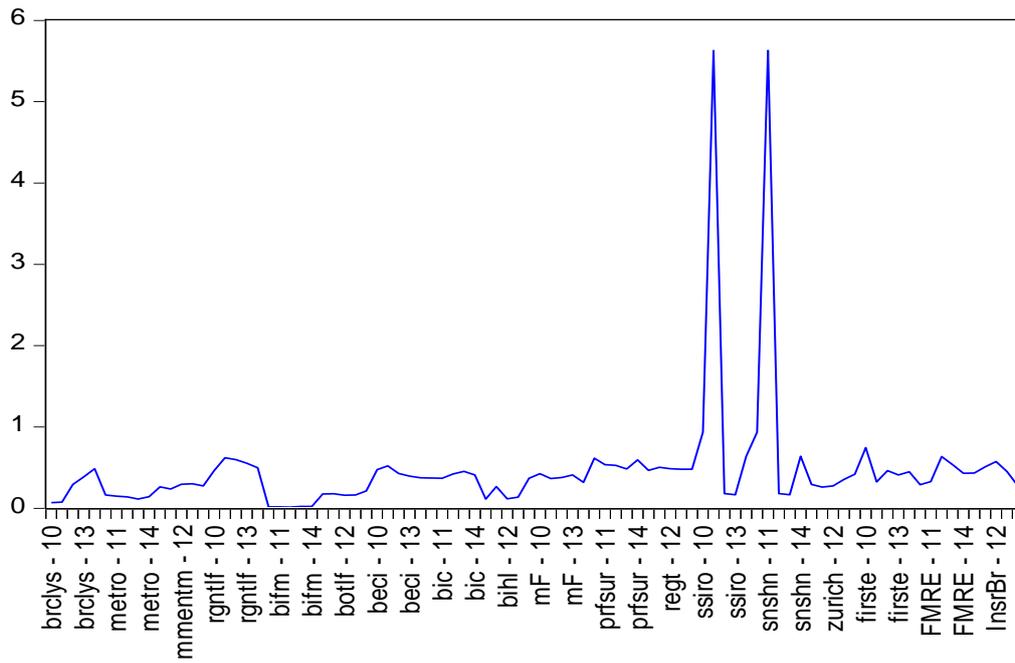
TABLE 5.3 : Variance-Inflation Factor Test

VARIABLE	R²	VIF
ROA	0.08	1.06
FMS	0.23	1.29
Mgte	0.19	1.23
CA	0.23	1.29
GDP	0.9	10
Infltn	0.07	1.08
MSS	0.95	20

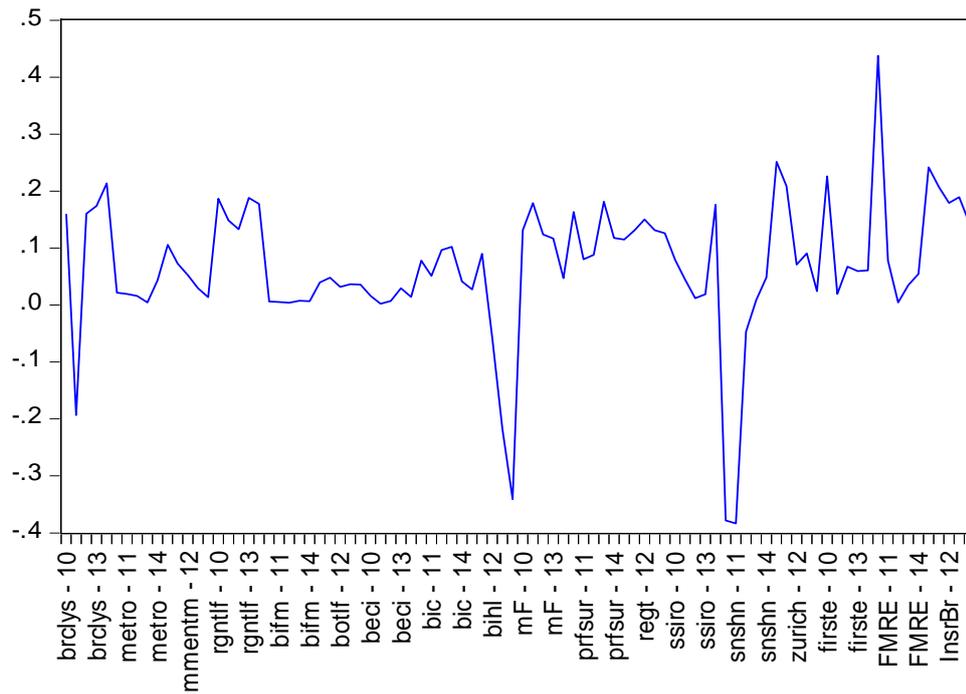
5.3 Panel Unit Root Test

In order to decide which form of unit root to do, (whether to conduct a unit root test that has an intercept or that which has a time trend or none) a visual plot of the data will be used as the first step. Each variable is 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.

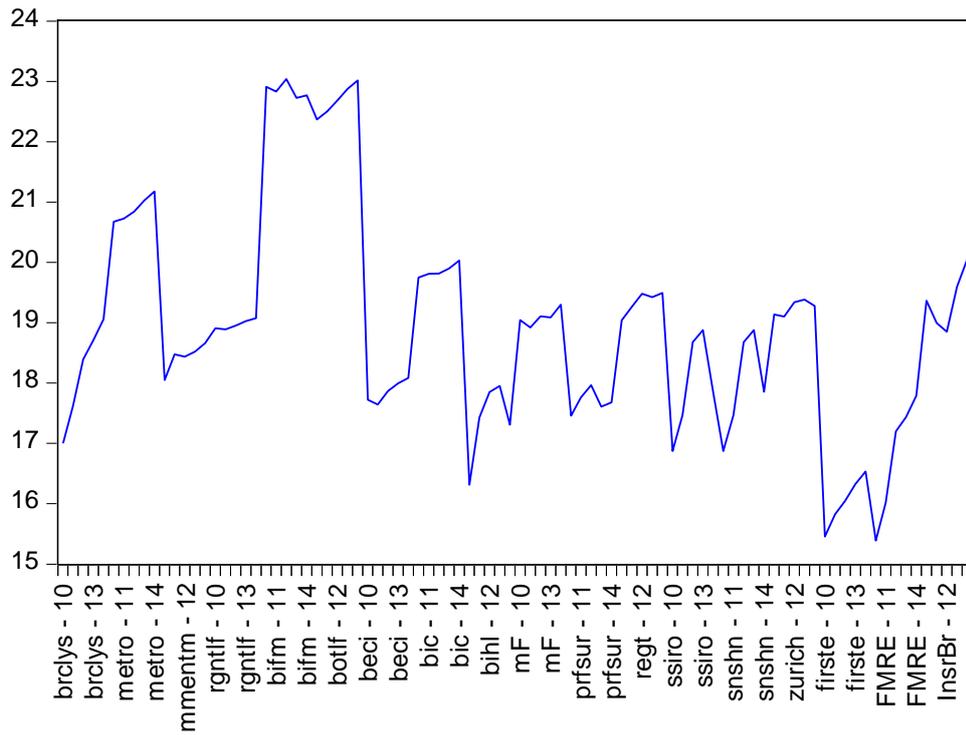
CA



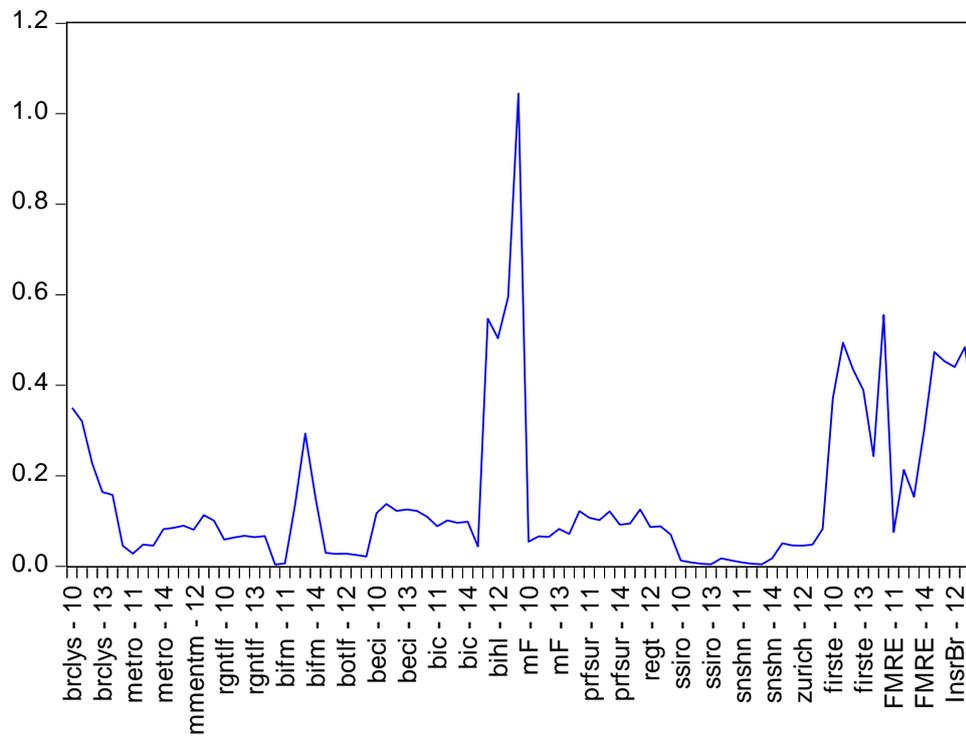
ROA

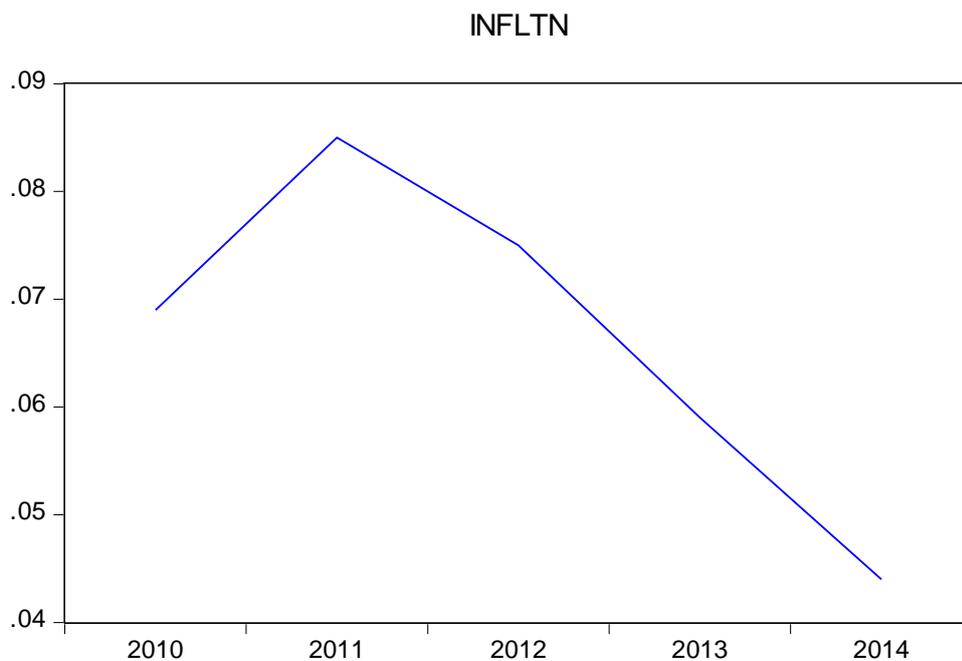
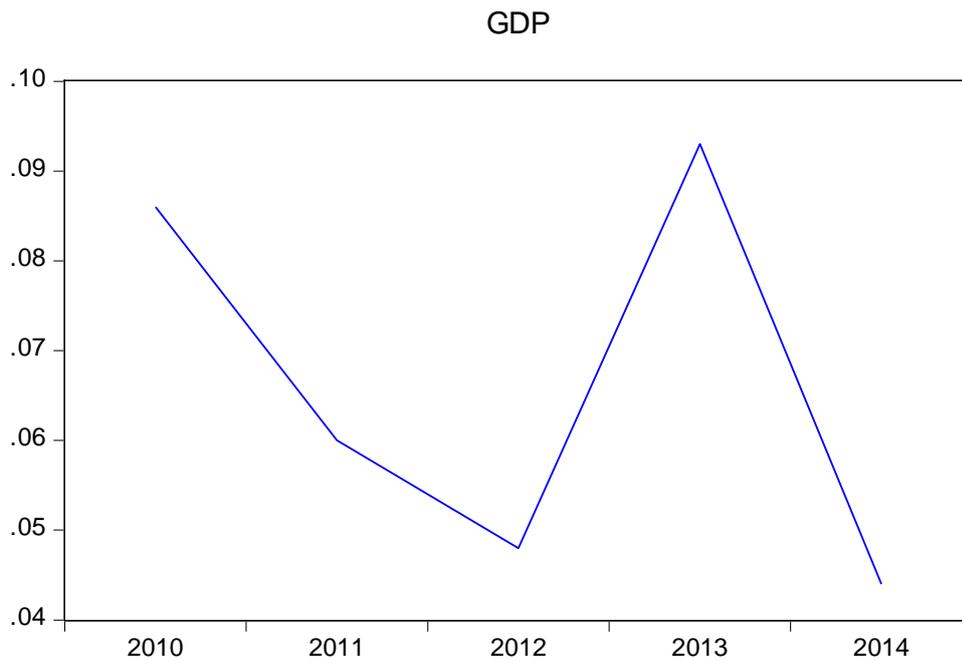


BKS



MGTE





From the graphs, all the variables do not show a time trend except for inflation. Therefore only inflation series will be 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 5.4: LLC and IPS Unit Root Test

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

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(infltn) which were 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 will be conducted to choose the appropriate estimation technique for the data between the Fixed Effects Model (FEM) and the Random Effects Model (REM).

5.4 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 result from the test is presented in the table below.

Table 5.5; Hausman Test

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	0.000000	6	1.0000

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.

5.5 Discussion of Results

Table 5.6; OLS Random Effects- Return on Assets

Dependent Variable: ROA

<i>Variable</i>	<i>Coef</i>	<i>Std. Err</i>	<i>t-statistic</i>	<i>Prob.</i>
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
LAG1CA	-0.023	0.009	-2.539	0.014
LAG2CA	-0.026	0.009	-2.752	0.008
INFLTN	-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

In 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 Potter (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. This might be due to some institutional factors that may prevent companies from changing their behaviour instantly. Past empirical studies such as; Sinha and Sharma (2014), and Goddard (2004) argue that with regard to capital adequacy, that firms could raise their profits by increasing their capital adequacy ratio and the opposite effect can be attained by reducing capital to asset ratio, therefore, capital adequacy ratio should be modelled in the estimation as an endogenous variable. Furthermore, on firm size, literature argues that big NBFIs often continue to prevail for a long time in the market, because its size can continue to influence profits even in the next years. With regard to annual GDP of a country, this variable is frequently constituted by informational lag. This is because, annual GDP growth rate data is compiled yearly, so if for example, an economy's growth decline, this information will only be available after a year, and this is when NBFIs can begin to adjust to it. Furthermore in the RE model estimation; money supply was not included among the explanatory variables because it had shown a high correlation between money supply and GDP growth rate (0.8615).

Looking at the model results, the Durbin-Watson statistic is 1.76, which indicates the absence of serial correlation, as its value is close to two. The Probability 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.

Capital adequacy shows a negative relationship with profitability, and the coefficient of the variable is statistically significant. This result was similar to the results obtained from the dynamic model in Table 5.2 below. It is of interest to realise that the coefficient of capital adequacy was significant at first lag, and continued to show a higher significance level at second lag. This suggests that the abnormal profits that are gained by NBFIs are not immediately used the same year 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.

The static model shows that ROA has a negative and statistically significant relationship with management efficiency. Similar results are also derived from our base dynamic model below.

Under the Random Effect model, management efficiency is significant at 1% level. This means that as MGTE ratio increases, the profitability of NBFI's decreases. This is because, as NBFI's have more operating expenses, and this reduces their profits.

Both the RE and three stage least squared model results shows us that firm size has an insignificant influence on profitability, that is, this suggests that the effect of firm size on NBFI's in Botswana is not important. The insignificant coefficient of FMS variable reveals the idea that even small NBFI's in Botswana may make more profits and try to grow faster than larger NBFI's. Therefore, the result obtained does not support the economies of scale theory. Furthermore, the result also shows that firm size seems to have a non-linear impact on profitability though insignificant. The non-linearity of firm size is shown by a positive and negative signs for firm size (FMS) and squared of log firm size (FMS2) respectively. Therefore, we can conclude that the NBFI sector in Botswana reflects a U-relationship between company size and profits. This is consistent with empirical findings found by Mirzaei (2011), who also found a non-linear and insignificant impact of firm size with reference to the Middle Eastern banking sector. This was also supported by Athanasoglou et al (2008), and Sufian Chong (2008), who found an insignificant effect of firm size on profitability in European and Philippines region respectively.

The following section will present the results from the three-stage least square model.

As illustrated in the previous section, the three-stage least square model is 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 Arellando and Bond (1991). They also argued that estimators lack efficiency as a result of not exploiting all the available instruments. They further suggested that 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 regressors as instruments.

Table 5.8 Three-Stage Least Squares

	<i>Coef</i>	<i>Std. Err</i>	<i>t-statistic</i>	<i>Prob.</i>
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

Durbin- Watson: 1.851

The lagged ROA coefficient is highly significant at 1% significance level; this 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.

Concerning the other variables, the results reveal that management efficiency has a negative and statistically significant relationship with profitability of non-bank financial institutions in Botswana (at 1% level). The negative effect of management efficiency implies that there is lack of efficiency in operating expenses by the management of non-bank financial institutions in Botswana. That is, an increase in operation costs reduces the non-bank financial institutions revenues while efficient NBFIs are able to operate at lower costs hence earning higher profits. The negative effect maybe 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 for customers does not allow them to “overcharge” their services, as viewed from the customers’ perspective. Several empirical studies support this results such as William Bentum(2012), Athanasoglou et al. (2008), and Obamuyi (2013). The results from the study are consistent with the efficient market theory, which states that an efficiently, managed non-bank financial institution will earn higher profits as compared to less efficient ones.

It is also reported from the results that the coefficient of capital adequacy is significant at 5% level; and the coefficient of the variable bears a negative sign. This implies that NBFIs in Botswana during the study period were not well capitalized and therefore experienced lower returns. These findings are contrary to the findings of Goddard *et al* (2004), Molyneux and Thornton (1992) and Athanasoglous (2005). This may be because the study period was at a time of global financial crisis, and Mizraei et al (2011) argued that institutions with less capital are in a risky condition since they have to cover loan losses from capitalization, of which they do not have or is not enough, hence this have a negative effect on their profits, as the companies have to bear part of the losses on their profits. The negative impact implies that NBFIs do not have the average capital for a safe and sound NBFISector. This may explain the reason why during the period of study the NBFIS have seen 7 liquidated insurance companies, and a total of 6 acquisition transfers, which included 3 pension funds and 3 general insurer companies, and 25 micro lenders ceased their operation citing among others challenges of high operational costs and low capital to expand their business opportunities.

Looking onto 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 suggests that inflation was unanticipated by NBFIs during the period of the study. This

means that the NBFIs' failure to forecast the future movements of inflation rate accurately, affected their profits as they could not shield their revenues from the inflationary environment, hence losing out on the opportunity to adjust their interest rates accordingly/appropriately to reflect the general increase in price levels so as to increase their profits. Similar findings were also obtained in Philippines 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.

CHAPTER SIX

CONCLUSION AND POLICY IMPLICATIONS

6.0 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. The importance of this research backs to the significant role of NBFIs in a stable and sound financial sector, and the economy as a whole, with its role to broaden access to external finance from depositors to investors. Furthermore, limited empirical studies explaining the financial performance of NBFIs in Botswana also motivated this study.

Financial Performance (profitability) is measured by Return on Assets (ROA) variable in this study. The study uses annual data of 30 NBFIs over the period of 2010 to 2014. The study employed balanced panel data analysis with a total of 150 observations. Firm-size, Capital adequacy, management efficiency were taken as 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 Squared Dynamic data model. In general, most of the estimation results are consistent with much of the past empirical findings in NBFIs sector research, indicating that some institution-specific and macroeconomic variables are significant determinants for analysing financial performance.

The results of the dynamic model suggest that the chosen explanatory variables explain more than 50.7% changes in profitability of NBFIs in Botswana. With reference to the study period, the profitability of NBFIs in Botswana is seen to be quite high. This is with the support of the empirical findings of Flamini et al. (2009), who found an average ROA in SSA to be 2%. Therefore, from the study results, average ROA was about 6% which implies that NBFIs in Botswana are profitable.

There was a negative relationship between ROA and management efficiency, this reveals that NBFIs managers should focus on efficient cost management for lowering costs in their firms in order to improve the Institutions financial performance. This finding supports the efficiency structure theory, which argues that improved management efficiency results to

higher financial performance. The estimation results show the persistence of revenue, suggesting the dynamic character of the model specification.

Capital adequacy carried a negative significant coefficient. This reflects that NBFIs do not have enough capital to hedge against the risk of bad loans, to minimise the loss on loans, and capital to aid expand and grow their business.

The empirical findings further show a non-linear relationship between profitability on NBFIs and firm-size, both in the static and dynamic model, although the influence is insignificant. The non-linear relationship between firm size and profitability support the argument by Athanasoglou et al (2008), and Sufian Chong(2008).

Regarding the macro-economic variables, the dynamic model shows that Real GDP growth rate has a positive but insignificant on financial performance, whereas Inflation rate has a negative and significant effect on the Financial Performance of NBFIs in Botswana. The negative impact of inflation to NBFIs financial performance reveals the inability of the NBFIs managers to forecast future inflation rate accurately, which negatively affects their profits, as they cannot adjust their interest rates well to reflect an increase in general prices.

Interestingly, the study findings confirm that Real GDP growth rate from 2010 to 2014 had no significant effect on the financial performance of NBFIs in Botswana. This result reveals that, with reference to the study period, the output cyclical movements in the economy did not affect the financial performance of NBFIs significantly. This implies that NBFIs in Botswana are able to withstand economic shocks and remain profitable.

In conclusion, the empirical results point out that management efficiency, capital adequacy, one period lag of return on assets, and inflation are important determinants of financial performance of NBFIs in Botswana. 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 NBFIs sector in Botswana. This is indisputably true, as firms profits are also an important source of equity, therefore if a firms revenue increases and is also reinvested, this should consequently lead to higher overall profits promoting financial stability.

6.1 Policy Implications

The NBFIs sector plays a key role in the development and a stable and sound financial system and fostering a nation's economic growth. It is therefore, essential to establish appropriate policies geared towards improving the financial performance of NBFIs in the country. The financial performance of non-bank financial Institutions can only be improved if NBFIs managers and policy makers give particular attention to both institution-specific and macroeconomic factors that have an important effect on their financial performance. The study results confirm the importance of capital adequacy, management efficiency, ROA (-1) and Inflation to the financial performance of NBFIs in Botswana. The government has over the years been on the mandate to set the country as the financial service hub among the Southern African region. The development of the NBFIs has been seen to play a vital role in achieving this.

From the significant determinants of NBFIs financial performance, the study recommends that there is a need for NBFIs managers to work towards efficient and optimum use of the businesses resources cautiously observing risk management procedures in order to achieve stable and competitive financial services for enhanced/increased profits. Thus, NBFIs managers should pay heed to efficient cost management so as to lower the business operation costs.

The study also suggests that there is the need for government to intervene regarding macroeconomic effects through the use of monetary policies, which are mainly focused on stabilizing inflation rate in the economy, which has a negative relationship with the financial performance of NBFIs in Botswana. That is, policies aimed at regulating the inflation rate should be given priority in promoting financial intermediation.

The study also recommends that government policies in Botswana NBFIs sector must encourage NBFIs to regularly increase their capital, in order to be able to hedge against economic shocks and utilise the capital to provide a good environment that will hasten financial intermediation and economic growth in Botswana. The study confirms the need for higher capital requirement reform to strengthen financial stability on the NBFIs sector and to adapt to the capital requirements of globalization and global competition.

6.2 Limitations of the Study and Areas of Further Research

The study only employed secondary annual time series data, which proved to be a challenge in verifying the accuracy of the data, therefore the limitation of this study is based on the reliability of the data source. Further research can focus on adding industry/sector specific variables as explanatory variables. This would provide the government with a firm base to establish coherent policies regarding the market structure of the NBFi sector itself.

Appendices

Appendix II: List of selected Non-bank Financial Institutions

Institution Name	Physical Address	Email/Fax
Botswana Insurance Fund Management	Private Bag BR 185 Gaborone	Tel: 3951564 Fax: 3900358
Botswana Life Insurance Ltd	Private Bag 00296 Gaborone	Tel: 3951564 Fax: 3900358
Liberty Life Botswana (Pty) Ltd	Private Bag 00168 Gaborone	Tel: 3910310 Fax: 3910311
Metropolitan Life Botswana Ltd	Private Bag 00231 Gaborone	Tel: 3624400 Fax: 3624423
Regent Life Botswana Ltd	Private Bag BR 203 Gaborone	Tel: 3188133 Fax: 3158063
Hollard life Insurance company (Pty) Ltd	PO Box 45029 Gaborone	Tel: 3958023 Fax: 3958024
Botswana Insurance Company Ltd	P O Box 715 Gaborone	Tel: 3600500 Fax: 3972867
BIHL Insurance Company Ltd	P O Box 381 Gaborone	Tel: 3634754 Fax: 3643337
Mutual and Federal Insurance Company Botswana Ltd	Private Bag 00347 Gaborone	Tel: 3903333 Fax: 3903400

Prefsure (Botswana) Ltd	P O Box 601661 Gaborone	Tel: 3936748 Fax: 3918319
Regent Insurance (Botswana) (Pty) Ltd	Private Bag BR 203 Gaborone	Tel: 3188153 Fax: 3188063
Phoenix of Botswana Assurance Company (Pty) Ltd	P O Box 1874 Gaborone	Tel: 3161322 Fax: 3161319
Export Credit Insurance and Guarantee Company (Botswana) (Pty)Ltd (BCEI)	Private Bag BO 279 Gaborone	Tel: 3188015 Fax: 3188017
Sesiro Insurance Company (Pty) Ltd	P OBox 329 Gaborone	Tel: 3614200 Fax: 3956110
Sunshine Insurance Company (Pty) Ltd	Private Bag BR 15 Gaborone	Tel: 3105137 Fax: 310539
Zurich Insurance Company Botswana Ltd	P O Box 1221 Gaborone	Tel: 3188888 Fax: 3188911
Hollard Insurance Company of Botswana (Pty)Ltd	P O Box 45029 Gaborone	Tel: 3958023 Fax: 3958024
First Reinsurance Company (Pty) Ltd	P OBox 404271 Gaborone	Tel: 3121041/2 Fax: 3121043
FMRE Property and Casualty (Pty) Ltd	P O Box 47202 Gaborone	Tel: 3934287 Fax: 3934310
Alexander Forbes Financial services (Pty) Ltd	Private Bag 00410 Gaborone	Tel: 3651948 Fax: 3957552

Babereki Insurance Brokers	P O Box 1708 AAD Gaborone	Tel: 3922526 Fax: 3181646
First Sun Alliance (Pty) Ltd	P O Box 404349 Gaborone	Tel: 3913666 Fax: 393 0025
Letsema Insurance Brokers (Pty) Ltd	P O Box 80045 Gaborone	Tel: 3181551 Fax: 3181552
March and MacLenna Risk Services Botswana (Pty) Ltd	Private Bag 103 Gaborone	Tel: 3993133 Fax: 3188064
Matrix Risk Management Services (Pty) Ltd	P O Box 3447 Gaborone	Tel: 3919586 Fax: 3919584
Penrich Insurance Brokers	P O Box 47144 Gaborone	Tel: 3973692 Fax: 3973021
Peoboswa insurance Brokers	P O Box 20332 Gaborone	Tel: 3930137 Fax: 3158140
AON Botswana (Pty) Ltd)	P O Box 624 Gaborone	Tel: 3617300 Fax: 3914608
Dynamic Insurance Brokers	P O Box 128 Gaborone	Tel: 3906490 Fax: 3957594
Kalahari Insurance Brokers Ltd	P O Box 24 Francistown	Tel: 2413838 Fax: 2413836
Pearson Hardman Insurance Botswana (Pty) Ltd	P O Box 45780 Gaborone	Tel: 3133827 Fax: 3133839
Capricorn Insurance services	P O Box 502489 Gaborone	Tel: 3191286 Fax: 3191286
Medvest Brokers (Botswana)	P O Box 403205 Gaborone	Tel: 3184622 Fax: 3184624
BOC Consultancy (Pty) Ltd	P O Box AB 64 ABC Gaborone	Tel: 3959505 Fax: 3959507

Atlantis Insurance Brokers (Pty) Ltd	Post net Kgale View P O Box AD 564 ADD Gaborone	Tel: 3500821 Fax: 3500818
Botswana Medical Aid Society (BOMAID)	P O Box 632 Gaborone	Tel: 3184210 Fax:3184230
Botswana Public officers Medical Aid Scheme	P O Box 1212 Gaborone	Tel: 3650555 Fax: 3951165
Botswana Insurance Holding Ltd Pension Fund	PO Box 336 Gaborone	Tel: 3707400 Fax: 3973705

Appendix II: List of selected Macroeconomic Variables

YEAR	Inflation Rate	GDP growth Rate	Money Supply
2010	6.9%	8.6%	49.3
2011	8.5%	6.0%	41.7
2012	7.5%	4.8%	43.7
2013	5.9%	9.3%	42.4
2014	4.4%	4.4%	39.3

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