The Determinants of Bank's Profitability in Nigeria

Aminu Bashir Aminu

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Approval of the Institute of Graduate Studies and Research

Prof. Dr. Elvan Yılmaz
Director

I certify that this thesis satisfies the requirements as a thesis for the degree of Master of Science in Banking and Finance.

Assoc. Prof. Dr. Salih Katırcıoğlu
Chair, Department of Banking and Finance

We certify that we have read this thesis and that in our opinion it is fully adequate in scope and quality as a thesis for the degree of Master of Science in Banking and Finance.

Assoc. Prof. Dr. NesrinÖzataç
Supervisor

Examining Committee

1. Assoc. Prof. Dr. Salih Katırcıoğlu
2. Assoc. Prof. Dr. Bilge Öney
3. Assoc. Prof. Dr.NesrinÖzataç

ABSTRACT

The study was conducted to find out the impact of bank specific and macroeconomic factors on the profitability of seven (7) selected banks from Nigeria for a period of seven (7) years from 2005-2011. A panel regression analysis was used to find out these relationships empirically. The estimation results indicated that management efficiency has been a driving force in determining the profitability of banks in Nigeria with respect to the short-run analysis. However, the study also indicated how macroeconomic factors such as GDP growth rate had a negative impact on the profitability of Nigerian banks, which is no surprise due to unsettled policy reformations during the last few years. The study concluded with some remarks on possible implementations of the findings.

Keywords: Performance, Profitability, Banking Industry, macroeconomic**.**

ÖZ

Bu çalışmanın amacı, 2005-2011 yıllarını içeren yedi yıllık süreçte Nijerya bankalarının banka kârlılığının gerek banka içsel faktörler gerekse makroekonomik faktörler baz alınarak incelenmesini içermektedir. Bu ilişkileri ampirikolarak testetmek için panel regresyon analizi uygulanmıştır. Kısa dönem baz alındığında Nijerya bankacılık karlılığını belirlemedeki en önde yer alan nokta yönetim etkinliği olmuştur. Çalışma aynı zamanda makroekonomik faktörler dikkate alındığında GSMH`nin banka karlılığı üzerinde negatif bir ilişki ortaya koymaktadır. Bu bulgu son yıllardaki reformlarla da örtüşmektedir. Çalışmada, analiz sonucuna göreolası uygulanabilir sonuçlar da yer almaktadır.

Anahtar Kelimeler: Performans, kârlılık, bankacılık, makroekonomik

Dedicated to my family

And the

Nigerian community in

TRNC

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TABLE OF CONTENTS

LIST OF TABLES

LISTOF FIGURES

LIST OF ABBREVIATIONS

GDP:	Gross Domestic Product
ROA:	Return on asset
ROE:	Return on equity
CAR:	Capital adequacy ratio
EFF:	Management efficiency ratio
ASQ:	Asset quality ratio
LQR:	Liquidity ratio
IMF:	International Monetary Fund
CBN:	Central Bank of Nigeria
INF:	Inflation
OLS:	Ordinary Least Square
E-VIEWS:	Econometric views

Chapter1

INTRODUCTION

Banks have a very importantfunction to play in the economic operations of any country as financial intermediary. Thetask of providing funds to the economy makes their performance an important objective of any country. Therefore, a look into the factors that affect their profitability is important and essential to the strength of the economy (Bashir. 2000).

The financial system is considered source of development and growth in all countries. This happens as a result of their ability to dictate the financial system in that economy, by performing some important obligations such as making possible the realization of liquidity policies and payment system (Mendes and Abreu. A 2002)

As such, it is of utmost importance to look into this issue and have a picture of how it works, to ensure a safe financial system and protect the economy. Below is a brief historical background of how the Nigerian banking industry evolved over the years.

1.1 Historical Background

The history of banks goes as far back as the 18^{th} century BC,at that time they were considered a merely place to keep valuable items. It was later in the 15^{th} century AD that

the first institution called a bank came to existence, but banks have evolved to be part of our daily life activities whether directly or indirectly making their incomes mainly from interest charged on loans[1].

In 1892, Nigeria established its first bank which is The African Banking Corporation.Up until 1952, the Nigerian banking system was completely unregulated. This has led to total failure in the banking sector during that period, as quoted by Prof Uzoada between 1947 and 1952; there was rapid expansion in the banking sector, but then followed by high rate of failures claiming 21 of the total 25 banks established in that period.[2]

Prior to the fully commission of the Nigerian Central bank in 1959,the banking decree established proved ineffective due to lack of a supervisory body behind it and this facilitated the incorporation of the Nigeria central bank from the Nigerian federal Government in that year. The CBN came into existence provided the sector with support and supervision. By 1969, the banking sector was dominated by foreign banks, as mentioned by Akpomi and Nnadi(2008) the bankingruling of 1969clearly wanted all the commercial banks to be domesticallyintegrated with their financial statements published for the public. Also by 1972, the Nigerian Enterprise promotion decree was implemented to reduce the overseaspossession of the banks in Nigeria to a maximum of 60% business oriented and was formerly reduced to 40% in 1976.

[1] History of banks,Answers.yahoo.com
[2]W.O,Uzoaga (1981).'Nigerian Money and banking in'', 4th dimension publishers, Enugu, Nigeria.

During the 1980's, as a result of the famous crash in the oil market hugely affected the Nigerian banking system, the CBN welcomed the idea of establishment of foreign banks in order to rectify the problems in 1990. By 2004, in an effort to improve availability of credit and strength of the sector, the CBN introduced a number of banking reforms. One of which requires the banks to raise their capital base from $15 million to $192.2 million before the end of year 2005.This consequently reduced the number of financial institutions from 89 to 25 in that period[3].

By October 2012, the numbers of commercial banks in Nigeria have reduced to 22. This number includes 18 local banks,3 foreign banks and 1 Islamic bank. Many of the above mentioned banks have merged with each other, such as, Access banks acquire intercontinental bank, Ecobank acquired oceanic bank, First city monument bank acquiring Finbank and also sterling bank acquiring equatorial trust bank.Some of the banks also changed their names, some recent examples include. Formerly Spring bank,now the bank changed its name to Enterprise bank and also formerly Afribank,now changed to keystone bank limited.[4]

The Nigerian banking industry has been hit by many crises in the last two decades.The major ones include the banking reforms of 2004 and the subprime crisis that affected almost the entire world in 2008. Though Nigerian banking industry was only hit by the aftermath effect of the crisis (SunisiLamido 2012). My study will cover the period of

[3]The Research department of CBN (1979) "Twenty years of Nigerian central banking. CBN 1959-1979.
[4] En.wikipedia.org/wiki/list of banks in Nigeria

2005-2011 and this include the 2008 subprime mortgage crisis and the implementation effect of the 2004 banking reforms that showed its effect in 2005.[5]

1.2 Aim of the Study

The study will focus on evaluating the major determinants of profitability in Nigerian banks. Although many factors that include capital base, deposits, interest rates etc… have been considered as factors that affect profitability, the study will try to analyze the internal and external factors of profitability in Nigerian commercial banks. By internal factors (the point that was taken into consideration is the ones that easily influence by the banking management decisions (bank specific factors).The internal factors considered include Liquidity Ratio, Asset Quality Ratio, Capital Ratio and Management efficiency Ratio. And the external determining factors are those factors that are out of reach of the banks to influence; in this case we will take macroeconomic factors as external factors and they are Gross Domestic Product (GDP) and the Inflation.

Profitability with respect to thisstudy would be measured with respect to ROA(Return on Asset) and ROE(Return on equity).These two variables will be considered as the dependent variables. Although many studies have been done on this topic there are few on Nigeria. An example of a past study that was done on Nigeria is the work of Uhomoibhi Toni (2007), who studied the determinants of bank profitability in Nigeria which covers macroeconomic evidence from Nigeria for the of period of 1980-2006[6].

[5] www.cenbank.org/speeches/2009/GovAdd-21-1-09.pdfv
[6] The determinants of profitability in Nigeria: macroeconomic evidence. Uhomoibhi Toni (2007)

1.3 Scope of the Study

The study will be carried out on financial data's of 7 selected commercial banks in Nigeria. We will try to look into their profitability and see how these internal and external factors have an impact on these banks in the period of 2005-2011(7 years). The idea is to investigate empirically the factors and study how they affect the profitability of these commercial banks in Nigeria within that period.

1.4 Structure of Thesis

This paper will be structured as follows;chapter two will present the literature review showing previous studies done on the profitability of banking industry.Chapter three consists of a brief overview of the Nigerian banking industry showing how the Nigerian banking system functions.Chapter four is on the methodology that would be carried out on the research.Chapter five consists of the empirical analysis and results of the findings.And finally chapter six indicates some recommendations and conclusions on the findings.

Chapter2

LITERATURE REVIEW

Going through some past studies carried out on this topic, the studies can be classified in two groups, as those on banks for a particular country and those on banks in a panel of countries. The cross-country studies such as the works of Molyneux.J and Thorton 1992, Demirgu-K and Huizenga 1999, Bashiru 2000, D-Kunt and Huezinga 2001 and Abreyu and Mendez 2002 contributed a lot to the literature.

However, my study will focus on a particular country, and my concentration will be similar to those who studied a particular country like Abume (2008)[7], AlhanaSoghon et al(1999), Naceaur (2003),Naceaur and Gomes (2001), Barajas et al (1999) Berger (1995), Gilbert (1984),Mark Harjee and Naka (1995),Berge and Hannan (1993),Macucci and Qualiarella (2009), Sorenson and Jimenez (2009), Goldberg and Rai (1996).

Most importantly, the determinants of profitability can be viewed from the internal and external factors point of view. The internal determinants of profitability can be those factors that can influence profitability through banks management decisions and objection. The work of Demirgur-Kunt and Huizinga (2000. They noted that capital

[7]papers.ssrn.com/sol3/papers.cfm?abstract_id=1231064

ratio, loan loss provision and controllingexpenses serve as key significantfeatures in accomplishing bank profitability in most countries nowadays in contrast to some definitions of profitability.

In their research to find out the determinants of profitability in Europe, Molyneux and Thorton (1992) applied the model used by Bourke(1989). They used unvarying accounting factsmade available by the international bank credit analysis ltd(IBCL) to explain the differences in bookkeeping probes. In the end, they concluded that there is a presence a positive correlationamong efficiency and profitability[8].

Marcucci and Qualiariella, Sorenson and Jimenez (2009) reported that provision for loan loss is the main tool of the nonlinearity leading to a 0.233% decrease in the return on the assets of the bank.

Also in the recent work of Alhanasoglou, et al (2006), they carried out a research on the profitability performance of the south eastern European banking diligence over the period of 1998-2003.The experimental results presented showed that the improvement of theprofitability of banks in those countries necessitate new improved principles in risk administration and operating effectiveness, and which judging by the evidence presented in the research papers showed it significantly affect the profit. Anexplanationof the result is that the effect of market application is positive[9].

[8]hera.ugr.es/doi/15004909.pdf
[9]*"Journal of International and Financial Markets, Institutions & Money" (Forthcoming).*

According to the paper written by Berger and Hannans (1993), they had a result showing positive relationship between concentration and performance criteria. Amore early (SCP) studies conducted in respect to banking using profit data were performed by examining the anticipated coefficient for this[10].

Recently, a large number of researches have been concentrating on the correlation among macroeconomic inputs and the riskiness of banks. Saunder and Allen.A (2004) took into consideration the writing on pro-cyclicality in prepared credit and the riskiness of the market exposures. Such cases of cyclical affects mostly results from regularly risk generated from frequent macroeconomics pressure or due to interdependences between banks as the financial market with institutional market are rapidly strengthen internationally .They may in due course intensify production cycle movements with respect to undesirable relevance on banks' loan provision capability[11].

External determinants of bank profitability are apprehensive with those factors which are not influenced by specific banks decisions and policies, but by macroeconomic events outside the influence of the bank. Several external determinants are included separately in the performance examination to separate their influence from that bank structure so that their impact on profitability may be more clearly notable.

A substantial amount of effort has been devoted to the external determinants of profitability in banks. Mukherje et al (1995) in their work originated that the stock

[10]Efficient-Structure Hypotheses.Journal of Money, Credit and Banking 27 (2), 404-431.
[11]L **Allen**, A **Saunders** - Journal of Financial Services Research, **2004** - Springe

market in Japan is co-integrated with a number of 6 macroeconomic factors to be precise, rate of exchange , supply of money, rate of inflation, production of the industry, long-term rate of the bond and the call money rate in the short term[12].

A more recent one is a study done by Sing and Chanhag (2009) looked into the Indian banking sector from 3 points of view foreign banks, public and private for the period of 2002 – 2007 in terms of profitability. Their study clearly showed that the Indian banks profitability have been increasing significantly in the past years as a result of increase in per capital income and foreign exchange reserve respectively[13].

A paper written by Gilbert (1984) showed that giving the 44 studies done on the United states banks,32 showed return with the traditional hypothesis, he also noticed that the main limitation of SCP studies and concentration and also profitability in the banking sector markets.[14]

A more interesting study by Goldberg and Rai(1996),who took into consideration the Bergers model to test the profitability for 11 European countries. The data's used to cover the period between 1988 – 1991.The two employed a more stochastic approach to the cost frontier to draw out the x-efficiency and extent in-efficiency. At the end, their results showed no significant encouraging connection between the two variables profitability with concentration.

[12]www.econjournals.com/index.php/ijefi/article/download/2/1
[13]Profitability Determinants of Banks in India. *International Journal of Global Business*, 2: 1,163-180
[14]http://www.bizresearchpapers.com/12%5B1%5D..Salim.pdf

Similarly, Tuncay and Silpaar(2006) employed replicaof the Berger model of (1995) in their most recent work. They incorporated the direct determinant of x-efficiency. They came to their conclusion that ROE is positively affected by the ratio of non-interestexpense and equity to the total asset value, nationalized income and concentrated ratio.They mentioned also that ROA and ROE aredisapprovingly affected with respect to the deposits ratio.

In the work done byR.GastonGelos (2006), he studied the determinants of bank profitability in Latin American banks. He was able to employ both bank and country level data for his study and he discovered that difference are huge due to reasonablyelevated interest rates of which according to the work is a alternative for an adequately high macroeconomic riskiness as a result of inflation

Chapter 3

THE NIGERIAN BANKING SYSTEM

Nigeria currently considered a developing economy with a rising potential sectors which have already reached central earnings class reported by "The World bank"[15]. Nigeria blessed with rich availability of resources, more improved financial sector, communication sector, legal sector, transport system and the stock exchange system (NSEC) which is considered the one of the biggest in the continent. Nigeria has been positioned 31st in the whole world in respectto GDP (Growth domestic product) as at 2011.

The Nigerian banking industry have emerged as one of the most vibrant and growing banking industry in Africa. A recent study shows in just 5 years from 2004-2009, Nigerian banks have spread to 15 more countries and have established 39 more subsidiaries in these countries, making it a total of 18 countries and 44 subsidiaries throughout the African countries thus marked as the leader of the sub-Saharan banking sector[16].

[15] "World Bank list of economies". http: www.worldbank.org. January 2011.
[16] "Nigeria (07/08)". State.gov.

The Nigerian banking system faced some economic and financial challenges in the early and late 2000 era. My thesis will concentrate on the two most important of these challenges, the 2004 Nigerian banking reform and the 2008 financial crises.

3.1 The 2004 Nigerian Banking Reform:

As expressed by Omoriyi(1991), CBN(2004) and Balogun(2007), Nigerian banking sector reforms were introduced to achieve some certain objectives, some of which include: market liberalization in order to promote effectiveness in resource distribution, development of savings mobilization base, support of investment and growth in the course of market based interest rates. Other objectives include, expansion of the regulatory and surveillance structure, fastening strong challenge in the provision of services and laying the foundation for inflation control and economic growth[17].

In a campaign to meet up the above achievements, further banking modification were put into operation in September 2004. Commercial Banks were mandated to lift their asset base from almost USdoller15 million to USdoller192 million with a deadline till end of 2005.For the banks to meet-up the obligation, they combined, with others who are unable increase the funds or arrange and agree on mergers resulting in lostof their licenses. This implementation consequently led to the decline in amount of commercial banks in Nigeria from the initial number 89 to a smaller 25. In the route of this, these commercial banks produced acorrespondingin dollars of USdoller3 billion in naira from

[17]cenbank.org/Out/2012/publications/reports/rsd/efr-2010/Economic

the local market whichalso introduced almost $652 million of the federal deposit insurance commission (FDI) investment into the banking sector Nigeria.

The CBN with its intention of manipulating the stage and the course of all other interest rates in the capital market and encourage trading within the inter-bank money. The CBN had to swap what used to be minimum discount rate(MRR), with the Monetary policy rate(MPR) and also thereby reducing the discount rate to a single digit in December 2006. Before the intervention in December 2006, deposit money banks in search of liquidity had all the time chose to discount again those cash securities bought.

The rate at which reformations on banks was influencing Nigerian banking industry also led to the proper deregulation of the financial system by the CBN(central bank of Nigeria) putting some considerable test on the organizational structures of deposit taking financial system[18]. Taking for example the recent incident that happened within the period of August till December 2009 , the CBN had to inject an corresponding figure of USdoller4.1 billion to ten commercial banks in Nigeria that are thought to be under great financial catastrophe, dismissed eight commercialbanks CEO as well as introducing a number of new set of laws and also taking other immediate measures which are compulsory if the banks are to be protected from the systematic failure and also to make sure there is and would be stability and soundness in the Nigerian banking sector.

[18]www.cenbank.org/OUT/SPEECHES/2009/GOVADD-21-1-09.PDF

Table 3.1: Shows list of banks in Nigeria

S/NO	NAME OF BANK	YEAR THEY COMMENCED OPRATION
1	ACCESS BANK	1989
2	DIAMOND BANK	1990
3	ECO-BANK NIGERIA	1986
4	ENTERPRICE BANK	2011
5	FEDELITY BANK	1988
6	FIRST BANK	1979
7	FIRST CITY MONUMENT BANK	1982
8	KEYSTONE BANK	2011
9	GUARANTY TRUST BANK	1990
10	MAINSTREET BANK	2011
11	SAVANNAH BANK	2009
12	SKYE BANK	2006
13	STANBIC IBTC	2005
14	STERLING BANK NIGERIA	2006
15	STANDARD CHARTERD NIGERIA	1999
16	UNION BANK	1993
17	UNITY BANK	2006
18	WEMA BANK	2001
19	ZENITH BANK	1990
20	UNITED BANK FOR AFRICA	1961

21	JAIZ BANK	2012

Sources: http://www.cenbank.org/Supervision/Inst-DM.asp

Table 3.2: List Of banks with their asset

S/NO	BANK	YEAR OF ESTABLISHMENT	FINANCIAL REPORT	TOTAL ASSET-US $
1	DIAMOND BANK	1990	7 YEARS	3.93 BILLION
2	FIRST BANK	1979	7 YEARS	18.6 BILLION
3	FIRST CITY MONUMENT BANK	1982	7 YEARS	3.65 BILLION
4	GUARANTY TRUST BANK	1990	7 YEARS	1.525 BILLION
5	ZENITH BANK	1990	7 YEARS	776.1 MILLION
6	UNITED BANK FOR AFRICA	1961	7 YEARS	12.3 BILLION
7	ACCESS BANK	1989	7 YEARS	12.6 BILLION

Sources: http://en.wikipedia.org/wiki/List_of_banks_in_Nigeria

3.2 The Effectof 2008 Crisis on Nigerian Banks:

The experience taken recently from the global financial crises has pushed countries to be more conscioustightening their regulations which consequently led them to embark on

banking reforms on a regular basis. As you all aware of the extraordinary financial and economic crisis that shook the entire world around 2007-2009 that resulted in a worldwide recession. This was the reason for thedisintegration of many worlds well known big financial institutions and led bankruptcy of awhole nation to be rendered insolvent.

In Nigeria, the economy faltered and was hit by the second round effect of the crises that led to the collapse of the Nigerian stock market by 70% in 2008-2009 and many Nigerian banks had to deal with sustaining enormous losses, mainly as a consequence of their strong relationship to the capital market and downstream oil and gas sector. The achievement of the banktransformation in the middle to late 2000 era was on the other hand not met as start of the global mortgage financial crises in August 2007 ensured that family and companieswere not in position to making payments on house loansand also other loans.

There have been many defects as a result of the crisis some include the financial sector in Nigeriaprovoked decline in lending to the real sector, decliningactivities In the economy and substantial job losses in most sectors of the economy, decreasing capital inflows in the economy, de- accumulation of foreign reserves and difficulty on exchange rates, and restricted foreign trade finances for banks with credit lines drying up for some banks. (CBN)

The diagrams below show the effect of the 2008 recession on interest rates and inflation from 2005 to 2011.

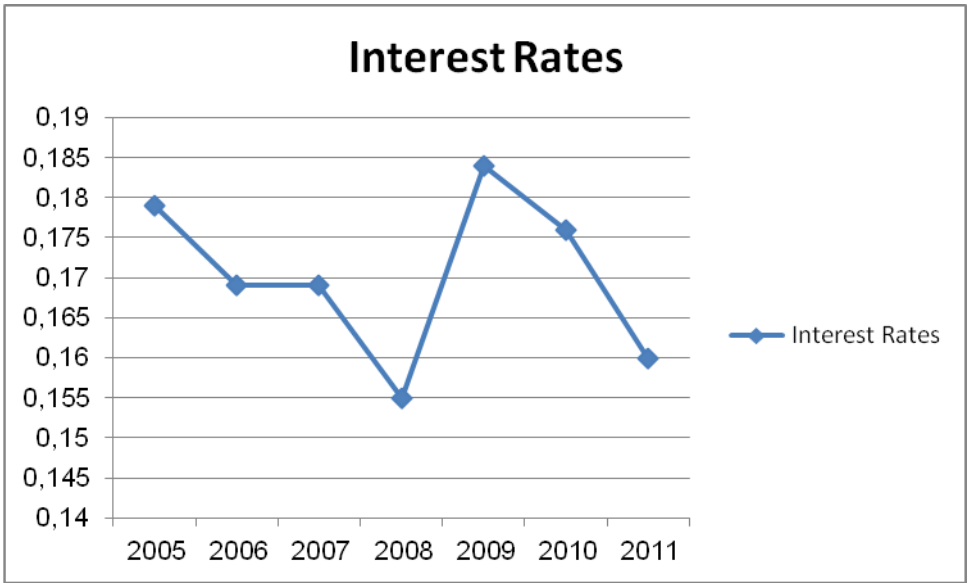

Diagram 3.1 Showing Interest rates from 2005-2011

The above diagram shows the effect of the global financial crises on the Nigerian interest rates.It can be noted that, the recession that happened in 2008 had an immediate effect on the interest rate of Nigeria in 2009 by sky rocketing the interest rate from about 15% to 18%. This can have a devastating effect on the macroeconomic conditions of the country.

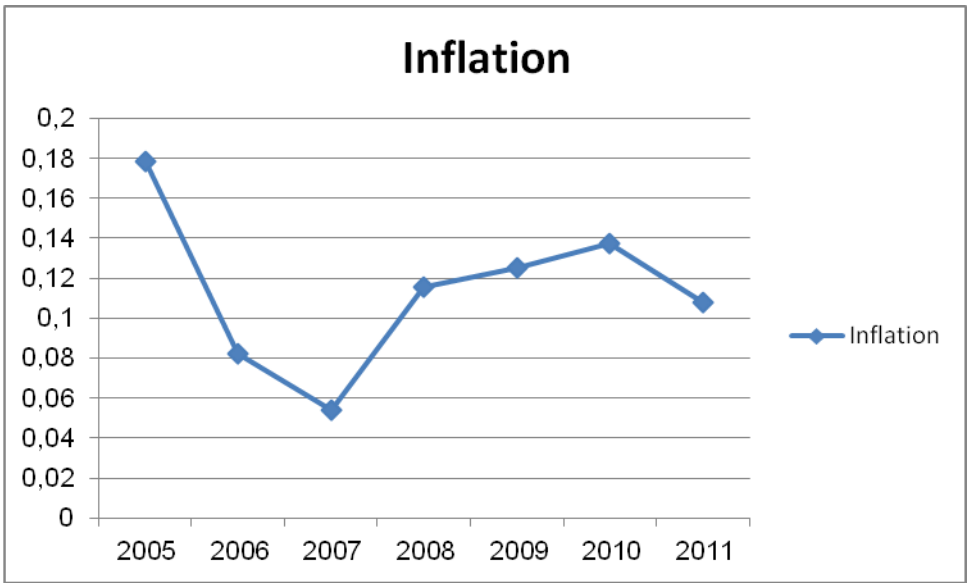

Diagram 3.2 showing inflation from 2005-2011

Also as can be seen from the inflation point of view, the effect of the recession started from 2008 till 2010. It shows the inflation moving from about 5% in 2007 to almost 12% in 2008 and continuing to increase till when it started dropping in 2011. Both diagrams can be explained as a result of the trade relationship that exists between Nigeria, United States and other European countries.

Chapter4

METHODOLOGY

4.1 Data

The study will mainly focus on secondary annual data report taken from seven (7) commercial banks in Nigeria between the periods of 7years from 2005-2011.These banks were selected with respect toavailability of their financial data's obtained from the individual websites of the selected banks[19]. The selected banks are Access bank plc, Diamond bank plc, First city monument bank plc, First bank plc, united bank for Africa plc, Guaranty trust bank plc and Zenith bank plc.

The ratios used in the empirical analysis were not directly taken from the banks websites but were computed with the help of Microsoft excel and e-views software. The e-views software gave us more understanding of the research by putting these ratios in a panel data analysis. The panel data will help in determining the profitability of the Nigerian banks using the time series and cross-sectional data taken from the individual banks.

4.2 Variable

[19]Individual bank websites available in the reference section.

In order to test for the profitability in these banks, we will be using two (2) dependent and six (6) independent variables.

Table 4.1:The Variables Notation and their Measure:

	variables	Measures	Notation
Dependent Variables	Profitability	Return on Assets(ROA)= Net Income/Total Assets Return on Equity(ROE)= Net Income/Total Equity	ROA ROE
Independent Variables	Capital Adequacy	Equity/Total Assets	CAR
	Asset Quality	Total Loans and Receivables/Total Assets	ASQ
Bank-Specific	Efficiency	Interest Income/ Interest Expense	EFF
	Liquidity	Liquid Assets / Total Assets	LQR
Macroeconomic determinants	Inflation		INF
	Growth Rate		GR

4.2.1 Dependent Variables

The two most important variables in testing for banks profitability are ROA (Return on Asset) and ROE (Return on equity) which we would be considered as our dependent variables. Each of the above listed variables looks at profitability in a slightly different aspect.

ROA

ROA is primarily an indicator of managerial efficiency; it indicates how capable the management has been in converting Assets into net earnings. It can be presented by dividing net income of the bank by the total asset. it shows what earnings have been produced from the invested capital or Asset.

ROE

ROE on the other hand, is a measure of the rate of return flowing to investors or shareholders. It estimates the net benefit that the stockholders have received by investing their capital in the financial institution meaning the outcome for putting their wealth at risk. The ratio can be derived by dividing net income by the total equity.

4.2.2 Independent Variables

We have chosen four (4) independent variables to conduct this research namely Capital Adequacy, Asset Quality, Management Efficiency, and Liquidity.

Liquidity

Liquidity is usually a very important signal to the investors,it indicates the level of liquid asset a bank possesses at a time . When the ratio is high it tells the bank is highly liquid, which from the investors point of view means the bank is reliable. And low ratio on the other hand means the bank is far from liquid and close to failure from the investor's point of view. The ratio can be computed by dividing liquid asset by the total asset of the bank.

Asset Quality

This is an evaluation or assessment of the credit risk concerned with a particular asset. It shows the exposure of the bank to credit risk by including a non performing loan in its portfolio, which can consequently cause a failure to that bank. The ratio can be derived by dividing total loans and advances to the total asset.

Capital Adequacy

Capital adequacy ratio is mostly used as a measure of the financial strength of a bank or any financial institution. Recently there have been a worldwide standard set for capital adequacy by the international bank for settlement and this was done to ensure stability in banks profitability and avoid huge losses. The ratio can be computed by dividing the total capital to total asset of the bank[20].

Bank Size

Bank size is usually estimated by the size of the total asset of a particular bank. The bigger the size of the total asset also means the higher the profitability of that bank and vice versa as stated by Alhanasoglou et al (2005).

Inflation

Inflation shows the rate at which the general price level of goods and services keep rising while their purchasing power is moving on the other direction. Inflation most often denoted as "i" can be derived for that year by subtracting the price of the previous year P1 from the price of the current year P0 and dividing it by price of the previous year P1 multiplied by 100.

$$i = \frac{P_o - P_1}{P_1} * 100$$

[20]Bank management and financial services. Peter s. Rose et al, 8th edition.

Regulatory agencies around the world try to reduce the direct effect of inflation on countries by applying some fiscal policies.

Gross Domestic Product (GDP)

GDP is usually considered the main indicator of a countries standard of living. It shows the position of the direction of the economic growth at a time. The ratio is usually computed as the GDP of the current year minus the GDP of the previous and divided by GDP of the previous year.

$$\frac{GDP2 - GDP1}{GDP\ 1} = \text{GDP}$$

Log Size

In order to run the regression analysis with the bank size, we have to take logarithm of the bank size because the assets are also all in numbers.

4.3 Methodology

In this section, we would be using the regression analysis to analyze the profitability of these banks in respect to the above mentioned variable which are considered panel data. The data have been tested for stationary using the unit root test and all variables proved stationary. This means there is an effect of time which can result to a change on the mean, variance and autocorrelation of the variables. At this point we proceed to the regression analysis because all variables have proven to be stationary.

The econometric form of the panel regression analysis is presented thus:

$$Y_{i,t} = \beta 0 + \beta X_{i,t} + \varepsilon t$$

Where:

$Y_{i,t}$ represent the dependent variables of the equation

$\beta 0$ represents the intercept of the model in the equation

$X_{,ti}$ represents the independent variables in the equation

εt represents the error term.

So the equation can be presented like this:

$$ROE = \beta 0 + \beta 1(CAR\ i, t) + \beta 2\ (EFF\ i, t) + \beta 3\ (LQR\ i, t) + \beta 4\ (INF\ i, t) + \beta 5\ (GRi, t) + \beta 6\ (ASQ\ i, t) + \varepsilon t$$

$$ROA = \beta 0 + \beta 1\ (CAR\ i, t) + \beta 2\ (EFF\ i, t\ ) + \beta 3\ (LQR\ i, t) + \beta 4\ (INF\ i, t) + \beta 5\ (GR\ i, t) + \beta 6\ (ASQ\ i, t) + \varepsilon t$$

Chapter5

EMPIRICAL ANALYSIS

At first, we conducted a panel unit root test to test for the stationarity of these variables. We checked the graphical presentations but to be more certain we employed the methodologies of Levin Lei and Chu (LLC), IM Perasa Shin (IPS) and Wu which have been proved more reliable.

According to this methodologies, we reject the hypothesis (Ho = Not stationary) and accept alternative hypothesis (Hi = Stationary) if the variable is stationary in at least one of the methodologies. And this can be known when the probability values known as alpha (α) are less than all the three (3) level of significance (0.01, 0.05, and 0.10). And the reverse is the case meaning we accept Ho and reject Hi when not stationary

INF (Inflation) was stationary in all the three models, so we rejected null hypothesis and accepted alternative hypothesis. GR (Growth rate) proved stationary in two of the three models thereby rejecting the null hypothesis and accepting the alternative. CAR (Capital adequacy), ASQ (Asset quality) and EFF (Management efficiency) also all proved stationary in two of the three methods thereby rejecting null and accepting the

alternative hypothesis. LQR (Liquidity) proved stationary in only one of the three methods in which we accepted the alternative hypothesis.

Both ROA (Return on Asset) and ROE (Return on Equity) were also stationary in the two of these models thereby rejecting null and accepting alternative hypothesis.

5.1 Correlation Analysis

Correlation analysis is involved here to show the strength of relationship between these variables. It shows the degree of depth of relationship these variables have between each other. For now we will just consider the relationship between the independent variables and also the relationship that exist between the two dependent variables.

This analysis would also help in exposing any multicolinerity problems (I.e. high correlation between independent variables) which can be easily detected and corrected.

	ROE	*ROA*	*CAR*	*ASQ*	*EFF*	*LQR*	*INF*	*GR*
ROE	1							
ROA	0.906	1						
CAR	-0.455	-0.038	1					
ASQ	-0.367	-0.133	**0.600**	1				
EFF	0.216	0.232	-0.005	0.207	1			
LQR	0.357	0.234	-0.368	**-0.721**	-0.066	1		
INF	-0.164	-0.089	0.208	0.305	0.032	-0.231	1	

GR	-0.419	-0.316	0.346	**0.611**	-0.001	-0.670	-0.075	1

Table 5.1: correlation matrix

As can be seen from the table, there is a high correlation between ASQ and LQR at -72%, ASQ and CAR at 60% and also ASQ and GR at 61% which are all meaning high correlation between ASQ and the three other independent variables LQR, GR and CAR. In order to avoid having this multicolinerity problem, we removed ASQ(Asset quality) from the equation before running the regression analysis. Apart from that, all other variables are having low correlations between each other.

EFF (Management Efficiency) and LQR (Liquidity) are the only variables positively correlated to both the two dependent variables ROA and ROE. Capital adequacy (CAR), Asset quality(ASQ) ,Growth rate (GR) and Inflation (INF) all are inversely or negatively correlated to the two dependent variables.

5.2 Regression Analysis

After testing for correlations with multicolinerity problems and all independent variables have appeared without these problems, and then we proceed to the regression analysis.

The regression analysis have been ran with the help of the E-views software to check how these independent variables (LQR, EFF, ASQ, CAR, INF, GR) affect the dependent variables (ROA, ROE). If any significant relationship is found, then at what extent they influence them on profitability.

5.2.1Regression for ROA

Running the analysis with ROA showed that the independent variables have very minimal significance on ROA. We found only GR(Growth rate) significant at 0.0882***. The C (error term) was also significant at 0.0110** meaning the error is limited. Also the R-squared was 0.183 meaning all independent variables have just 18% effect on the profitability of ROA. But we would concentrate more on ROE because the probability of the (f- statistic) of ROA was 0.180, which is not significant at all levels. This just tells us the model is not working[21].

5.2.2 Regression for ROE

Table 5.2: Regression Analyses for ROE

VARIABLES	COEFFICIENT	STD.ERROR	T-STATISTICS	PROBABILITY
C	-12.36454	4.768373	-2.593031	0.0130
LCAR	-0.788983	0.376271	-2.096850	0.0421
LASQ	0.144366	0.566507	0.254836	0.8001
LEFF	0.654799	0.412239	1.588396	0.1197
LLQR	0.042025	0.179144	0.234588	0.8157
LINF	-0.341024	0.365659	-0.932628	0.3563
LGR	-2.672845	1.599542	-1.671006	1022
R-SQAURED	0.348325			
F-STATISTICS	3.741549			0.004519
DURBIN WAT STAT	2.127858			

As can be seen from the table, probability, the probability value of (f-statistics) is 0.004519** which means this is working. Also Durbin-Watson statistic value is expected to have a value more than 1.85 (rule of thumb) for the model to be working and in this case it has 2.13 which is good. The C (error term) have proved significant at 0.0130**, which means the error is limited. But only CAR(Capital Adequacy) andGR (Growth Rate) proved significant at 0.0421** and 0.10*** respectively. And all other

[21]The regression result for ROA is available in the appendix

variables ASQ (.80), EFF (.12), LQR (0.82) AND INF (0.35) all proved insignificant to ROE in this model

So we tried removing the highly insignificant variables ASQ, LQR and INF and tested again.

Table 5.3: Regression for ROE II

VARIABLES	COEFFICIENT	STD.ERROR	T-STATISTICS	PROBABILITY
C	-11.45948	2.883318	-3.974405	0.0003
LCAR	-8.827523	0.306338	-2.701341	0.0097
LEFF	0.669910	0.381018	1.758212	0.0855
LGR	-2.503526	1.091864	-2.292892	0.0266
R-SQUARED	0.331250			
F-STATISTICS	7.429894			0.000382
DURBIN WAT STAT	2.075737			

From the table we can observe now that EFF (Efficiency Management) is now significant at 0.0855***. The R-Squared value 0.33 means 33% of the ROE profitability is contributed or as a result of these factors, the other 67% can be explained from other variables not involved in this study.

5.3 Testing For Significance

EFF (Management Efficiency) have proved positive significance with a T-statistics of 1.758212 and a probability value of 0.0855***. It recorded a correlation coefficient of 0.669910 which means a percentage increase in management efficiency can result to 0.67 increments in ROE. To explain this, we have to look at the relationship between these two variables. EFF (interest expense/interest income), it explains how well a bank can utilize its asset and liabilities internally to make more profit. In the Nigerian case, it

means banks have been successful in managing their asset and liabilities in effective way that directly affect the equity in a positive way and thus making a significant positive impact on ROE. This is in line with the work of Demirguc-Kuntand Huizinga (2000) and Goddard (2004) who found that expense management is one of the major determinants of bank profitability.

CAR (Capital adequacy) was also significant with a t-statistics of -3.974405 and probability value of 0.0097*. It also recorded a correlation coefficient of -0.827523 meaning a negative relationship with ROE. CAR was calculated as (equity/total asset). According to Alper and Anbar(2011), the higher this ratio is , the lower the need for shareholders capital which leads to higher profitability in a bank. In this case, it shows a percentage increase in CAR will result to a 0.82 decrease in ROE. This can possibly happen because the Nigerian financial system is far from a perfect capital market with symmetric information. As conveyed by Berger (1995b), the impact of increased capital to profitability would or can be negative if the capital market is imperfect with symmetric information. Another possible explanation for this can be the fact that, if the bank's asset are facing too much risk, then cost can directly affect the profitability in a negative way.

The GR (GDP growth rate) have surprisingly turned out to be significantly affecting the ROE in a negative way. The GR with a t-statistics of – 2.29, probability value of 0.0266** and coefficient of -2.50 means the GR is going in a different direction with ROE. This means a percentage increase in GR will have an effect of 2.50 decreases in ROE. A possible explanation for this can be a tight monetary policy during the study

period in Nigeria, which led to inaccessibility of loans by borrowers. The capital market have made it difficult for borrowers to get loans at affordable rates which can have serious negative effect in the GR and the profitability of the banks.

Chapter 6

CONCLUSION AND RECOMMENDATIONS

In this study, we tried to analyze the major determinants of profitability in the Nigerian commercial banks using a randomly picked seven (7) banks covering a period of seven (7) years. The CAMEL analysis (ASQ, CAR, EFF, and LQR) was used here to test for variables impact on the two profitability measures ROA and ROE.

There have been similar studies done on this topic with differing results, for example the work of BabalolaYusiu and Abiodun (2010). They used a panel cross sectional data of fourteen (14) banks, for a period of 9 years 1999-2008 to study the profitability of the Nigerian banks. They also applied the CAMEL for their analysis and came up with a conclusion that CAR (Capital adequacy) has been the most important variable in affecting profitability in their study. Also referring to the work of Alhanosoglou(2006), who used a data of seven countries, for a period of 5years 1998-2002 in finding the determinants of profitability of SEE countries (South Eastern Europe). He also conducted his research with the help of the CAMEL analysis and some macroeconomic factors; he concluded that CAR is also the most significant factor in determining profitability in that region.

In our own study, when all variables were tested for ROA it shows only liquidity and GDP growth rate have a determining in the banking profitability in Nigeria. It means banks with less liquidity tend to be more profitable than their counterpart who hold more liquid asset. And for the GDP growth rate it makes sense because when the economy is improving, the profitability of banks should also be expected to increase which is the case because Nigeria is considered a developing economy.

On the other hand when tested with ROE, three (3) variables came out to be significant, CAR, EFF, and GR again. Surprisingly GDP growth rate turned out came out to be negatively significant, which can possibly be as a result of inaccessibility of loan to the borrowers. All other variables including inflation turned out to be insignificant. Asset quality though insignificant but positively shows the Nigerian banking industry has a very large portion of nonperforming loans. Which is why AMCON (Asset management cooperation of Nigeria) is introduced in 2011 to carter this problem.

According to our to our empirical results in this study, management efficiency (EFF) have been the most significant factor in determining the profitability of the Nigerian commercial banks within the period of 2005-2011. It shows high level of productivity in the Nigerian banks have significantly been leading to high profitability in these banks.

The fact that the Nigerian banking industry has been diligently made unstable with different forms of reformation during the last few years has had serious implications in the profitability of these banks. As a result it can be noted in the study that the macroeconomic factors do not account for any positive effect on the profitability of

these banks. It is clearly stated here that the bank specific factors account for the increase profitability of the Nigerian banks.

Some suggestions for the problems we encountered in the study is for the Nigerian banks to have strong capitalization , which in turn can help to reduce the expected cost of financial distress and possibly make capital adequacy have a better effect in the profitability of these banks. Also as suggested by other scholars , more effective corporate governance in order to boost up the performance of these banks by eliminating corruption and promoting and ensuring transparency in these banks. And lastly, the CBN should ensure loans are available to borrowers at affordable rates which in the long-run would have a GDP growth rate that would have significance in line with the profitability of the Nigerian banks.

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APPENDICES

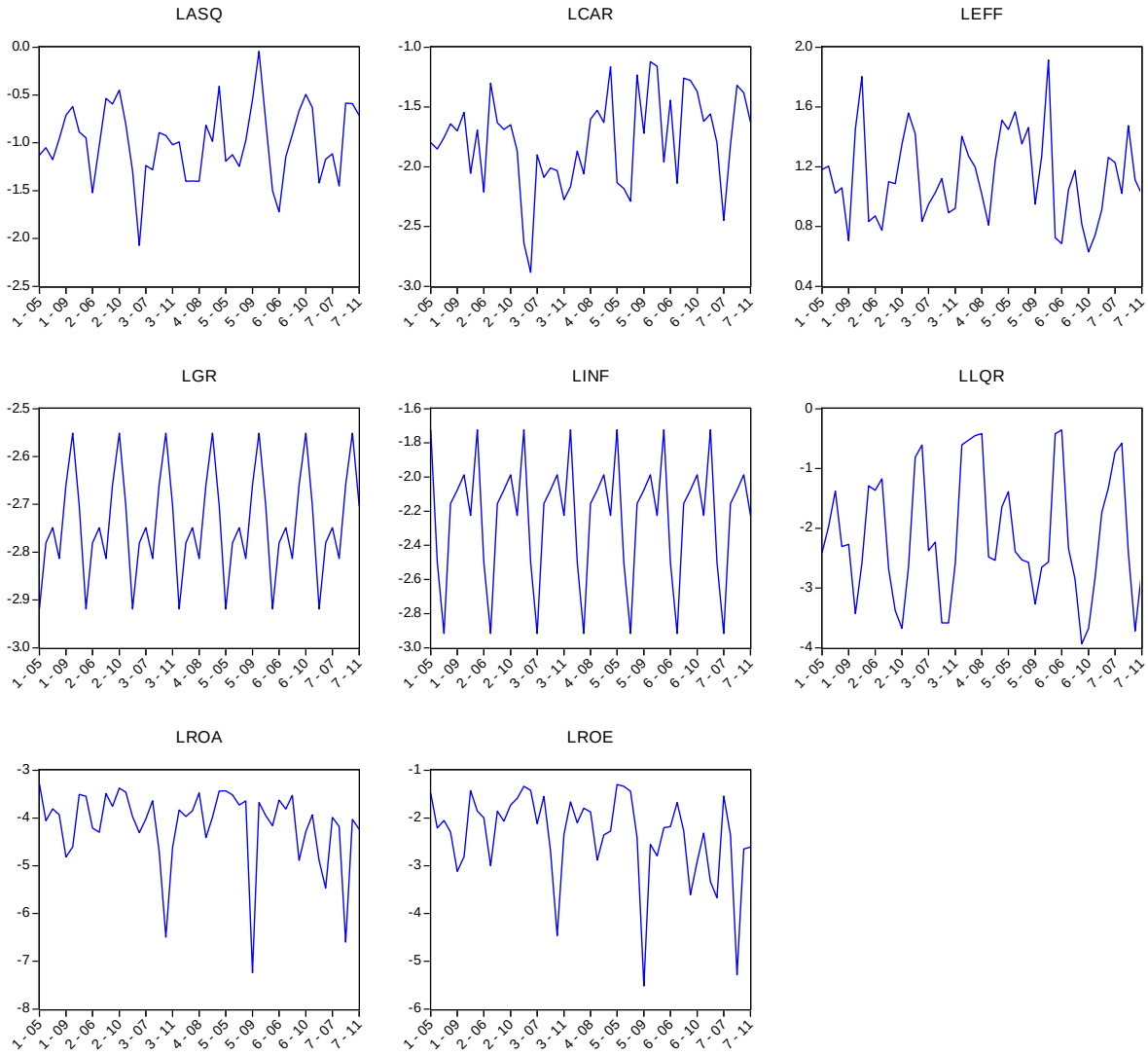
Appendix 1: Panel Unit Root Tests for Nigerian banks

Variables		*Levels*		
		LLC	***IPS***	***M-W***
ROA	τ_T	*-6.078**	*0.05569*	*22.9542****
	τ_μ	*-4.90581**	*-1.18740*	*29.9620**
	τ	*0.70151*	-	*8.3592*
ROE	τ_T	*-4.14**	*0.376*	*17.09*
	τ_μ	*-3.89**	*0.61385*	*18.84*
	τ	*0.822*	-	*8.38*
CAR	τ_T	*-6.65**	*-0.295*	*36.1596*
	τ_μ	*-3.49**	*-0.6735*	*21.004****
	τ	*-2.91*	-	*20.7895*
LQR	τ_T	*-2.217***	*0.61295*	*10.7306**
	τ_μ	*-3.066**	*0.06165*	*18.8081*
	τ	*0.0633*	-	*6.30307*
ASQ	τ_T	*-5.428**	*-0.0220*	19.4720*
	τ_μ	*-1.856***	*0.600*	6.9263
	τ	*-6.017*	-	*25.75**
EFF	τ_T	*-5.100**	*0.469*	*18.1059*
	τ_μ	*-4.3*	*- 0.855*	*31.96*
	τ	*0.812*	-	*7.317*
GRT	τ_T	*-5.02633**	*0.044*	*21.2047****
	τ_μ	*5.07307**	*-0.83*	*28.2890***
	τ	*-2.19283*	-	*27.60***
INF	τ_T	*7.62368**	*0.044*	*46.14**
	τ_μ	*-4.86747**	*-0.83*	*22.9831****
	τ	*0.25799*	-	*3.58*

Note: ROE represents return on equity; ROA represent return on asset CAR is a capital adequacy; EFF is a management quality; ASQ represent asset quality, LQR represents the liquidity, INF represents inflation and GR represent GDP growth rate.τT represents the most general model with a drift and trend; $\tau\mu$ is the model with a drift and without trend;

τ is the most restricted model without a drift and trend. Optimum lag lengths are selected based on Schwartz Criterion. *, **, *** denote rejection of the null hypothesis at the 1%, 5%, 10% levels. Tests for unit roots have been carried out in E-VIEWS 6.0.

Appendix 2:A Graphical presentation of all data's being stationary.



Appendix 3:Regression results for ROE and ROA.

Dependent Variable: LROA
Method: Panel Least Squares
Date: 12/10/12 Time: 22:37
Sample: 2005 2011
Periods included: 7
Cross-sections included: 7
Total panel (balanced) observations: 49

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LCAR	0.248138	0.401483	0.618052	0.5398
LASQ	-0.159895	0.590687	-0.270694	0.7879
LEFF	0.662572	0.439996	1.505859	0.1394
LLQR	0.307517	0.159189	1.931776	0.0600
LINF	0.136610	0.336280	0.406238	0.6866
LGR	1.335776	0.414998	3.218755	0.0025

R-squared	0.045150	Mean dependent var	-4.155931
Adjusted R-squared	-0.065879	S.D. dependent var	0.823510
S.E. of regression	0.850204	Akaike info criterion	2.627596
Sum squared resid	31.08239	Schwarz criterion	2.859248
Log likelihood	-58.37610	Hannan-Quinn criter.	2.715484
Durbin-Watson stat	1.886507		

Dependent Variable: LROE
Method: Panel Least Squares
Date: 12/10/12 Time: 21:08
Sample: 2005 2011
Periods included: 7
Cross-sections included: 7
Total panel (balanced) observations: 49

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-12.36454	4.768373	-2.593031	0.0130
LCAR	-0.788983	0.376271	-2.096850	0.0421
LASQ	0.144366	0.566507	0.254836	0.8001
LEFF	0.654799	0.412239	1.588396	0.1197
LLQR	0.042025	0.179144	0.234588	0.8157
LINF	-0.341024	0.365659	-0.932628	0.3563
LGR	-2.672845	1.599542	-1.671006	0.1022

R-squared	0.348325	Mean dependent var	-2.373023
Adjusted R-squared	0.255228	S.D. dependent var	0.922545
S.E. of regression	0.796157	Akaike info criterion	2.513524
Sum squared resid	26.62239	Schwarz criterion	2.783784
Log likelihood	-54.58133	Hannan-Quinn criter.	2.616060
F-statistic	3.741549	Durbin-Watson stat	2.127858

Prob(F-statistic)	0.004519

Dependent Variable: LROE
Method: Panel Least Squares
Date: 01/20/13 Time: 20:50
Sample: 2005 2011
Periods included: 7
Cross-sections included: 7
Total panel (balanced) observations: 49

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-12.10210	4.604941	-2.628069	0.0119
LCAR	-0.740831	0.321828	-2.301944	0.0262
LLQR	0.022214	0.159633	0.139156	0.8900
LEFF	0.688081	0.386730	1.779228	0.0823
LGR	-2.546821	1.504547	-1.692750	0.0977
LINF	-0.316577	0.348994	-0.907115	0.3694

R-squared	0.347317	Mean dependent var	-2.373023
Adjusted R-squared	0.271424	S.D. dependent var	0.922545
S.E. of regression	0.787453	Akaike info criterion	2.474252
Sum squared resid	26.66356	Schwarz criterion	2.705904
Log likelihood	-54.61918	Hannan-Quinn criter.	2.562141
F-statistic	4.576386	Durbin-Watson stat	2.112442
Prob(F-statistic)	0.001959		