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COMMERCIAL BANK AND MICROFINANCE:
DOES INTEGRATION MATTER? A CASE STUDY OF HFC BANK

By

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DECLARATION

I, declare that this thesis submitted herein is an original work I have personally undertaken under supervision, and that it has not been submitted before for any degree or examination in any other university, and that all sources I have used and quoted have been indicated and acknowledged by complete references.

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DEDICATION

This work is dedicated to GOD ALMIGHTY and to my beloved wife and son

ACKNOWLEDGEMENT

I am most thankful to the Almighty God for His grace, guidance and protection throughout my life and for seeing me through to the successful completion of this thesis.

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ABSTRACT

This study examines the performance of HFC Bank Limited within the period which it adopted Boafo microfinance as its subsidiary. The study sought to answer the question, does integration matter? Various performance indicators are used to measure the performance of the Bank before and after integration. Quarterly frequency consolidated data from 2003Q1 to 2015Q4 was used to estimate determinants of performance using net profits as the performance indicator. A dummy variable is used to measure the effect of integration on the Banks performance. Applying the ARDL estimation technique, Result from the ARDL estimates revealed that return on capital employed, gearing ratio and return on equity were the main determinants of net profits in the long-run. The results showed that integration had positive impact on the Banks performance in the short-run and negative impact on the Banks performance in the long-run. It is recommended that, the Bank take measure that will increase its revenue while reducing its cost of operations.

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ABBREBIATIONS

ARDL lag	Autoregressive distributed
ROCE	Return on capital employed
ROA	Return on asset
ROE	Return of equity
NP	Net profit
PP	Phillips Perron

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

The existence of branch networks, access to capital, diverse financial product and qualified human resources facilitate banks to gain the fundamentals to launch and grow successful microfinance business. Over the past decade, banks have entered the microfinance business and recently, a number of them have shown promising results in terms of profitability and growth (Baydas et al., 1997). The organization and products of commercial banks entering the microfinance business vary from those of specialised microfinance institutions. Commercial banking was occasionally referred to as business banking. It focuses on providing current account for businesses, savings account, money market account and acceptance of time deposit. In some cases, commercial banks have been used to distinguish them from investment banking and other banking activities like mortgage banking and corporate banking.

The Banking Act of Ghana also mandates commercial banks to undertake the following core responsibilities; the processing of payment by way of telegraphic transfer, EFTPOS, Internet banking or other methods, issuing of bank drafts and cheques to customers, accepting money and term deposit, lending of money in the form of overdraft, instalment loan or other methods, providing documentary standby letters of credit, guarantees, performance bonds, and securities. Some commercial banks may also underwrite commitments and other forms of balance sheet exposures, safe-keeping documents and other items in the bank's safe deposit boxes, selling of varying products and services,

distributing or brokerage services with or without notice and similar financial products such as 'business supermarket, managing of cash and treasury services and merchant banking and equity financing (Banking Act, 2004). Traditionally, large commercial banks also underwrite bonds and make the market in currency interest rates and credit related securities. At present, every large commercial bank has an investment arm in the mentioned activities. In recent years, there has been a paradigm shift within the banking industry. The paradigm shift has been the result of competition within the global market especially in the West Africa sub region. Commercial banks and finance companies are beginning to look at ways to serve the large number of potential clients for small loans (downscaling), many micro-enterprise-lending NGOs with heavy loads have begun to scale-up operations (Almeyda et al, 1996). Most of these financial institutions have transformed themselves into regulated banks, or specialised financial institutions offering micro deposit as well as micro loans. The new NGOs-turned-banks and other traditional banks are beginning to converge on a single potentially profitable business but from two sharply contrasting world.

It has been reviewed that banks that decide to enter into the microfinance business need some form of outside technical support to design, create and launch. This support is necessary for the banks to learn from the best practices and other mistakes (Robin, 2002). Banks have financial resources and capacity that can be beneficial to significant expansion. However, it has further been explained that with relatively low investment by USAID, banks can be helped to keep the microfinance a priority within a large bank whose managers and directors have to oversee a variety of issues and companies (Robin,

2002). With this model, they can help to ensure that the program is designed to maximize outreach and sustainability. The definition of microfinance evolved around provision of finance that intends to benefit low income people. It also serves intermediation by providing social intermediation for these target groups. Thus the definition of microfinance includes both financial and social intermediation (Joanna, 1999).

However, microfinance is not simply banking, it is a development tool that usually involves small loans typically for working capital, informal appraisal for borrowers and investments, collateral substitute's group guarantees or compulsory savings access to repeat and larger loans, based on repayment performance, streamline loan disbursement and mentoring and secured savings products (Joanna, 1999). These two financing systems thus, commercial banking and microfinance have their own unique characteristics in their execution in achieving financial objectives. It is important to structure the relationship with the microfinance unit in such a way that the bank is accountable for performance and demonstrates commitment by covering operating expenses such as branch cost and personnel cost. To a larger extent, banks will be expected to provide loan capital for microfinance unit as a means of financing the unit. Banks in Ghana are adopting microfinance, and some have frowned on it only because it may not be useful regarding cost and financing the entire program. Although some banks claim to have been successful in terms of profit, yet their profitability has not been ascertained. The former has caused people to find out how useful microfinance has impacted some organisations in Ghana such as HFC Bank. There are a number of banks in Ghana that have adopted microfinance, for example, Barclays Bank Ghana, Ghana

Commercial Bank and many others. Nevertheless, their success stories have never been told in any academic work in respect of profitability.

1.2 Problem Statement

Most bankers have not regarded microfinance as a genuine option for profit generation. When banks are confronted on the negligence to pursue microfinance business, traditional commercial bankers have typically expressed three basic concerns; the fact that microfinance is too risky, small loans are micro and short termed, and the fact that social, cultural and language barriers that do not permit an easy relationship with modern banking institutions (Banking the Underserved, 2005). Microfinance is too risky, because bankers perceive small businesses and micro enterprises as credit risk. Most banks that have become insolvent have proved that small businesses like peasant farmers have been the main cause of delinquency. The perception is that small clients do not have stable, viable business from which to borrow and from which to generate repayment. Moreover, these potential clients need traditional collateral to guarantee their loans (Loubiere et al., 2008). Secondly, bankers also understand that because micro loans are small and have short terms, bank operations will be inefficient and costly. It takes the same amount of time and effort to make a return from GH¢1,000 loan and GH¢100,000 loan. But the return on the larger loan is much greater. The former means that granting a bigger loan is more profitable than to grant a small loan (Robin, 2002). It is observed by most bankers that, micro and small enterprise clients have difficulty approaching a bank because they need education and do not possess business records to demonstrate cash flow. In many developing countries, social, cultural and language barriers do not allow for an easy

relationship with modern banking institutions. Assessing the performance of commercial banks in relation to microfinance and the role of integration is not given the needed attention despite its sensitivity (Rhyne & Rotblatt, 1994). Therefore, there is research and knowledge gap that the study proposes to fill.

1.3 Objectives of the Study

The general objective of this study is to use HFC Bank as a case study to test for performance since the adoption of its subsidiary Boafo Microfinance. The specific objectives of the study include;

1. To examine the trend in trend in Net profit, return on capital return, return on asset and return on equity for HFC Bank Limited before and after integration;

2. To investigate the impact of integration on the performance (net profits) of HFC Bank Limited.

1.4 Research Questions

The following research questions are formulated based on the above outlined research objectives. They are the claims that the researcher seeks to test in this study. The general research question of this study is; what is the performance of HFC Bank since it adopted its subsidiary?

1. What is the trend in trend in Net profit, return on capital return, return on asset and return on equity for HFC Bank Limited?

2. What is the impact of integration on the performance of HFC Bank Limited?

1.5 Justification of the study

Some specialised microfinance institutions have shown dramatic levels of profitability encouraging some banks to enter into the microfinance business. In Ghana for instance, some few banks have entered and adopted microfinance business either by creating internal unit, sourcing for subsidiary service company or by forming a strategic alliance, (Asafo-Adjei, 2014). However, among these banks their profitability and success story have not been told in any academic literature. For example, Commercial Bank of Ghana introduced a microfinance concept called 'Kudi Nkoso'. In 2007, Barclays Bank of Ghana also introduced the 'Aba Pa' concept which became part of the competitors of HFC Boafo Microfinance, a subsidiary of the bank and now many more. Among these banks practicing microfinance, there are no literatures that account for their profitability. Therefore, accessing the profitability of the bank would serve as a starting point for further investigations, which other banks can use as a bench mark. Furthermore, it may also be interesting to access the bank in terms of other financial indicators to verify the overall financial success of the Bank. This knowledge would serve as a learning tool for future academic research. It is also believed that institutions would use the outcome from the project to develop new strategies as a means of repositioning themselves within the industry. It is believed that there are challenges on corporate social responsibility and community development and can only be sustained with a strong commitment from senior management. Eventually, profitability becomes an issue, if resources are going to

be made available for the microfinance programme. Further to this, the banks need to expand to achieve enough outreach to make its contribution to the bank's profitability.

1.6 Scope of the studies

For the purpose of this study, the research was restricted to only HFC bank even though other banks also operate microfinance. There are various parameters that can be used for the measurement of corporate performance, but with this study concentration was made on profitability ratios, liquidity ratios and financial gearing. The data for the analysis was extracted from the consolidated banks financial statement for the last ten years only in quarterly frequency (secondary data). Similarly the last ten years financial statement of Boafo microfinanc was extracted and the analysis was made base on the ratio computation. Base on the complexity of the financial data natural logarithm transformation was considered to be the appropriate model for further analysis.

1.7 organisation of the study

The research is organised with various chapters and sub sections under each chapter. The subsequent chapters are presented as follows; Chapter two has the literature review and further discusses some of the empirical research under the topic. Chapter three has the research methodology which explains the sources of data, data analysis and the model specification as subsection within the chapter. Chapter four also presents data analysis and findings and finally with chapter five giving conclusions and recommendations.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter presents the literature review of the various studies that have been done in the research topic. In this chapter a review has been done on the evolution and classification of commercial banking, the challenges that banks face in serving microfinance clients. The chapter further comments on how the banking industry has evolved from specialization of core banking business to universal banking. In this chapter you will also encounter the various models of microfinance use by banks and how microfinance has evolved till date. In this topical area a review a review of some banks that have been integrated using microfinance models have also been treated and finally empirical literature review of the subject area has also been treated from the work done by other researchers.

2.2 Evolution and classification of banking system

Banking started in Ghana 1896 by the British bank of West Africa in Accra. In 1917 another branch of colonial bank in Accra and was changed to Barclays bank. These two banks dominated the banking scene in the Gold Coast for 36 years, until 1953 when the Bank of the Gold Coast (the forerunner of the present day Ghana commercial bank limited) was established. Subsequently bank of Ghana emerged on the 5th April 1957, (ACIB Manual, 2004). Subsequently other banks emerged which have developed into the present day universal banking.

Banking in Ghana as in any other jurisdiction can therefore be defined in terms of economic function it serves, the service it offers to customers and the legal basis for its existence (Rose & Hudgins 2010). Commercial banking was occasionally referred to as business banking. It focuses on providing current account for business, savings account, money market account and acceptance of time deposit.

In some cases, commercial banks have been used to distinguish investment banking and other banking activities like mortgage banking and corporate banking. Commercial banks engage in the following activities:

- The processing of payment by way of telegraphic transfer, EFTPOS, Internet banking or other methods

- Issuing of bank drafts and cheques to customers.

- Accepting money and term deposit

- Lending of money in the form of overdraft, instalment loan or other methods

- Providing documentary standby letters of credit, guarantees, performance bonds, securities underwriting commitments and other forms of the balance sheet exposures

- Safe-keeping documents and other items in the bank's safe deposit boxes

- Selling of varying products and services, distributing or brokerage services with or without notice and similar financial products such as 'business supermarket

- Managing of cash and treasury services

- Merchant banking and equity financing.

Traditionally, large commercial banks also underwrite bonds and make the market in currency interest rates and credit related securities. At present, every large commercial bank has an investment arm in the mentioned activities (Rose & Hudgins 2010). In recent years, there has been a paradigm shift within the banking industry. The paradigm shift has been the result of competition within the global market especially in the West Africa sub region. Before the introduction of the recent times universal banking banks were categorized base on their core competences and their specialised business area. These categorization where classified under following areas, central bank, commercial banking, merchant banking, development banking, community banks and the rural banks (ACIB Manual, 2004).

The financial system in Ghana has however evolved in many ways. As part of comprehensive macroeconomic adjustment program and support from the international monetary fund and World Bank, Ghana initiated a financial market liberalization program in 1980s. Under the financial sector adjustment program, there was restoration of commercial bank profitability and viability through restructuring of destressed banks and cleaned up of no-performing assets (Mahamdu, 2010). In February 2003, Bank of Ghana as part of liberalizing the financial service sector removed the licensing restriction on various types of banking business in Ghana to give way to the universal banking license. Under these reforms, every bank was permitted to undertake any form of banking business without restrictions. Rural banking becomes part of this transformation where it served the informal sector with 'susu' saving and other micro credit. It was observed that

financial intermediation was at a very low level in the rural areas compare to the urban communities (Asiedu-Mante, 2002).

By observing this form of transformation and the level of intermediation in rural communities it was realised that most rural dwellers do not have their own bank account and are not able to have access to credit, transfer money or insure their families against risk such as illness accident or death. These communities find it difficult it difficult to transact and consequently resort to local money lenders who charge them high interest (Asafo-Adjei, 2014). Over the past three decades, Ghana has adopted various policies towards poverty reduction. These policies can generally be put into three strategies, thus policies to encourage high economic growth, policies to encourage high investment in physical, social infrastructure and programs such as National Youth Employment programs and Women's Development Fund targeted to promote employment and income generating activities among the poor who may otherwise be left out of the development process which microfinance program is categorized (Asafo-Adjei, 2014).

2.3 Microfinance evolution in Ghana

Evidence suggests that the first credit union in Africa was established in Northern Ghana in 1955 by Canadian Catholic missionaries. One of main products which were popularly served the scheme, 'susu' is thought to have originated from Nigeria and spread to Ghana in early twentieth century Asiama & Osei (www.economicwebinstitute). Microfinance encompasses the provision of services and the management of small of amount of money through the range of product and a system of intermediary functions that are targeted at

low income clients. It includes provision of loans savings, insurance, transfer services and other financial product and services (www.economicwebinstitute).

For many years the government of Ghana has launched a number special credit schemes either solely or with the support of donor agencies. Such schemes are characterized by subsidies and interest rates which reach few people and sometimes have extremely poor recovery rate (Steel & Andah, 2004) the latest scheme implemented were the Women's Development fund. Among the credit schemes implemented the most successful one which has so far been implemented is the Enhancing opportunities for Women Development (ENOWID) with the recovery rate of 96% (Quinoo, 1997). The government also entered into micro-credit through poverty reduction programs such as Highly Indebted Poverty Reduction strategy 1&2 and the District Assembly Common Fund. These programs made wholesale funds available to some commercial banks, rural banks and other rural micro finance institutions for on lending to their clients (Asafo-Adjei, 2014)

2.3.1 The structure and key stakeholders of microfinance institution Ghana.

The structure and the key stakeholders of microfinance in Ghana consist of the following:

- The rural and community banks

- Savings and loans companies

- Financial NGOs

- Primary societies

- Susu Collectors association

- Development and commercial banks with microfinance and linkage

- Micro-insurance and micro-leasing services

Microfinance Apex Bodies:

- Association of Rural Banks

- ARB Apex Bank

- Association of financial NGOs

- Ghana Cooperative Credit Union Association

- Ghana cooperative susu collectors Association

End users: Economically active poor who are clients of microfinance product and services

Technical service providers: Business development service providers to microfinance institutions and their client

Microfinance and small loan center

- The Ghana microfinance institutions network

- Development partners and international non-governmental organizations

- Universities, training and research intuitions

Government institutions

- Ministry of finance and economic planning

- Ministry, departments, agaencies and metropolitan, municipal and district assembly

Bank of Ghana, Asiama & Osei (www.economicwebinstitute)

2.4 Challenges face by banks that serve microfinance

Commercial banks are notably absent from the field of microfinance business as a result of credit risk and high default rate by microenterprises. In their absence, microenterprise lending has developed an alternative track through a large number of non-governmental organizations and other specialized financial institutions. These micro-lenders and NGOs began serving microenterprises in 1980s, in response to the critical income and employment opportunities of their urban clientele (Oppong-Boakye et al., 2012). Some leading NGOs have created financial methodologies that serve the increasing number of poor people and generate repayment rate that compare favorably with loan performance of many traditional commercial banks, (Christen, 2000). With this methodology, these micro-institutions have become sustainable and more profitable. Two African banks, the Commercial Bank of Zimbabwe and the Cooperative Bank of Kenya were successful under the microfinance scheme with the aid of British Department for International Development (Robin, 2002). Banks continue to face challenges in designing and implementing microfinance programs. However, these challenges helped banks to strategize for solutions to sustainable microfinance business. These challenges can be seen from the following areas. Target market, pricing of product and services, legal and operating framework, human resources management and others

2.5 Pricing and costing

Banks find it difficult initially to increase the price of loan products for poorer segments of the economy (Robin, 2002). In some countries, interest rate ceilings and Usury laws limit banks' ability to set interest rate. However, without appropriate pricing, microfinance will not be profitable and, therefore, will not grow within the bank. In many cases, banks do not have detailed costing systems, and the traditional methods for cost allocation may not correspond to the operations of microfinance business that typically feature small transactions. Additionally, the costing system may distort the true profitability of microfinance business if price system is not well controlled. Thus in order to price a microfinance product, it would be important to understand the market prices for microfinance, as well as the microfinance cost structure. Microfinance clients are not interested in rate sensitive, because clients do not appear to borrow more or less in reaction to increasing or decrease in interest rates. Thus interest rate far above commercial bank rate is acceptable because the borrowers have such limited access to credit (Joanna, 1999)

2.6 Legal and operating model

Choosing an operating model for microfinance operation is one of the biggest challenges to successfully integrating microfinance into a commercial bank operation. The model must ensure a process that can automatically service both traditional and non-traditional client segments. At the same time, it should take advantage of the banks in terms of reputation, systems, financing, and human resources. The model chosen must also consider the appropriate participation of strategic alliances and outside investors in the

governance of structure. Commercial banks have structured their participation in microfinance in a variety of ways and these are the internal unit, the financial subsidiary, the service companies and strategic alliances with specialized microfinance institution. Each of these models has its advantages and disadvantages. These include cost, risk, regulatory requirements and partnering options. It also includes deciding on the appropriate structure and the bank's business environment and business strategy, (Robin, 2004)

Lopez also identified the same models in their work that, while the creation of an internal unit can be successful, however, two problems were outstanding. First, the bank must somehow differentiate the staff of the mainstream bank in order to build a distinct corporate culture within the microfinance unit. Secondly, there would be a lack of independent governance within the microfinance unit which may pose problems in decision making by a group of bankers with limited exposure to microfinance, (Lopez, 2003) Apparently these problems are so obvious in practice; however, no academic work has revealed the extent and the impact on profitability as in this context.

2.7 Empirical review of microfinance integration in some commercial banks

Performance measurement is the evaluation of the outcomes of an organization as a result of management decision on resources of an organization and execution of those decision made by the members of an organization (Hofer, 1983). Performance measurement in an organization has been dominated by the use of traditional accounting measurement as the key financial performance indicators. The use of financial indicators alone has been

criticized by many researchers as it uses the past information which has low ability to determine the future of the organization (Crabtree & DeBusk, 2008).

Empirical evidences on performance of microfinance institutions have reported different results, most of the indicating variation of performance across types of microfinance institutions. The study by Tucker & Miles (2004) used financial metrics to compare the performance of microfinance institutions with commercial banks operating in Africa, Asia, Eastern Europe and Latin America. The findings of the study show that, microfinance institutions that were operating self-sufficient had higher performance in terms of return on asset (ROA) and return on equity (ROE).

The majority of microfinance institutions reviewed was found to be weak in financial sustainability. In Burkina Faso and Congo findings from performance indicators shows that microfinance institutions performance in outreach was very low compare with potential demand for financial services. The evidence from India shows that most of performing microfinance institutions in India follow different business model but they have similarities in most of their performance indicators (Agarwal, 2010).

Likewise the study by Bi & Pandey (2011) in India compared with the performance of microfinance with commercial banks. The findings report that, a microfinance institution in the country incurs high cost due to their door step service delivery business model. The high costs incurred were associated with staff training and the cost associated in offering small size with short term maturity. Evidence from Tanzania indicates low performance

among microfinance institutions under financial performance metrics. The study by Nyansogro (2010) assessed the growth and sustainability of rural microfinance institutions in all stages of growth.

The study by Kipesha, (2013) on efficiency of microfinance finance institutions in Tanzania reports high production efficiency and low intermediation efficiency among the institutions. All these studies used financial metrics in the measurement of performance of microfinance institutions.The study by Arsyad (2005) used both financial and non-financial performance metrics in the measurement of performance of village credit institutions and determinant factors in Bali province Indonesia. The findings reported that institutional and environment both formal and informal affect the performance of microfinance institutions.

The study by Godquin (2004) provides evidence on performance of microfinance in terms of loan of loan repayment in Bangladesh. This study focused on the impact of group lending, non-financial services and dynamic incentives on repayment performance. The results show that provision of non-financial services had a positive impact on repayment performance. The results also show that microfinance institutions in the country were allocating larger loans to borrowers as the age of their borrowing group increases while group homogeneity has impact on repayment performance.

CHAPTER THREE

EMPIRICAL STRATEGY AND METHODOLOGY

3.1 Introduction

This section makes a detailed discussion of the empirical strategy and the method employed to measure the study objectives and all relevant variables. It highlights how the model is specified, the source and types of data, how the variables are described, the estimation technique employed and how the stationarity and non-stationarity properties of the variables are tested.

3.2 Model Specification

The specification of the model incorporates the variables that will be used to measure the objectives of the study. It considers the performance indicators, trend variables and as well as the economies of integration which encompasses the use of a dummy variable to capture the effect of integration.

3.2.1 Performance indicators of HFC Bank

Conventionally, the performance of financial entity is measured using; return on capital employed, net profit percentage, return on assets, the return on equity and gearing ratio. The return on capital employed is measured as a ratio of net profit and the capital employed which is expressed as a percentage. This is expressed as;

$$ROCE = \frac{NP}{CE} \times 100 \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots.3.1$$

Where $ROCE$ represents the return on capital employed for a time period, NP is the net profit and CE is the amount of capital employed. However, net profit percentage expressed as a ratio of net profit to net sales expressed as a percentage. This is expressed as follows,

$$NNP = \frac{NP}{NS} \times 100 \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots..3.2$$

Where NPP is the net profit percentage, NP represents net and NS represents net sales. Net percentage profit is expected to increase with increase in net profit. Also the return on equity is measured as a function of profit after interest and preference dividend but before tax, equity stated capital, income surplus and share deals. This is expressed as a ratio form as represented in the equation below;

$$ROE = \frac{PIPD}{ESC+IS+SD} \times 100 \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots.3.3$$

From equation, ROE represents the return on equity, PIPD is the profit after interest and preference dividend but before tax, ESC represents equity stated capital, IS represents income surplus and SD represents share deals. The return on equity increases with increase in the profit after interest. Gross profit percent is also measured as a ratio of gross profit to net sales expressed as a percentage. This is expressed in equation form as;

$$GPP = \frac{GP}{NS} \times 100 \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots.3.4$$

GPP represents gross profit percent, GP represents gross profit and NS represents net sales in equation 3.4. Gross profit percent is expected to have a direct relationship with gross profit. Return of assets is also calculated as a ratio of net income to average total assets. This is expressed mathematically as;

$$ROA = \frac{NI}{ATA} \times 100 \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots.3$$

Where ROA in equation 3.5 represents the return on asset ratio, NI represents net income and ATA represents the average total assets. The return on asset ratio is expected to increase with a decrease in average total assets. Finally, total gearing is also measured as a ratio of fixed return on capital to total long capital. This is represented in equation 3.6 as,

$$G = \frac{FRC}{TLTC} \times 100 \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots.3.6$$

In equation 3.6, G represents total gearing, FRC represents fixed return on capital and TLTC represents total long term capital. Gearing ratio is expected to increase with a decrease in total long term capital and increase with an increase in fixed return on capital.

3.2.2 The impact of integration on the performance of HFC Bank

The indicator used in this study to measure the overall performance of HFC Bank Limited is net profit (NP). In this study net profit is expressed as a function of return on capital employed (ROCE), return on equity (ROE), return on assets (ROA) and total

gearing. A dummy variable is included in the net profit function to measure the impact integration.

$$NP_t = f(ROCE_t, ROE_t, ROA_t, G_t, DU_t)\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots..\dots\dots3.7$$

Equation 3.4 is a typical production function of the bank and the arguments of the function are the inputs that are used to produce the net profit of the bank. NP represents net profit, ROCE represents the return on capital employed, ROE denotes the return on equity, ROA represents the return on asset, G denotes the gearing ratio and DU represents the dummy variable. Re-writing equation 3.5 into the form of a typical production function;

$$NP_t = ROCE_t^{\alpha} ROE_t^{\beta} ROA_t^{\gamma} G_t^{\theta} DU_t^{\sigma} e^{\varepsilon}\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots3.8$$

A logarithm transformation of equation 3.5 gives the equation to be estimated which is written as;

$$lnNP_t = \delta + \alpha lnROCE_t + \beta lnROE_t + \gamma lnROA_t + \theta lnG_t + \sigma lnDU_t + \varepsilon\dots\dots\dots\dots3.9$$

δ is the constant, α, β, γ, θ and σ are the coefficients to be estimated and ε is the disturbance term. All coefficients to be estimated in equation 3.9 are elasticities. The dummy variable included in equation 3.9 measures the impact of integration on the

performance of HFC Bank. Let DU_t=1 for period after integration and DU_t= 0, otherwise. The study estimates the net profit function using equation 3.9

3.3 Sources and types of data

Detailed and well prepared consolidated quarterly frequency data spanning from 2003Q1 to 2015Q4 is used in this study. The relevant variables that are used in this study include; net profits (NP), return on capital employed (ROCE), return on assets (ROA), return on equity (ROE) and the gearing ratios (G). Some of the data set is generated manually where necessary. All the data that is used in this study are sourced from quarter and annual financial statements of HFC Bank Ltd. The period is considered adequate enough to measure the performance of the bank since its integration with Boafo Micro-finance.

3.4 Description of variables

A detailed description and measurement of all the regressors (explanatory variables) and the regressand (explained variable) specified in the model above is provided in this section.

3.4.1 Regressand/Explained variable

Net profit (NP)

The net profit of HFC Bank is used as a proxy to measure performance over the period under study. It is one of the variables that is discussed most when companies want to make a review of their profitability. It is known as the bottom line profitability indicator

that is used to measure the profitability of an organization. It is expressed as the difference between net income of the Bank and its taxes.

3.4.2. Regressors/Explanatory variables

Return on capital employed (ROCE)

This is an adjusted proportion of earnings to the value of debts and capital that is needed for the business to operate. This indicator is used as measure for the efficiency of capital use within the bank. The banks' capital cost must be less than the ROCE to ensure that shareholders earnings are maximized. It is the value of the shareholders' investment that keeps the business functioning. It is a ratio of income before tax and interest to amount of capital employed. An increase in ROCE is expected to generate higher levels of net profits to the organization.

Return on equity (ROE)

Return on equity is ratio that measures how efficient administrators convert equity base into returns and how it contributes to profitability. This ratio determines profitability by considering the net income of the company and its average shareholders' equity. ROE is considered an index that provides insight into how the equity contributions of shareholders are managed. It is expressed as a ratio of net income to shareholders equity. The study expects a positive relationship between ROE and NP.

Gearing ratio

Financial leverage of most institutions is of often measured using gearing ratio. It is an indicator of how the banks activities are funded by funds provided by owners and that of those taking from creditors. It compares owners' equity to the amount of funds that is borrowed. It is measured as a ratio of the sum of long-term debt, short-term debt and bank overdrafts to the shareholders equity. The study expects a negative relationship between gearing ratio and net profits. Institutions with high gearing ratio are more exposed to business downturns and that is likely to affect net profits.

Return on Asset (ROA)

Return on asset is a measure of profitability in relation to the total assets of the bank. It is the rate at which management convert asset to earnings. It is measured by dividing yearly earning by the total assets. It is sometimes reported in percentages. It is also referred to as the return on investment. The study expects a positive relationship between return on assets and net profits

Table 3.1: Description of variable and prior expectations

Variable	Measurement	Expected sign
Net profit (NP)	It is measured as a ratio of net profit to net sales expressed as a percentage. It is used as the performance	
Return on capital employed (ROCE)	Measured as a ratio of net profit to capital employed expressed as a ratio	+
Return on equity (ROE)	It is measured as profit after interest and preference dividend but before tax divided by equity stated capital plus income surplus plus share deals expressed as a percentage	+
Gearing ratio (G)	Measured as return on capital divided by total long term capital multiplied by 100	-
Return on assets (ROA)	Expressed as a ratio of net income divided by total assets multiplied by 100	+

Source: Researchers construct

3.5 Estimation technique

3.5.1 Stationarity and non-stationarity test procedure

The possibility of avoiding the estimation of spurious results is can only be achieved if the necessary checks are carried to ensure that all the statistical properties (mean, variance, and covariance) are constant over time. The stationarity and non-stationarity properties of all variables are tested following the Phillip-Perron unit root test procedure. Phillip-Perron test procedure provides a test statistic that serves as a robust check for

heteroskedasticity and serial correlation by applying the Newey-West (1987). With this approach there is no need for specification of lag length. The approach is estimated with the equation below;

$$\Delta Z_t = \alpha + \rho Z_{t-1} + u_t \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots 3.6$$

Δ is the difference operator, Z_t and Z_{t-1} is the series at time (t) and (t-1) respectively. α and ρ are the parameters to be estimated. (u) is the random disturbance term. The null hypothesis states the presence of unit root while the alternative states the presence of stationarity.

3.5.2 ARDL estimation procedure

The short-run and long-run determinants of net profits (performance) of the bank are estimated using Pesaran et al. (2001) ARDL modeling technique. According to Perasan et al. (2001), the technique is a dynamic modeling process that incorporates the lags of the dependent variables and lags of the contemporaneous independent variables. The long-run estimates will be obtained indirectly while the short-run estimates are estimated directly. The bounds test for cointegration in the framework of ARDL is incorporated in this study. The ARDL estimation procedure used in this study is justified on two grounds; the process can applied without taking the order of integration of the series that is investigated. That is, a pre-testing of the order of integration of series is not needed before applying ARDL. Again, unlike the Johansen maximum likelihood and the Engle

and Granger approach which suffer from small sample bias, the ARDL procedure is better suited for finite samples.

This study applies the ARDL process in two stages. In the first stage, the bounds test is applied to test for the presence of cointegration to find out if there exists any long-run equilibrium relationship among the variables in the model. In the second stage, the study will proceed to estimate the long run and short run parameters using ARDL. Using equation 3.6, the ARDL process of estimation using an unrestricted error correction model is written as;

$$\Delta lnNP_t = \tau_0 + \sum_{i=1}^{n} \tau_1 \Delta \, lnNP_{t-i} + \sum_{i=0}^{n} \tau_2 \Delta lnROCE_{t-i} + \sum_{i=0}^{n} \tau_3 \Delta \, lnROE_{t-i}$$

$$+ \sum_{i=0}^{n} \tau_4 \, \Delta ln \, G_{t-i} + \sum_{i=0}^{n} \tau_5 \Delta \, lnROA_{t-i} + \sum_{i=0}^{n} \tau_6 \, \Delta DU_{t-i} + \gamma_1 lnNP_{t-i}$$

$$+ \gamma_2 lnROCE_{t-i} + \gamma_3 lnROE_{t-i} + \gamma_4 lnG_{t-i} + \gamma_5 ln \, ROA_{t-i} + \gamma_6 DU_t$$

$$+ \varphi ECM_{t-i} + \mu_t$$

………………………………………………………………………………………………….3.9

Δ is the difference operator and τ_1, τ_2, τ_3, τ_4, τ_5, τ_6 are the short-run coefficients while γ_1, γ_2, γ_3, γ_4, γ_5, γ_6 are the long-run elasticities. ECM_{t-i} is the error correction term which is a measure of the speed of adjustment to long run equilibrium whenever shocks occur in the system and μ_t is the stochastic term. From the above, the null and alternative

hypothesis that is used to test the presence of cointegration among the variables is stated

as;

$H_0: \gamma_1 = \gamma_2 = \gamma_3 = \gamma_4 = \gamma_5 = 0$

$H_1: \gamma_1 \neq \gamma_2 \neq \gamma_3 \neq \gamma_4 \neq \gamma_5 \neq 0$

This study makes use of the f-test statistic from the bounds test results to test the absence

of cointegration as stated in the null hypothesis as against the presence of cointegration as

stated in the alternative hypothesis. According to Pesaran et al. (2001), when the F-

statistic exceeds the lower and upper bound from the bounds test results, then we reject

the null hypothesis of no cointegration and accept the alternative of cointegration

3.6 Data analysis procedure

The analysis procedure used in this study was more quantitative. The trend analysis of the

data and the estimation of variables were carried out in E-VIEWS 9 using quarterly data

from 2003Q1 to 2015Q4. The results from the analysis are presenting in the forms of

graph and tables. The discussion of results from the estimates is carried out in reference

to tables and graphs.

CHAPTER FOUR

ANALYSIS OF EMPIRICAL RESULTS

4.1 Introduction

This chapter and the subsequent sub-sections present the analysis the analysis and discussion of empirical results. All models specified in the previous chapter are estimated in this chapter and the results discussed in detailed. The unit root test results, the long and short run ARDL results, the bounds test results and the diagnosis test results are all presented in this chapter.

4.1 Summary statistics of data

Table 4.1: Summary statistics of performance indicators (2003Q to 2007Q3)

Year	NP	ROCE	ROE	Gearing	Return on Asset
2003Q1	8	7.4	3	256	0.1times
2003Q2	8.5	6.6	1	259	0.1times
2003Q3	8.2	7.6	2	263	0.2 times
2003Q4	8.7	7.6	1	260	0.2 times
2004Q1	9.1	8.5	4	269	0.1 times
2004Q2	8.9	8.7	3	257	0.1 times
2004Q3	9.4	8.1	2	270	0.2 times
2004Q4	9.8	8.1	3	276	0.2 times
2005Q1	10.2	8.3	2	271	0.1 times
2005Q2	11.5	9.8	2	274	0.1 times
2005Q3	13.5	12.2	3	276	0.1 times
2005Q4	15.7	14	4	278	0.1 times
2006Q1	21.1	11.2	7	250	0.1 times
2006Q2	23.4	13.3	9	285	0.1 times
2006Q3	25.9	15.8	12.3	301	0.1 times
2006Q4	26.7	17.6	14.3	309	0.1 times
2007Q1	24.2	18.1	21.3	271.1	0.2 times
2007Q2	26.7	22.4	22.4	282.2	0.2 times
2007Q3	30.7	24.2	24.3	313.2	0.2 times

Source: Annual financial report, HFC Bank

Table 4.2: Summary statistics of performance indicators (2007Q7 to 2015Q4)

| Year	NP	ROCE	ROE	Gearing	Return on Asset
2007Q4	36.5	25.4	25.4	363	0.2 times
2008Q1	35.5	31.3	31.1	165	0.2 times
2008Q2	35.3	31.4	31.3	172	0.2 times
2008Q3	40.4	32.1	31.5	180	0.2 times
2008Q4	48.2	32.4	32.4	189	0.2 times
2009Q1	25.1	32.7	31.5	167	0.2 times
2009Q2	28.3	33.5	34.3	171	0.2 times
2009Q3	31.8	35.2	36.3	174	0.2 times
2009Q4	33	37	37	188	0.2 times
2010Q1	23.5	21.3	21.2	72	0.4 times
2010Q2	35.4	23.4	22.1	75	0.4 times
2010Q3	37.3	25.2	25.4	80	0.4 times
2010Q4	38.8	26.2	26.2	84	0.4 times
2011Q1	24.3	3.4	20.6	31.5	1.2 times
2011Q2	25.3	4.5	21.2	39.7	1.3 times
2011Q3	26.3	5.5	22.1	40.4	1.5 times
2011Q4	27.1	6.6	22.4	48.7	1.4 times
2012Q1	24.7	3.5	12.6	22.9	0.2 times
2012Q2	26.9	4.7	13.6	23.5	0.2 times
2012Q3	28.4	5.8	14.4	25.8	0.2 times
2012Q4	30.4	7	15.6	26.8	0.2 times
2013Q1	35.8	20.4	31.6	52.8	0.1 times
2013Q2	39.2	23.5	34.2	55.9	0.1 times
2013Q3	40.3	25.7	39.2	59.3	0.1 times
2013Q4	47.9	26.5	42.6	60.4	0.1 times
2014Q1	39.2	19.3	39.2	51.4	0.1 times
2014Q2	40.4	20.1	40.1	54.3	0.1 times
2014Q3	42.4	21.1	44.2	55.3	0.1 times
2014Q4	45.6	21.8	46	58.9	2.1 times
2015Q1	47.1	20.4	39.2	52.8	1.1 times
2015Q2	48	23.5	42.6	55.9	0.1 times
2015Q3	46	25.7	49.4	59.3	0.2 times
2015Q4	48.3	26.5	46.4	60.4	2.1 times

Source: Annual financial report, HFC Bank

4.2 Trends in performance indicators

The study plots the trend of each of the indicators that is studied to provide a pictorial behavior of the variable of the variables over time. This reveals the highest and lowest points of the variables and as well as the periods in which the variables are rising or falling. Analyzing the trend of the variables is expected to provide how each of the performance indicators will respond to shift factors such as a change in policy. The trend of each of the performance indicators is presented in the figures below;

The trend in net profit of HFC Bank is presented in Figure 4.1. Net profit grew steadily from the first quarter of 2003 through to the fourth quarter of 2007. After 2007, net profit attained its highest peak in the four quarter of 2008 when the Bank recorded 48.2% as the net profit percent of the Bank. The Bank after integration has however seen a steady growth in its profit per capital with a few intermittent drops especially in the second quarter of 2008, the third quarter of 2010 and in the fourth quarter of 2011. Between the first quarter of 2012 and last quarter of 2015, net profits grew to an average of 48.3% in 2015Q4.

Figure 4.1: Trend in net profit
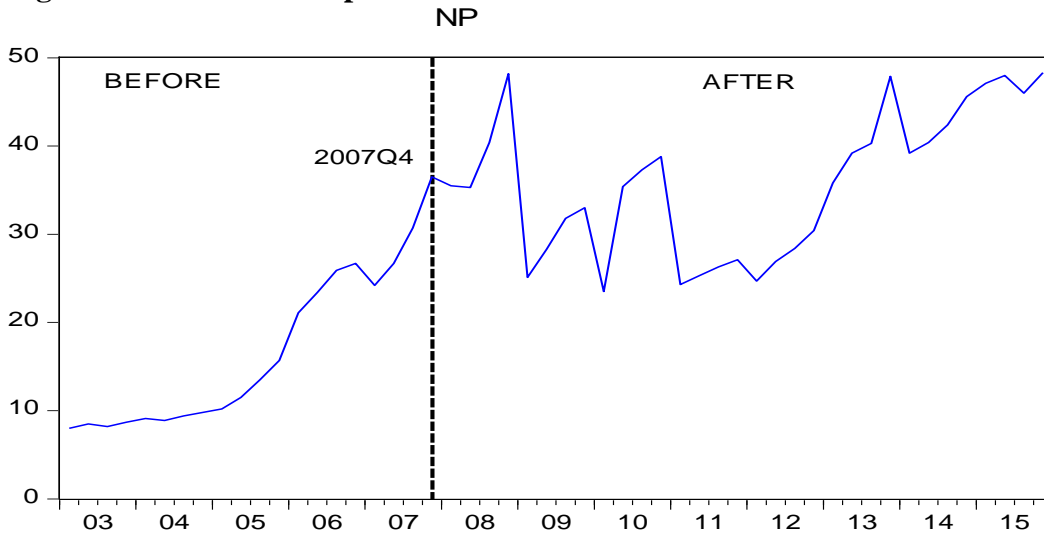
The net profit margin was on the increase after 2010Q3 was out of the volumes made and the Bank's strategy of attracting low-cost deposit to minimize interest expense. According to the managing director's report, profit before tax grew significantly after the successful implementation of the strategies.

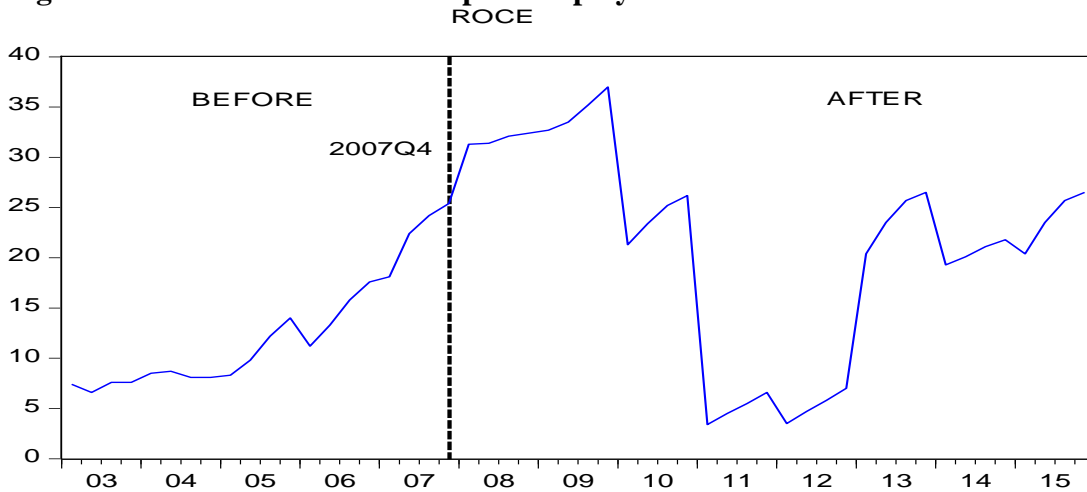**Figure 4.2: Trend in return on capital employed**

Figure 4.4 sows the trend in return for capital employed before and after in integration in 2007. HFC Bank Ltd witnessed an increase in return on capital employed from the first quarter of 2003 through to the fourth quarter of 2007. In 2003Q1, the net profit percent average 7.1% which increased steadily to 25.5% in 2007Q4. After 2007, the percent of return on capital employed declined to lowest point in 2011Q1 to an average of 3.4%. Between 2012Q2 and 2015Q4, the average performance of return on capital employed averaged 22.2%. This poor performance in return on capital employed is attributed to the inability of the Bank to achieve it growth targets coupled with sharp interest rates, increase in branch network cost and payments made to low earning assets.
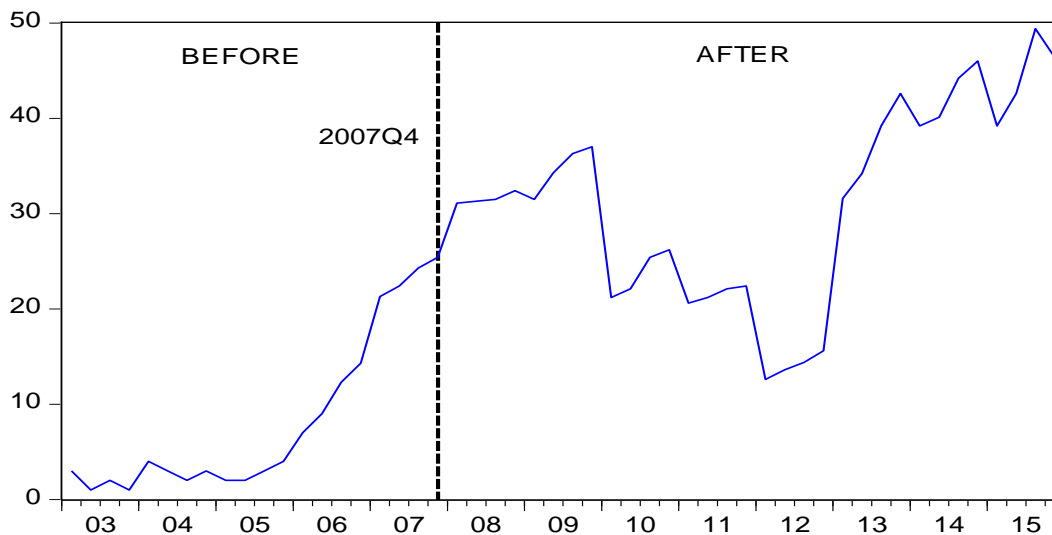
Figure 4.3: Trend in return on equity

Figure 4.3 presents the trend in return on equity before and after integration. Return on equity was obtained after paying preference shareholders' dividend. Before integration, the bank recorded 2.0 %, 4.0% and 6.0% in return on equity in years 2003Q3, 2005Q2 and 2006Q1 respectively. The result obtained is evident in the board chairman's report as

described has low earnings for the year 2005. There was also need to meet Bank of Ghana's capital requirement of GH¢7m, hence the retention of earnings of equity shareholders. After integration, the Bank how struggled to sustain its return on equity especially 2009Q1 through to 2012Q3. The Bank however experienced a rise in its return in equity after the fourth quarter of 2012.

Figure 4.4: Trend in return on assets
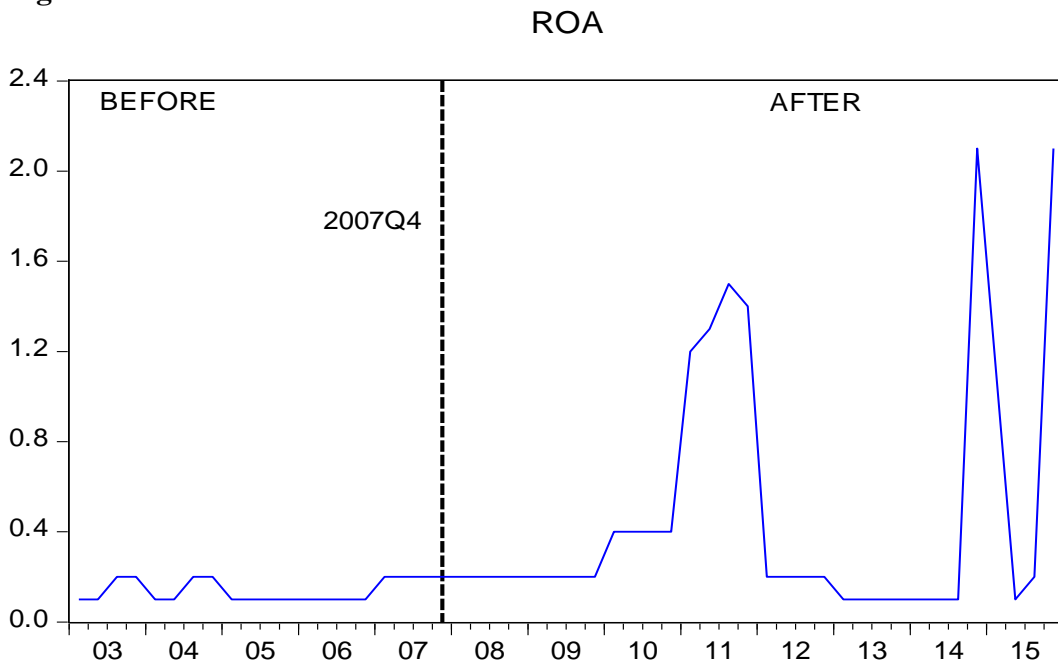
Figure 4.4 shows the trend in return on assets. For the return on assets, the Bank recorded an average of 0.1 times on the return on assets before integration and 0.2 times on return on assets after integration. However, the Bank recorded a sudden peak in return on assets to 1.5 times in the 2011Q3. The ratio recorded here might have resulted from the growth in total assets of 2011 as acknowledged by the board chairman in the annual report i.e. from GH¢1, 100,000 in 2010 to GH¢71, 000,000 in 2011. In 2014Q1 the growth of return

on assets again peaked to its highest level of about 2.1times. The growth may be attributed to the growth in the Banks assets from GH¢21.7m to GH¢29.5m within the same time period. During the year, the total assets growth surpassed the 18% of the previous year, according to the managing director's report.

Figure 4.5: Trend in total gearing
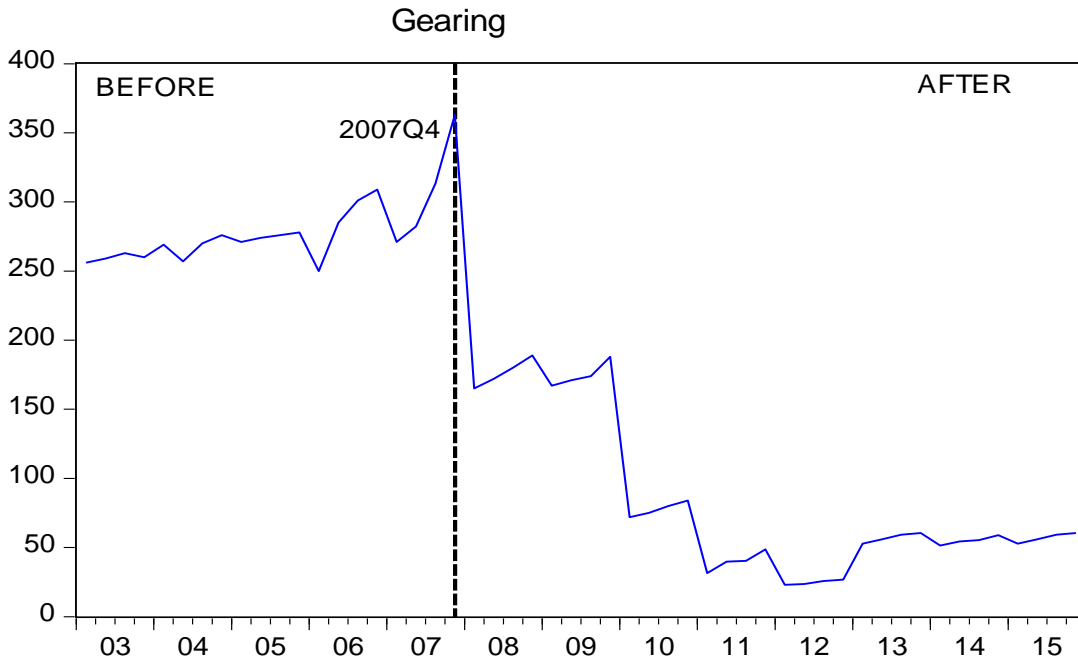
Figure 4.5 shows the trend in gearing ratio for HFC Bank Limited before and after integration. The trend in gearing before integration was higher compared with the trend in gearing ratio after integration. Gearing in the first quarter of 2003 was 257% but grew significant to 309% in last quarter of 2007. Gearing ratio was as high for that period due long-term loans and bonds committed for the Bank as well as the Group accounts. Gearing ratio however declined immediately after 2007Q4. Gearing ratio has since remained as low as 60.1% in the 2015Q4. The decline in gearing ratio is attributed

manage its long-term loans and liabilities internally. The spread in the Banks liabilities among its subsidiaries could be the reason for the decline in gearing ratio.

4.4 Impact of integration on the performance of HFC Bank

4.4.1 Unit root test results

The study made use of the Phillip-Perron unit root test approach to test whether the statistical properties (mean, variance, covariance etc) are constant over time. A null hypothesis of the presence of unit root is tested against an alternative hypothesis of the absence of unit root. The unit test results are presented in Table 4.1. The results are estimated for constant and for constant with trend at both the levels and after the first difference.

Table 4.1: Unit root test results

Variable	LEVEL		1ST DIFFERENCE		Decision
	Constant	Constant and T	Constant	Constant and T	
lnNP	-3.196916	-3.034725	-7.239305***	-7.429873***	I(1)
lnROCE	-2.050660	-2.065411	-6.393571***	-6.304972***	I(1)
lnROE	-3.130023	-2.481512	-4.901886***	-5.216856***	I(1)
lnG	-1.189496	-1.944978	-7.306342***	-7.268816***	I(1)
lnROA	-1.766445	-2.039137	-3.742935***	-3.561588***	I(1)

*** Significant at 5% significance level, ** Significant at 10% significance level

From Table 4.1, the Phillip-Perron (PP) test fail to reject the null for both the constant and constant with trend at the level. The null hypothesis is rejected after the first difference for both the constant and constant with trend. The null hypothesis is rejected after the first difference for both the constant and the constant with trend. The series

employed in this study are integrated of one order [I (1)]. The implication of the variables attaining stationarity after first difference can be viewed in two ways; firstly, shocks to return on capital employed, return on equity, return on assets and gearing ratio will not have a lasting effect since there is mean reversion after first difference, and secondly, the tendency of obtaining bogus results is avoided.

4.4.2 Bounds test cointegration results

The results for bounds test for cointegration is presented in Table 4.2. The presence of cointegration is tested using four difference critical values bounds. The results show the presence of cointegration. That is, there is the presence of long-run relationship among the variable if net profit is expressed as a function of the remaining independent variables.

Table 4.2: Bounds test cointegration results

Test statistic	Value	K
F-statistic	5.284652	4

Critical Value Bounds	I0 Bound	I1 Bound
Significance		
10%	2.45	3.52
5%	2.86	4.01
2.5%	3.25	4.49
1%	3.74	5.06

The F-statistic of 5.284652 is greater than the lower and upper bounds at 10%, 5%, 2.5% and 1% significance level. The bounds test procedure via ARDL show evidence of cointegration among the variables. This means that, net profit, return on capital employed, return on asset, return on equity and gearing ratio will converge to a long-run

stable equilibrium. Thus all the independent variables are said to be long-run drivers of

net profit as an indicator of the performance of HFC Bank.

4.4.3 Short-run ARDL results

Table 4.3 displays the short-run estimates and relationships between net profits (NP),

return on capital employed (ROCE), return on equity (ROE), gearing (G) and return on

asset (ROA). The estimates are generated from ARDL.

Table 4.3: Short-run ARDL results

Selected Model: ARDL(1, 0, 0, 0, 1, 1)

Sample: 2003Q1 2015Q4

Included observations: 51

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LNROCE)	0.136286	0.070658	1.928806	0.0405
D(LNROE)	0.121639	0.065403	1.859842	0.0699
D(LNROA)	0.005623	0.024682	0.227807	0.8209
D(LNG)	0.122457	0.117355	1.043472	0.3027
D(DU)	0.146026	0.067286	2.425134	0.0246
CointEq(-1)	-0.385412	0.133170	-2.894123	0.0060
R-squared	0.954782			
Adjusted R-squared	0.946169			
F-statistic	110.8541			
Prob(F-statistic)	0.000000			

From Table 4.3, the error correction coefficient ECM (-1) coefficient for the net profit

function is negative and statistically significant at 5% significance level. The ECM (-1)

coefficient of -0.385412 measures the speed of adjustment to long-run stable equilibrium.

The negative coefficient of the error correction term has an economic intuition. Its

economic implication is that, it will take about 38.54% for any disequilibrium to be

restored within one year. The relative low coefficient means that the speed of convergence is relatively slow. Deviations from any of the independent variables included in the model are not expected to last more than a period of one year.

The coefficient of return on capital employed is 0.136286 and statistically significant at 5% significance level, and consistent with the prior expectations. The coefficient of ROCE is negative and inelastic in the short-run. ROCE is a driver of net profit at HFC Bank Limited. The coefficient of return on equity (ROE) is 0.121639 and statistically different from zero at 5% level of significance. The coefficient is consistent with the prior expectations. However the coefficient of return on assets and gearing ratio are statistically not different from zero at 5% significance level. Therefore, return on assets and gearing ratio are not key determinant of net profit of HFC Bank in the short-run. The coefficient of the dummy variable is positive and statistically significant at 5% significance level. The implication is that, integration is said to have a positive impact on net profit in the short-run. In the short-run, the main determinants of net profits are ROCE and ROE. In conclusion, integration matters in the short-run.

4.4.4 Long-run estimated ARDL results

The long-run equilibrium and dynamic relationship between net profit and the other independent variables are estimated using the ARDL specification in the previous chapter. The long-run estimated results are presented in Table 4.4.

Table 4.4: Long-run ARDL results

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LNROCE	0.353611	0.190016	1.860953	0.0698
LNROE	0.315608	0.103214	3.057790	0.0039
LNROA	0.014589	0.064350	0.226709	0.8217
LNG	-0.383794	0.186525	-2.057600	0.0459
DU	-0.491420	0.199554	-2.587511	0.0199
C	3.639539	0.835901	4.354033	0.0001

From Table 4.4, the coefficient of return on capital employed (ROCE) in the long-run is positive and inelastic. It is also consistent with the prior expectations and statistically significant at 5% significance level. The sign of the coefficient of return on equity is consistent with the expectation. It is statistically different from zero at 5% significance level and inelastic. Return on equity has a positive impact on net profits in the long-run. However, in the long-run, gearing ratio is said to have a negative impact on net profit since its coefficient is statistically different from zero at 5% significance level. In the long-run, there is a no relationship between net profit and return on asset (ROA). The coefficient of ROA is not statistically significant. The coefficient of the dummy variable is negative and statistically significant. In the long-run, integration is said to have negative impact on net profit in the long-run. The main determinants of net profit for HFC bank Ltd in the long run are return on capital employed, return on equity and gearing ratio.

4.5 Model diagnostic test

The study conducted a model diagnostic test to check whether the model used in estimation has related econometric problems. The test for heteroskedasticity, serial correlation, functional form and the model stability results are presented in table 4.6. The

probability value for the test for heteroskedasticity is 0.1258. This implies that the null hypothesis of the absence of heteroskedasticity is strongly accepted at a 5% level of significance. It is concluded that there is no heteroskedasticity. Also, the probability value for the test for serial correlation in table 4.6 is 0.8053. The null hypothesis of the absence of serial correlation is strongly accepted and hence there is no serial correlation.

Table 4.5: Stability and diagnostic test results

TEST CRITERIA	RESULTS
Heteroskedasticity	0.1258
Serial correlation	0.8053
Functional form test (Ramsey rest test)	0.3142
Cusum test (Stability)	Stable

From table 4.5, the functional form test procedure was carried out using the Ramsey rest test. The probability value of 0.3142 suggests that the Ramsey rest test statistic is statistically insignificant at 5% significance level and the null hypothesis is accepted. This means the functional form of the net profit function is correctly specified. The test for the model stability applying Cusum and the Cusum squared test as indicated in figure 1 of the appendix also indicates that the model is stable.

CHAPTER FIVE

CONCLUSION, POLICY IMPLICATION AND RECCOMMENDATION

5.1 Introduction

This chapter discusses and makes a detailed summary of all the major findings from the previous chapter. However, conclusions are arrived at from all the summarized findings and recommendations made in the subsequent subsection.

5.2 Summary of findings

The estimates from quarterly frequency data from 2003Q1 to 2015Q4 revealed the following results. Results from the bounds test procedure via ARDL was used to test for the presence of cointegration among the variables. Quarterly frequency consolidated data from HFC Bank Ltd used to estimate the determinant of net profits as a performance indicator brought out the following interesting findings. Results from the bounds test via the ARDL estimation showed the presence of cointegration among the variables, such that in the long-run all the variables will converge to a long-run stable equilibrium. Results from the long-run and short-run results showed that, the main determinant of net profits in both the short-run were return on capital employed and return on assets. On the other hand, return on capital employed (ROCE), return on equity (ROE), and gearing ratio were the long-run determinants of net profits. Integration however had positive impact on the performance of HFC Bank Limited in the short-run and negative impact on performance in the long-run.

5.3 Policy implication and recommendations

Taking into account all the findings summarized in the previous chapter, the study makes the following recommendations for the purposes of policy. It is worth noting that all the empirical findings have various policy implications. Below are highlights of recommendations that can help stimulate the performance of HFC Bank Limited.

The study revealed that return on capital employed (ROCE) was a driver of net profit of HFC Bank Limited in short-run and long-run. The study therefore recommends measures that are geared towards improving sales through the introduction of innovative products and services. Management can also monitor how efficient the Banks capital is employed through the reduction of operating costs by paying its debt off or restructure its finances. When the Bank pays off its debt as required, its stock of liabilities is reduces significantly and this will result in improvement in return on capital employed (ROCE).

HFC Bank Limited can make it point it a point to review its books on regular basis to identify assets that have lost its productivity and have become obsolete. Unproductive and obsolete asset of the Bank can be sold off and replaced with productive assets. This action in effect will increase the efficiency of capital employed. Selling off an outdated equipment of machinery will reduce the total asset of HFC Bank Limited and hence increase the Banks return on capital employed. Managing inventory effectively can also will in totality result in an improvement in the financial position and performance of HFC Bank Limited and for that matter its return on capital employed (ROCE).

Increasing the total gearing of the Bank will significantly impact net profits (NP). The Bank can only improve its total gearing by increasing its revenue and reducing operation cost. This can only be achieved if HFC Bank Limited totally eliminates its investment on some of its assets that are inadequate when it comes to their contribution to base line profitability. However, if there any asset that the Bank spends money on that is not beneficial to productivity and profitability in the long-run and short-run, that asset must be completely discarded.

According to finding in the previous chapter, increasing the return on equity of HFC Bank Limited will in effect also cause an increase in net profits. The following measures are therefore recommended as the policy actions that can be taken to improve the return on equity of equity of the Bank; sharing idle cash among alternative businesses, adopting appropriate equity and debt financing, improving profitability margins and improving the turnover of assets.

5.4 Conclusion

The study measured the performance of HFC Bank Limited before and after it integrated with subsidiaries in 2007 using performance indicators such as net profit percent, return on capital employed, return on equity, return on assets and gearing. The study made use of the ARDL estimation approaches to estimate the short-run and long-run determinants of performance using net profits as the performance indicator at HFC Bank Ltd since it integrated with its subsidiary in 2007. A dummy variable is however included in the model to estimate the effect of integration on the performance of HFC Bank Limited.

Return on capital employed and return on assets are the main drives of performance of HFC Bank limited in the long run. On the other hand, return on capital employed (ROCE), return on equity (ROE), and gearing ratio were the long-run drivers of the performance of HFC Bank limited. Integration has a positive impact on the performance of HFC Bank Limited in the short-run and negative impact on performance in the long-run.

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APPENDIX

TABLE 1: BOUNDS TEST RESULTS

ARDL Bounds Test
Date: 01/22/16   Time: 23:17
Sample: 2005Q2 2014Q4
Included observations: 39
Null Hypothesis: No long-run relationships exist

Test Statistic	Value	K
F-statistic	5.284652	4

Critical Value Bounds

Significance	I0 Bound	I1 Bound
10%	2.45	3.52
5%	2.86	4.01
2.5%	3.25	4.49
1%	3.74	5.06

Test Equation:
Dependent Variable: D(LNNP)
Method: Least Squares
Date: 01/22/16   Time: 23:17
Sample: 2005Q2 2014Q4
Included observations: 39

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LNG)	0.297887	0.078395	3.799803	0.0006
C	1.571008	0.464511	3.382064	0.0019
LNROCE(-1)	0.062429	0.072593	0.859982	0.3962
LNROE(-1)	0.142249	0.085873	1.656507	0.1074
LNG(-1)	-0.045542	0.047529	-0.958196	0.3451
LNROA(-1)	-0.028953	0.039962	-0.724512	0.4740
LNNP(-1)	-0.580399	0.175198	-3.312823	0.0023

R-squared	0.851909	Mean dependent var		0.038398
Adjusted R-squared	0.837892	S.D. dependent var		0.187569
S.E. of regression	0.136824	Akaike info criterion		-0.979096
Sum squared resid	0.599064	Schwarz criterion		-0.680508
Log likelihood	26.09238	Hannan-Quinn criter.		-0.871966
F-statistic	6.569011	Durbin-Watson stat		1.958968
Prob(F-statistic)	0.000135			

Table 2: Long run and short run results

Dependent Variable: LNNP
Method: ARDL
Date: 03/19/16   Time: 11:28
Sample (adjusted): 2003Q2 2015Q4
Included observations: 51 after adjustments
Maximum dependent lags: 2 (Automatic selection)
Model selection method: Akaike info criterion (AIC)
Dynamic regressors (2 lags, automatic): LNROCE LNROA LNROE LNG DU

Fixed regressors: C
Number of models evaluated: 486
Selected Model: ARDL(1, 0, 0, 0, 1, 1)
Note: final equation sample is larger than selection sample

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
LNNP(-1)	0.614588	0.133170	4.615053	0.0000
LNROCE	0.136286	0.070658	1.928806	0.0605
LNROA	0.005623	0.024682	0.227807	0.8209
LNROE	0.121639	0.065403	1.859842	0.0699
LNG	0.122457	0.117355	1.043472	0.3027
LNG(-1)	-0.270376	0.082602	-3.273253	0.0021
DU	0.046026	0.167286	0.275134	0.7846
DU(-1)	-0.235425	0.147711	-1.593822	0.1185
C	1.402720	0.443870	3.160206	0.0029

R-squared	0.954782	Mean dependent var		3.241888
Adjusted R-squared	0.946169	S.D. dependent var		0.546570
S.E. of regression	0.126812	Akaike info criterion		-1.133431
Sum squared resid	0.675418	Schwarz criterion		-0.792520
Log likelihood	37.90249	Hannan-Quinn criter.		-1.003159
F-statistic	110.8541	Durbin-Watson stat		2.084741
Prob(F-statistic)	0.000000			

*Note: p-values and any subsequent tests do not account for model
   selection.

ARDL Cointegrating And Long Run Form
Dependent Variable: LNNP
Selected Model: ARDL(1, 0, 0, 0, 1, 1)
Date: 03/19/16   Time: 10:29
Sample: 2003Q1 2015Q4
Included observations: 51

Cointegrating Form				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LNROCE)	0.136286	0.070658	1.928806	0.0405
D(LNROE)	0.121639	0.065403	1.859842	0.0699
D(LNROA)	0.005623	0.024682	0.227807	0.8209
D(LNG)	0.122457	0.117355	1.043472	0.3027
D(DU)	0.146026	0.067286	2.425134	0.0246
CointEq(-1)	-0.385412	0.133170	-2.894123	0.0060

   Cointeq = LNNP - (0.3536*LNROCE + 0.3156*LNROE + 0.0146*LNROA
      -0.3838*LNG -0.4914*DU + 3.6395)

Long Run Coefficients

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LNROCE	0.353611	0.190016	1.860953	0.0698
LNROE	0.315608	0.103214	3.057790	0.0039
LNROA	0.014589	0.064350	0.226709	0.8217
LNG	-0.383794	0.186525	-2.057600	0.0459
DU	-0.491420	0.199554	-2.587511	0.0199
C	3.639539	0.835901	4.354033	0.0001

Table 3: Heteroskedasticity Test

Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	1.823273	Prob. F(6,32)	0.1258
Obs*R-squared	9.935944	Prob. Chi-Square(6)	0.1274
Scaled explained SS	16.68259	Prob. Chi-Square(6)	0.0105

Test Equation:
Dependent Variable: RESID^2
Method: Least Squares
Date: 02/05/16   Time: 23:36
Sample: 2005Q2 2014Q4
Included observations: 39

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.238584	0.096529	-2.471626	0.0190
LNNP(-1)	0.095376	0.037615	2.535569	0.0163
LNROCE	0.012314	0.014667	0.839583	0.4074
LNROE	-0.040970	0.020076	-2.040719	0.0496
LNG	0.016611	0.020957	0.792592	0.4339
LNG(-1)	-0.009310	0.017526	-0.531211	0.5989
LNROA	0.007483	0.006854	1.091828	0.2831

R-squared	0.254768	Mean dependent var	0.013671
Adjusted R-squared	0.115037	S.D. dependent var	0.030932
S.E. of regression	0.029099	Akaike info criterion	-4.075089
Sum squared resid	0.027096	Schwarz criterion	-3.776501
Log likelihood	86.46423	Hannan-Quinn criter.	-3.967958
F-statistic	1.823273	Durbin-Watson stat	1.431292
Prob(F-statistic)	0.125832		

Table 4: Serial Correlation LM Test

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	0.218080	Prob. F(2,30)	0.8053
Obs*R-squared	0.558882	Prob. Chi-Square(2)	0.7562

Test Equation:
Dependent Variable: RESID
Method: ARDL
Date: 02/05/16   Time: 23:51
Sample: 2005Q2 2014Q4
Included observations: 39
Presample missing value lagged residuals set to zero.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LNNP(-1)	-0.095030	0.344442	-0.275896	0.7845
LNROCE	0.003565	0.070583	0.050509	0.9601
LNROE	0.039450	0.147998	0.266555	0.7916
LNG	-0.023127	0.125486	-0.184303	0.8550
LNG(-1)	0.016778	0.097523	0.172040	0.8646
LNROA	-0.002223	0.031503	-0.070568	0.9442
C	0.214964	0.824933	0.260584	0.7962
RESID(-1)	0.146282	0.358601	0.407923	0.6862
RESID(-2)	-0.070809	0.205395	-0.344744	0.7327

R-squared	0.014330	Mean dependent var	1.73E-15
Adjusted R-squared	-0.248515	S.D. dependent var	0.118454
S.E. of regression	0.132356	Akaike info criterion	-1.007461
Sum squared resid	0.525547	Schwarz criterion	-0.623563
Log likelihood	28.64550	Hannan-Quinn criter.	-0.869722
F-statistic	0.054520	Durbin-Watson stat	1.983065
Prob(F-statistic)	0.999890		

Table 5: Stability test

Ramsey RESET Test
Equation: UNTITLED
Specification: LNNP LNNP(-1) LNROCE LNROE LNG LNG(-1) LNROA C
Omitted Variables: Squares of fitted values

	Value	df	Probability
t-statistic	1.027009	31	0.3124
F-statistic	1.054746	(1, 31)	0.3124

F-test summary:

	Sum of Sq.	df	Mean Squares
Test SSR	0.017544	1	0.017544
Restricted SSR	0.533188	32	0.016662
Unrestricted SSR	0.515644	31	0.016634

Unrestricted Test Equation:
Dependent Variable: LNNP
Method: ARDL
Date: 02/05/16   Time: 23:59
Sample: 2005Q2 2014Q4
Included observations: 39
Maximum dependent lags: 2 (Automatic selection)
Model selection method: Akaike info criterion (AIC)
Dynamic regressors (2 lags, automatic):
Fixed regressors: C

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
LNNP(-1)	0.899373	0.578908	1.553568	0.1304
LNROCE	0.241119	0.173848	1.386956	0.1753
LNROE	0.464626	0.276066	1.683025	0.1024
LNG	0.341877	0.225297	1.517448	0.1393
LNG(-1)	-0.524571	0.333398	-1.573405	0.1258
LNROA	-0.064140	0.049973	-1.283502	0.2088
C	1.972162	0.487184	4.048087	0.0003
FITTED^2	-0.250683	0.244091	-1.027009	0.3124

R-squared	0.868674	Mean dependent var	3.391268
Adjusted R-squared	0.839019	S.D. dependent var	0.321445
S.E. of regression	0.128972	Akaike info criterion	-1.077768
Sum squared resid	0.515644	Schwarz criterion	-0.736524
Log likelihood	29.01647	Hannan-Quinn criter.	-0.955332
F-statistic	29.29330	Durbin-Watson stat	1.881203
Prob(F-statistic)	0.000000		

*Note: p-values and any subsequent tests do not account for model
    selection.

Figure 1: CUSUM Stability test