

**THE EFFECT OF CONSOLIDATION ON THE EFFICIENCY OF  
BANKS IN NIGERIA**

**BY**

**ALIYU, Nuraddeen Shehu**

**October, 2010**

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**A THESIS SUBMITTED TO THE POSTGRADUTE SHOOOL, AHMADU  
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REQUIREMENTS FOR THE AWARD OF DEGREE OF MASTER OF  
SCIENCE IN ACCOUNTING AND FINANCE**

**October, 2010**

## **DECLARATION**

I hereby declare that this thesis entitled ‘The effect of consolidation on the efficiency of banks in Nigeria’ is a product of my research work. To the best of my knowledge and belief, this work has never been submitted to any institution for an award of a degree or certificate or for what ever kind. All cited materials are duly and properly acknowledged.

*ALIYU Nuraddeen Shehu*

## **DEDICATION**

This research thesis is dedicated to almighty ALLAH for his entire guidance, help, and mercy in all aspect of my life and our adorable Prophet Muhammad (S.A.W) for his infinite guidance to the right path.

I also dedicate it to my beloved Parents, and Grandmothers who made everything humanly possible to assist me in my life pursuits. May ALLAH spare their lives to reap the fruit of their labour, Ameen!

## CERTIFICATION

This thesis title ‘Evaluation of the effect of consolidation on the efficiency of banks in Nigeria’ by Aliyu Nuraddeen Shehu meets the regulations governing the award of the degree of Master of Science in Accounting and Finance of Ahmadu Bello University, and is approved for its contribution and literary presentation.

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Chairman Supervisory Committee

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Signature

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Member Supervisory Committee

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## **ABSTRACT**

*This study evaluates the effect of consolidation on the efficiency of banks in Nigeria and also examines the effect of consolidation on the size/spread of loans advanced by banks and on the profitability of intermediation of banks in Nigeria. The study used a period of six years from 2003 to 2008 comprising three years pre and post consolidation periods. The population was the whole 24 banks while the sample was six banks selected using stratified sampling technique. The study utilized only secondary data obtained through annual reports, and CBN Banking Supervision. The techniques employed for data analysis in this study are Data Envelopment Analysis (DEA) with four by three input/output variables model, to determine the efficiency, Descriptive Trend analysis, and T-test for testing the hypotheses formulated. The findings of the study show that Consolidation have significant positive effect on the efficiency, size/spread of loans advanced and on the intermediation profitability of banks in Nigeria. In view of the major findings and policy implications of the study, we concluded that consolidation play significant role in enhancing efficiency, increasing size of lending and lending profitability of banks in Nigeria. The study therefore recommends that the management of banks should work hard to ensure that adequate measures had been put in place to determine the operational /intermediation efficiency of their banks so that effective and efficient utilisation of resources would be maintained.*

## CHAPTER ONE

### INTRODUCTION

#### 1.1 Background to the Study

The economic growth and development of an economy depends to a large extent on its financial system. The financial system consists mainly of bank and other non-banking financial institutions. The banks occupy strategic position in every economy and are able to influence its growth and development through the creation of money for utilization within the economy.

As financial intermediaries, banks assist in channelling funds from surplus economic units to deficit areas to facilitate business transactions and economic development generally. Since these funds are owned by third parties, prudence demands that such funds should be efficiently managed to sustain the confidence of depositors in the banking system, ensure the continuous soundness of the system itself and thereby minimize the risk of bank failures (Oluranti, 1991).

The banking system in Nigeria has experienced major challenges since independence, many of which were shaped by government policies. At independence in 1960, banking markets were dominated by a relatively small number of foreign banks, which later from the 1970s the market became dominated by locally owned banks. Thus, the Nigerian private sector became the major participant in the mid 1980s. The domination of banking by expatriate banks during the colonial period provoked considerable resentment among Nigerians, including businessmen and politicians (Nwankwo 1980).

With banking network expanding from the 1960s, the Central Bank of Nigeria (CBN) was given extensive powers to regulate the quantity, cost and direction of bank credit.. From 1969 onwards the controls over the banking system were set out in annual monetary policy circulars issued by the CBN. Continuously, the banking system had been highly regulated until 1986 when the Federal Government embarked on a major shift in economic strategy with the adoption of a Structural Adjustment Programme (SAP). In this context, some of the direct control measures from the 1970s were loosened such as entry restrictions or interest rate controls (Lewis and Stein, 1997).

Since 1987 the financial system has been partly liberalised with the objectives of enhancing the efficiency of resource allocation and strengthening competition. Liberalisation reform has entailed the removal of some of the allocative controls and the easing of entry restrictions into banking business. This has undoubtedly had significant effects on banking markets. The number of banks has expanded rapidly and this increased competition in some sections of the banking industry. Despite this, financial liberalisation may have had only a limited impact in terms of improving the efficiency of resource allocation in banking markets for several reasons. The deregulation of controls has been partial and inconsistent, high rates of inflation have impeded the attainment of positive real interest rates, large government deficits have absorbed a substantial share of bank finance, and mismanagement and fraud in public and private sector banks has led to extensive waste of resources (Adam, 2003).

This again resulted in a situation of in and out of regulation until July 2004, when the Consolidation reform was introduced in which the CBN decreed that banks had to

increase their minimum capital base from N2 billion to N25 billion by the end of 2005. By the beginning of 2006, the number of banks shrank from 89 to 25 banks with 14 banks from the original 89 banks failing to increase their capital or secure merger partners. For many foreign-owned banks, the new capital requirements were achieved by capital injections from the parent companies (Brownbridge, 2005).

These developments have generated substantial interest in the potential consequences of bank consolidation on performance. Several arguments have been made regarding the impact of increased size concentration on banking sector risks and returns. On one hand, it is argued that consolidation could potentially increase bank returns, through revenue and cost efficiency gains, and that consolidation may reduce industry risks through the elimination of weak banks (especially after a banking crisis) and better diversification opportunities open to the remaining larger banks, (Berger 2000).

On the other hand, it has been argued that consolidation could increase the banks' propensity toward risk taking through increases in leverage and off-balance sheet operations (Berger (2000); Demsetz, and Strahan (1997)). Also, scale economies are limited as larger entities are usually more complex and costly to manage. Very large banks may become too big to fail, to liquidate, or to discipline effectively, with a consequent increase in moral hazard and risk taking; reductions in competition, and disincentives for efficiency improvements; and concentration in industry with undue capture of regulators and/or influence on government (De Nicoló 2003)..

Furthermore, the consolidation reform in the Nigerian banking sector seems to possess some bottlenecks that could hamper the fruitful realization of the benefits. For instance,



the time stipulated to consummate the merger and /or acquisition is too limited for the acquiring banks to properly appraise the weaknesses or soundness of the bank(s) it is acquiring or any hidden deferred payment like tax liabilities.

There is another paradigm shift trap- the misconceptions as opined by (Teriba 2005). He emphasizes that going ahead with any aspect of that consolidation proposals will create problems for the banking sector in particular, and the Nigerian economy in general. According to him, the most striking feature of strong financial market centers around the world is the presence of a very large number of banks of widely varied scope, scale (size) and market focus not consolidation.

It is on the basis of the above background that this study is undertaken in order to critically evaluate whether as a result of the recent consolidation reform, efficiency in the Nigerian banking industry is enhanced or not.

## **1.2 Statement of the problem**

The existence of an effective banking industry is necessary for every economy, this is due to the fact that it creates the necessary environment for economic growth and development through its role of intermediating funds from surplus to deficit economic units. Accordingly, an efficient and effective financial system is indispensable not only for the provision of efficient intermediation but also for the protection of depositors, encouragement of healthy competition, maintenance of confidence and stability of the economic system, and protection against systemic risk and collapse.

Thus, the Federal Government of Nigeria (FGN) through the CBN has overtime sought permanent measures that would enhance the profitability, efficiency, and stability of banks operating in Nigeria with the last stage being the consolidation reform (Okagbue and Aliko, 2005: 1). It is assumed to be the best means of achieving efficiency, external growth, improved performance as well as synergy effects, and economies of scale. The shareholders on the other hand, stand to enjoy the benefits of higher returns on their shareholdings.

Despite the fact that, consolidation reform has been introduced to ensure a strong and reliable banking sector, so many obstacles tends to hinder the successful outcomes of the reform, taking into consideration the nature of the mergers and acquisitions that take place in terms of the time frame, structure of assets and liabilities of unifying banks and their unique levels of efficiency and culture, the anticipated gains might not be achieved. The major concern is that the acquiring and merging banks were not having enough time to scrutinize assess and select the best banks with which to merge or acquire. Also, some banks seem to have merge with or acquire other banks that have a very huge liabilities and are technically inefficient.

Furthermore, some scholars argued that consolidation could potentially increase bank returns, through revenue and cost efficiency gains, diversification opportunities and higher profitability due to large capital availability. While others argues that large size of banks could create high operational cost, increase in moral hazard and risk taking ; reductions in competition, and disincentives for efficiency improvements among others.

### **1.3 Objectives of the study**

The objectives of this research are

- i. To evaluate the effect of the consolidation on the efficiency of banks in the Nigerian banking sector.
- ii. To evaluate the effect of consolidation on the size and spread of loans advanced by banks in Nigeria.
- iii. To examine the effect of consolidation on the trend of profitability of Nigerian banks attributable to lending before and after the reform.

#### **1.4 Research Questions**

The study seeks to address the following questions which emanate from the objectives:

- i. What is the effect of consolidation on the efficiency of banks in the Nigeria?
- ii. What is the effect of consolidation on the size and spread of loans advanced by banks in Nigeria?
- iii. What is the effect of consolidation on the trend of profitability from banks' lending in Nigeria?

#### **1.5 Hypotheses of the study**

- i. Ho1: Consolidation reform has no significant effect on the efficiency of banks in Nigeria.
- ii. Ho2: Consolidation reform has no significant effect on the size and spread of loans advanced by Nigerian banks.
- iii. Ho3: Consolidation reform has no significant effect on the profitability attributable to lending of Nigerian Banks.

#### **1.6 Scope of the Study**

The study shall be restricted to evaluating the effect of consolidation on the efficiency of banks in Nigeria. The time frame of the study is 2003-2005 (3 years pre-consolidation period) and 2006-2008 (3 years post-consolidation period). This is to enable us analyze the efficiency of the two periods, and evaluate their respective positions.

The scope of the study is aimed at covering the entire Nigerian banking sector which comprised of 24 Deposit Money Banks. This research is only assessing 6 banks which the findings of this research work would then be used as a basis of generalization within the industry.

### **1.7 Significance of the study**

The research will be helpful to bank managers in identifying their banks' efficiency and performance and the underlying reasons for their successes or failures.

It might also help banks in strategic planning and help regulatory authorities in their attempts to improve the overall efficiency of the banking industry and identify the need for reforms of the domestic banks.

Therefore, this study has important policy implications, as it will help bank regulatory authorities in Nigeria to determine future policies and regulations to be formulated and implemented toward improving and sustaining banking sector profitability and stability.

The finding of this work could be significant to investors who normally evaluate potential investment to identify and invest in the one that gives higher return with less risk. This could signal whether to invest in banks that merged or acquired others .

As the liquidity position of any entity is a very important factor of consideration to shareholders and potential investors, who would find this study very necessary and significant in their dealing with banks that merged or acquired.

## **CHAPTER TWO**

### **LITERATURE REVIEW**

#### **2.1 Introduction**

This chapter reviews the historical background of the Nigerian banking industry in 2.2 which is sub-divided into three sections, starting with the free banking era up till the recent time reforms.

The conceptual framework in 2.4, review of empirical works in 2.7 as well as Theoretical analysis in 2.8 were all been examined in this chapter. All of these vital ingredients constituted the comprehensive information about the phenomenon under study.

#### **2.2 MAJOR DEVELOPEMENTS IN THE NIGERIAN BANKING SECTOR**

Banking is one of the most regulated industries in almost all countries and at all times. By regulation it is meant: "the laws, rules, directives and guidelines established to minimize the risk exposure of financial institutions and market inequities in order to ensure the safety and soundness of individual institutions as well as the financial system itself (Ogunleye 1995). Since the establishment of banking, governments have imposed controls on banks, even when most other businesses were free to operate, subject only to the statutes and other general rules of law.

##### **2.2.1 Period of Laissez Faire banking (1892 - 1951) –Free banking era**

The period 1892 - 1951 is otherwise called the era of "free banking", due to the total lack of controls or banking regulations during the period. What was required was registration under the companies ordinance. There were three largest banks operating in Nigeria

(sometimes referred to as first generation banks) which have their origins in the colonial period. The British Bank for West Africa (now called First Bank) was incorporated in 1894, the Colonial Bank, later acquired by Barclays and now known as Union Bank, began operations in 1917, and the British and French Bank, the precursor of the United Bank for Africa, started in 1949. All the three were originally wholly foreign owned but the Federal Government purchased majority share holdings in the mid 1970s.

These banks encountered little serious competition during the colonial period. The domination of banking by expatriate banks during the colonial period provoked considerable resentment among Nigerians, including businessmen and politicians. The expatriate banks were perceived as acting solely in the interests of their foreign owners rather than of Nigerians and of the Nigerian economy. In particular they were accused of discriminating against indigenous businesses in the allocation of loans, and failing to finance the developmental needs of the country, instead concentrating on the provision of short term trade related finance to foreign companies.

Consequently, government objectives following independence included securing greater local control over the banking system, and ensuring improved access to credit for indigenous businesses and priority sectors (Nwankwo 1980). Although a number of banks were set up by Nigerian investors during the so called free banking era (prior to the enactment of the first banking legislation in 1952) most failed within a few years of opening.

### **2.2.2 Period of Limited Banking Regulation (1952 - 1958)**

The period 1952 - 1958 is also called the era of Bank failure. The enactment of Nigerian Banking Ordinance in 1952 introduced some form of regulation into the Nigerian banking scene. The ordinance laid down the standard and procedure for the conduct of banking business by prescribing the mandatory minimum capital requirement for banks and introducing regulations to check bank failure. Some of the conditions stipulated by the ordinance for the operation of banking business are; a fully paid-up capital of #25,000 out of an authorized capital of #50,000; Maintenance of reserve funds in which 20% of profits must be paid into until it offsets the paid-up capital; Maintenance of satisfactory level of liquidity to meet up customers demand ; Banks were prohibited from granting unsecured loans greater than #600 to their directors.

Many banks could not satisfy these conditions and this caused mass failure of banks and collapse of the prevailing banking boom. In fact all the indigenous banks established in the country during this period failed. Although, on one hand, sanity was introduced to the banking business, the bank failures of this era were attributed to the monopolistic structure of the banking industry which allowed the foreign banks to enjoy exclusive patronage from the British firms.

### **2.2.3 Period of Intensive Banking Regulation (1958 - 1986)**

The period 1958 - 1986 is similarly referred to as the era of consolidation because it improved and consolidated on the gains of the banking ordinance period. The period began with the enactment of the Central Bank of Nigeria Act of 1958 which established the Central Bank of Nigeria (CBN). This act empowered the CBN to promote and integrate the Nigerian financial system. Thus, the CBN was able to



outline regulatory measures to effectively stem the tide of bank failures that reigned in the preceding periods. Since its inception, the CBN has attempted to prevent bank failures through its formulation and implementation of monetary and banking policies. Through these measures, the CBN has attempted to ensure that banks remain viable and profitable while contributing to economic growth which, in turn, will strengthen the banks.

Beginning around the time of independence, second generation of banks was set up in Nigeria. The first group of second generation banks was also mainly foreign owned. They included the Banque Internationale Pour L'Afrique Occidentale (BIAO), now called Afribank. This was followed in the 1970s by the establishment of commercial banks by the state governments in Nigeria and by the entry of a number of merchant banks, mostly as joint ventures between foreign investors and the Federal Government and/or private investors. The Federal Government took controlling shares in all of the foreign owned banks in the mid 1970s, and enacted an indigenisation decree in 1977 which limited foreign participation in banks to a maximum 40 per cent of equity. By 1980 there were 20 commercial banks and 6 merchant banks in operation, in all but a few of which the Federal Government or state governments were the majority shareholders.

A third generation of banks emerged during the 1980s. Some of these banks were set up by state governments but the majority were started by Nigerian private investors.

#### **2.2.4 The Period of Economic / banking reform (1986 to Date):**

The growth of the local private banks was very rapid after 1986, particularly in the merchant banking sector. Other major sources of banking regulation of this period are the Exchange Control Act of 1962, The 1968 Companies Act, and The Banking Act of 1969.

By 1992 there were 66 commercial banks and 54 merchant banks in operation in Nigeria. Despite the growth of new entrants however the three largest banks have retained their dominance of banking markets, accounting for 48 per cent of the total deposits of the commercial banks in 1994, while Afriland accounts for a further 7 per cent.

Since the late 1980s the banking industry has been afflicted by widespread financial fragility: 57 banks, almost half the total number of banks in operation, were regarded as distressed or potentially distressed by the regulatory authorities in 1995. Most of the distressed banks were owned by state governments or the local private sector. Before the end of 2005, there were eighty-nine (89) banks operating in the banking sector, which shrank back to twenty-five (25) after the consolidation reform.

## **2.3 OVERVIEW OF THE REGULATORY FRAMEWORK IN NIGERIA.**

The Nigerian banking sector has experienced substantial regulatory changes through out the 19<sup>th</sup> century to date. The brief review of some regulations is hereby provided in three sections as elucidated below:

### **2.3.1 The Pre-consolidated Banking Environment**

Beginning in the 1960s, the government intervened extensively in banking markets to control resource allocation and to promote the indigenisation of the economy. The policies pursued by the government were those of 'financial repression'. The CBN issued detailed guidelines to banks to control interest rates and the volume and direction of credit. The Federal Government acquired controlling equity stakes in all of the foreign banks during the 1970s while a number of banks were set up by the state governments. In the late 1970s, the CBN initiated a rural banking programme under which commercial banks were instructed to establish branches in the rural areas.

Financial repression and public sector ownership had significant consequences for banking markets. Competition was stifled, providing some degree of protection for inefficient banks, but the financial performance of the public sector banks was nevertheless poor. Many of the state government banks were very badly managed and used for patronage and as a source of finance for their owners. State governments and other public sector agencies were among the major defaulters of the public sector banks.

The larger Federal Government banks were able to avoid serious financial difficulties, despite their bad debts and high overheads. They retained experienced management, the cost of their deposit base was low and their size enabled them to be well diversified. But extensive bad debts rendered some of the smaller Federal Government banks and many of the state government banks insolvent. Their financial fragility was concealed by a combination of public subsidy and improper accounting until the late 1980s.

Since then stricter prudential standards and a less accommodating stance towards liquidity support by the authorities have exposed the widespread distress among these banks.

Prior to the adoption of comprehensive economic reform program in 1986, the Nigerian banking industry was highly regulated and was subjected to substantial restrictions on products and activities. Through the direct credit controls, banks were made to perform the developmental roles for which some of them were ill-equipped. As a result, their participation led to a serious financial problem arising from a mismatch of assets and liabilities. Brownbridge (1996)

The development during the post 1986 prompted the monetary authority to introduce some reforms in order to sanitize the operations of banks in a deregulated environment. The new reform affected some of the operators in the industry. Among such policies under the reform were the prudential guidelines, statement of accounting standards, the use of stabilization securities by the central bank of Nigeria (CBN) to mop up excess liquidity in the system as well as the sudden withdrawal of public sector deposits to central bank of Nigeria (CBN) in 1989. The adoption of these measures though imperative, exposed many weak banks and threatened them with liquidity and insolvency. Thus the adversely affected banks resulted to distress borrowing particularly in the inter bank at exorbitant rates. Brownbridge (1996)

Financial liberalisation began in 1986/87 after the government had adopted a SAP. The deregulation of banking markets was partial and, especially with regard to interest rates, inconsistent. Entry requirements (in terms of the granting of banking licenses) were relaxed in the mid 1980s and this facilitated a dramatic expansion in the number of

commercial and merchant banks owned by the Nigerian private sector. Some of these banks have attracted a significant share of banking markets and have brought benefits for customers in terms of greater competition and improved services, albeit mainly confined to urban areas. In contrast many others were set up largely to take advantage of arbitrage opportunities in foreign exchange markets rather than to undertake more conventional banking business. Bad management and fraud, including insider lending, has been endemic among these banks and has led to widespread distress.

Prudential banking legislation was strengthened in 1990 and 1991, with the CBN given greater powers to enforce compliance with the banking laws and to intervene in distressed banks. In addition the NDIC was set up in 1988 to insure bank deposits and to assist the CBN to restructure or liquidate distressed banks. The reforms to the financial system implemented since the mid 1980s - liberalisation and privatisation, strengthening the prudential system and the take-over of some of the distressed banks - are an important step towards reshaping banking markets in the direction of efficiency, competition and prudent management. Nevertheless the banking system in Nigeria is still a long way from attaining these objectives. Nwankwo (1990)

Also, according to Caprio and Klingebiel (2003), Nigeria faced a systemic banking crisis throughout the 1990s. Nigeria's financial indicators such as liquid liabilities, bank assets, private credit or financial system deposits remained relatively low throughout the 1990s by historical standards and the 1985 figures and only started to significantly increase after 2000 .In 1998, 26 bank licenses were revoked, reducing the total number of banks from

115 to 89. Even though the macroeconomic environment improved with a new civilian government regime after 1999, the Nigerian financial system was still characterized by very high fragmentation and low financial intermediation.

In spite of these measures, the banking sector's contributions to the growth of the economy were unimpressive. While the industry was growing at about 24.0 percent, the real sector was growing at a very sluggish pace. The reason behind this inconsistent growth rate is explained by the fact that the fast income generating source for the banks has been import finance. The impetus for the banks to support the real sectors of the economy was eroded since the import finance business has shorter turn around, and reduced risk with the potential to deliver the required profitability. Unfortunately, this development lingered for some years, thereby contributing significantly to the falling value of the naira and dwindling foreign reserves. Ogunleye (1995)

In addition, Nigerian banking sector was seriously weakened primarily because of the concentration of lending, through state-owned or other banks, to finance fiscal deficit of the government, the losses of enterprises in which the state held majority shares coupled with unproductive public projects.

These developments led to loss of confidence which jeopardized the intermediating roles of banks. While some depository institutions showed glaring instability, only few banks were found stable and capable of carrying out active financial services. Indeed, the sharp practices of some banks coupled with the unsoundness of others culminated in widespread financial sector distress and losses to depositors. The development elicited deep concerns

of the monetary authorities and the general public. It was against this background that the CBN had to make pronouncement on its first phase of the banking sector reforms, designed to ensure a diversified strong and reliable banking sector which would ensure the safety of depositors' money, play active developmental roles in the Nigeria economy and be competitive players in the African regional and global financial system.

### **2.3.2 The Consolidated Banking Environment**

Consolidation is one of the key components of financial reforms designed to ensure a diversified, strong and reliable banking sector in Nigeria, which will in turn guarantee the safety of depositor's money, effective performance of developmental roles and competitive player in African regional and global financial system (Soludo, 2004). The post-consolidation value of the new enterprise is expected to be higher than before, because of synergy effects (Bello, 2005).

On July 6, 2004, the CBN decreed that banks had to increase their minimum capital requirements from #2 billion to #25 billion (\$ US 190 million) by the end of 2005. The intention was to increase the average size of banks via merger and acquisitions to materialize economies of scales, create new product development and overall generate a more stable banking system with a higher contribution to financial intermediation. By the beginning of 2006, the number of banks shrank from 89 to 25 banks with 14 banks from the original 89 banks failing to increase their capital or secure merger partners. For many foreign-owned banks, the new capital requirements were achieved by capital injections from the parent company. In the process of banking consolidation, banks raised over \$ US

3 billion on the Nigerian stock market. Banks became flush with excess liquidity and equity.

### **2.3.3 Result of the Previous Reforms**

According to Brownbridge (2005), the Reforms in the Nigerian banking system face a number of obstacles. Implementation of the reforms has been problematic: there is strong domestic opposition to the dismantling of controls over financial markets, as evidenced by the re imposition of lending rate ceilings. The efficacy of liberalisation has also been undermined by the scale of bank distress, which is partly a legacy of pre-reform policies of public ownership and inadequate prudential supervision but also partly the consequence of inappropriate sequencing of reforms.

The inconsistency of deregulation has been a serious drawback in the implementation of financial sector reforms. Some allocative controls, such as the credit guidelines, have not been removed, while lending rate ceilings have been removed twice and re-imposed twice. Nine of the Federal Government banks were privatised in 1992/93 but the Government's commitment to a private sector led banking system is in doubt following its threat to retake control of the four largest banks, while four smaller Federal Government banks and the state government banks have not been divested.

There are clearly political constraints on the degree to which government is prepared to disengage from banking markets and confine its role to that of prudential regulation.



The second deficiency in the implementation of reforms relates to their sequencing. Entry into banking markets was liberalised several years before banking legislation had been upgraded and supervisory capacities strengthened. Consequently a large number of local banks were set up whose owners and managers lacked the necessary competence or probity to compete in banking markets. Their main source of earnings was itself a product of the inconsistency of the reform process which allowed large differentials to prevail between official and parallel foreign exchange markets. A major impediment to the efficacy of financial reforms was the failure to maintain macroeconomic stability because of the large budget deficits accumulated by the Federal Government and financed mainly by the CBN. Deficit financing crowded out private sector borrowers from credit markets while its inflationary impact has impeded efforts to attain positive real deposit and lending rates. Macroeconomic instability also exacerbated their distress in the banking system by jeopardizing the viability of banks' borrowers in the real sector and hence their ability to service their loans.

The reform process faces a number of challenges if a market oriented and soundly managed banking system is to develop in Nigeria. The most pressing challenge will be to deal with bank distress. There is however a core of solvent banks in Nigeria - the large formerly 25 Federal Government banks plus some of the state government and local banks - on which a market oriented banking system can be built. What is required is a much more comprehensive and consistent deregulation of controls over financial markets, a significant reduction in deficit financing and inflation and very tight prudential regulation.

The resultant effect of the most recent reform now is been on the search by so many scholars and students of whom I am among. This research thesis however, is attempting to find out the possible outcome of the recent financial reform (consolidation) on the efficiency (performance) of the banks in Nigeria.

## **2.4 CONCEPTUAL CONSIDERATION**

### **2.4.1 Evolution of Consolidation**

The trend of consolidation started in the United States of America (USA) in the 1980s. The US banking industry witnessed more than 7,000 merger between 1980 and 1998. The 1990s also recorded the largest merger in banking history of the US as the number of banks in the US declined by more than one-third between 1980 and 1997. Consequently, the proportion of the banking assets declined sharply from 75% in 1980 to nearly 50% in 1997. The same trend occurred in the United Kingdom and other European countries, (Boyd et al, 1998).

In the period 1997-1998, 2003 cases of bank merger and acquisitions took place in the Euro area. In 1998, a merger in France resulted in a new capital base of \$688 billion, while the merger in Germany resulted to a capital base of \$541 billion. In many emerging markets including Argentina, Brazil and Korea, consolidation became prominent as banks try to reposition their operations in order to cope with the growing challenges in the globalized banking systems, (Forcalli et al, 1998). Most mergers that took place in countries were as a result of government effort to restructure inefficient banking systems (as in many Latin American countries) or from intervention following banking crises (as in Korea and south Asia).

#### **2.4.2 Consolidation In the Nigeria Banking Sector**

Consolidation in the Nigerian banking industry, actually commence on July 6<sup>th</sup>, 2004 at a special session of bankers' committee in Abuja, where the CBN governor, Prof. Charles Soludo, announced a 13 point reform agenda for the banking industry, among which was a review of banks' capital base from 2 billion and 25 billion.

The CBN in its guideline on recapitalization specifically favored merger and takeovers and insisted that banks must recapitulate or merge. To facilitate the process of merger and takeovers, the CBN on the 30<sup>th</sup> of March, 2005 released a "revised procedure manual for processing applications for bank merger/takeovers". The consolidation exercise in the Nigerian banking industry came to an end on 31<sup>st</sup> December 2005.

**Merger :** the term "merger" is defined to mean "any combination that forms one economic unit from two or more previous ones". They recognize that there are legal distinctions between the various ways combination can occur but they place their emphasis on fundamental business and financial aspect of mergers and takeover.

Soludo (2004) prefers to use the terms mergers and acquisition interchangeable by interpreting them as "the transfer of the control of the business activity from one corporation to another". He did not however forget the legal distinctions between the two terms though he adopted his method purely for convenience. Section 590 of CAMA (repeated) defined "merger as any amalgamation of the undertakings or part of the undertakings or interest to two or more bodies corporate".

**Acquisition:** According to Okonkwo (2004), acquisition occurs when a company acquires sufficient shares in another company so as to give it control of that company. Kurfi (2006), defines acquisition as “technically and act of acquiring effective control by one company over the asset and management of another company without necessarily combining the companies”.

From above, the acquired company is a smaller company and become a subsidiary of the acquiring company. We therefore it as the purchase of controlling share in another company in which the acquiring becomes the holding company and the acquired company, the subsidiary. Hence acquisition and takeover can be used interchangeably.

### **2.5.2 Forms Of Mergers And Takeovers**

Jaiye, (2005),classify merger and takeovers into three broad heads. Horizontal, Vertical, and Conglomerate. If the companies in a takeover or merger produce the same kind of goods or render identical services, or if their goods and services compete directly, then the merger or takeover is horizontal. Kurfi (2006) described it as a combination of two or more companies in the same stage of production/distribution area of business.

In a vertical merger, one of the two companies “ is an actual or potential supplier of goods or services to the other”. Kurfi ( 2006), opines that it is a combination of two or more companies engaged in different stages of production or distribution to complement one another. While a Conglomerate merger involves companies that are engaged in completely different kinds of business, which he refers it as a combination of companies engaged in unrelated line of business activity.

### 2.5.3 Rationale behind Takeover, Merger and Acquisitions

Many reasons have been advanced by both professionals and scholars alike, to account or responsible for merger and takeover particularly in recent times. It should be noted however that the factors are not mutually exclusive more than one is usually involved in a combination.

The primary motivation and ultimate purpose for most merger is to increase the firm and expected future dividend per share of the equity shareholders. Some the factors responsible for merger and takeover include the following:

**Poor performance:** A company with great potential may be poorly managed and the unable to make profits or declare dividends. Mergers give the company the opportunity to secure efficient management or to acquire innovative capacity.

**Exploitation of synergies:** in the desire of management to achieve profitable growth it may merge with another company for the purpose of exploiting the benefit that could accrue from the resulting synergy of the enlarged enterprise particularly in manufacturing and distribution.

**Liquidating companies:** the increasing devaluation of the Naira in recent times has made it difficult for many companies to obtain sufficient foreign exchange to acquire option is therefore often resorted either enable the failing company gain access to capital to prevent liquidation of the failing company by saving it

position in its existing line of business may be interested in reducing risks by diversifying.

Starting a new business may require very huge investment which the company may be unable to provide from its internal resources. Acquisition offers the quickest way for the

company to transfer to a new market, obtain a new product line or accumulate sufficient economies of scale to compete effectively in a transactional market.

**Meeting competition:** in order to control and dominate a particular sector of the economy a company might reduce or eliminate competition by acquiring some other companies. This may give it the necessary leverage to raise prices for higher profits.

**Tax consideration:** income tax regulations generally provide for due carry over of losses to be set against profits of subsequent years. Thus if a profitable company is merged with a loss making company, the opportunity is created for the minimization of their groups tax bill. A privately owned company may also combine with a publicly owned company to avoid the dividend distribution provision of the Nigerian tax law.

**Personal reasons:** managers might want to involve their companies in mergers so as to demonstrate their managerial or financial competence or to become the chief executive officer of a large organization or to realize capital gains or protect an estate or to ensure the continuity of an organization to justify the payment of higher salaries. It is important therefore for shareholders to scrutinize merger deals properly in order to ensure that any proposed merger is primarily for their benefit.

#### **2.5.4 Outcome of Merger and Takeover in the Nigerian Banking Sector**

Soludo (2004) observed that consolidation came to an end on December 31<sup>st</sup>, 2005 resulting in the reduction of Nigeria's 89 banks to 25 banks. He reported that data from

CBN shows that the consolidation exercise has resulted in nearly \$3 billion in new investment being injected into the sector in one year.

About \$500 million of this came from abroad. Brown commented that no any other single policy has attracted so much investment into any non-oil sector in the history of Nigeria within such a period. Other result of the exercise according to Soludo (2006) includes; fall in sky-rocketing interest rates, greater potential of emerged banks to finance big ticket transactions high depositor confidence as well as large economic of scale on the part of the bank and consequently, pass on the benefit in the form of reduced bank charges to there customers

### **2.6.1 Employment Effects of Consolidation**

Technological change and the wave of mergers and acquisitions are major factors responsible for a sizeable cut of employment in the financial sector worldwide. Evidences have shown that mergers have resulted to a job cut of about 40% of the labour force. Such high retrenchment costs have naturally raised questions about the fundamental purpose of mergers. Some policy makers have argued that mergers were useless if they lead to the near extinction of banks, while others have observed that the policy makers should be concerned exclusively with the safety of bank deposits and not the job cuts.

Consolidation of the Nigerian banking industry is aimed at bringing about a change in the nature and quality of employment. Bankers with traditional banking skills cum information technology (IT) knowledge may not be seriously affected. This is because the consolidation process will definitely require management and IT skills as well as other

specialized knowledge. The merger arrangement will also encourage outsourcing of certain functions that are traditionally performed internally not only in the consolidating institutions but also in the CBN. It will accelerate such corporate practice as banks would have to review its entire cost structure with a view to identifying the maximum savings possible. As part of the measures designed to cushion the effect of possible job losses or redundancies arising from consolidation], the CBN has assured the staff will be rationalized of adequate compensation. This will be in line with the industry standards and not below the terms of their sustaining employment.

## **2.6.2 Future Implications of Consolidation**

Prospects for future merger activity seem to justify continued concern about the effects of consolidation on banking industry performance. On the one hand, mergers may increase geographic diversification of bank portfolios, enhance the safety and soundness of banking institutions, improve the allocation of credit, and raise the performance of the country's economy as well as increase payments system efficiency. On the other hand, mergers have its negative social consequences ranging from possible reductions of availability of services to small customers to monetary policy implication.

The potential effect of financial consolidation on the conduct and effectiveness of monetary policy should be a great concern to Central Bank. It is possible that the consolidation could make it more difficult for Central Bank. to implement policy, if it reduced the efficiency of the markets used in the conduct of monetary policy operations or



for building Central Bank reserves. For example, consolidation might reduce the liquidity or increase the volatility of the reserves, making it more difficult for the central bank to keep their policy rate near target.

Consolidation could affect the transmission mechanism linking changes in the policy interest rate to the real economy. This could be so if it affected the liquidity or volatility of key financial markets and caused arbitrating of interest rates across instruments and maturities. It is also possible for consolidation to alter the credit channels of monetary policy. For example, if consolidation fostered the creation of larger banks having better access to markets for managing liabilities, it could affect the availability and pricing of bank loans in response to changes in the monetary policy stance. It could have direct impact on the environment in which the policy is conducted. This could occur if consolidation leads to the faster transmission of shocks across markets or affected the behavior of indicator variables such as monetary and credit aggregates used by monetary policy makers

Other implications are that the consolidation could help to facilitate cross-border consolidation by promoting trade, and reducing the currency conversion costs of institutions operating within the sub-region when economic integration is realized. Although consolidation across borders may be inhibited, if the central bank fail to

design an appropriate framework for financial stability in particular, the introduction of recapitalization process as well as building high quality assets. Banks should be valued

realistically and avoid the temptation to overvalue assets; and bad loans should be reported accurately. There is also the need to increase banking transparency and entrenched good governance.

## **2.7 REVIEW OF RELATED EMPIRICAL WORKS**

A number of researches have been carried out with a view to determining the impact of consolidation through merger and takeover on banks' performance. Most empirical literature suggests that bank consolidation (voluntary consolidation for that matter) do not significantly improve the performance and efficiency of the participating banks (Berger 1999;). Sawada (2003) adds in this regard that, if a voluntary consolidation does not enhance the performance of the participating banks, any performing enhancing effects of the consolidation promoted by government policy is more questionable. Other scholars, however, contend that consolidation impacts positively on participating banks.

Wiklin (1997) in his study at U.S using DEA Cost efficiency approach found that participating bank will benefit from revenue growth due to a large customer base, efficiencies in operation, ability to spread fixed cost over a larger customer base, diversification of income from both geographical area, stabilization of asset quality and so on.. Similar studies fund that consolidation could reduce the risk of insolvency through asset diversification (Hudges, 1996, 1999, Benson, 1995; Craig and Santos,1997; Sanders and Wilson 1999 etc). While Shih (2003) points out possibility that credit risk could increase in the event that a sound bank merges with an unsound one.

Empirical evidence supporting mergers and acquisition cost savings and operational efficiency claim is sparse (Kwan and Esienbein, 1999). This is to say that there are few evidences of combination achieving efficiency or other performance gains (Pillof and Santomero, 1997).

However, such few studies establish that business combinations lead to increase in cash flow, asset growth and employee productivity (Cornet and Tehranian, 1992; Banerjee and Cooperman, 1998). Specifically, Banerjee and Cooperman (1998) found that when target firms are relatively less efficient than the acquirers, *ceteris peribus*, merger will offer combined firms greater opportunity to realize increased profitability through efficiency gains, thereby generating abnormal returns.

It has been found that acquiring banks are more profitable and have smaller non performing loan ratios than targets (Peristiani, 1993). Simulation evidence also reveals that large efficiency gains are possible, if the best practice banks merge and reform the practices of the least efficient banks (Shaffer 1993). Case studies of United States (US) banks merger and acquisitions support the idea that potential efficiency gains act to influence some M & As (Calomiris and Karceski 1998). In this regard poorly capitalized banks are more likely to be acquired while banks with high degree of cost inefficiency are *ceteris peribus*, less likely to be acquired without government assistance (Wheelock and Wilson 1998).

It was also discovered in the study that profitable banks are willing to be acquirers, while small, unprofitable banks need to be acquired (Forcarell, Panetta and Salleo 1998).

Other evidence revealing the potential for efficiency gains also motivate consolidation in the financial industry as it provides impetus for improvement between the acquirers and targeted banks (Altunbas, Maunder and Molyneux, 1995). Similarly diversifying merger and acquisition may also improve efficiency in the long term through expanding the skill of the management (milbourn, boot and Thaker, 1999). According to Jaiye (2005), mergers of banks help to strengthen product portfolios, minimizing duplication, gain competition advantage etc. He also describes consolidation as a good strategy for enhancing efficiency. It ought to be aimed at exploiting synergies, reducing overlap in operations, “right sizing” and redeploying surplus staff either by retraining, alternate employment or voluntary retirement etc.

Also, on the impact of financial consolidation on banks lending pattern, Craig and Santos (1997) examined banks involved in merger by comparing the small business lending of the banks pre-and post-merger to a sample of banks not involved in mergers. It was found that the decline in the percentage of small business loan to assets is greater among banks not involved in merger than among banks involved in mergers. Their findings do not support the consolidation hypothesis. They also noted the impact of consolidation on the extent to which large banks restructure the portfolios of banks acquired to match their own portfolios.

One possible impact of financial consolidation on bank customers could stem from the disruption of historical lending patterns. A lack of short run substitutes for bank credit would imply that a disruption in the supply of bank credit would have a negative consequence for the affected borrowers and possibly for the macro economy, as argued in the literature reviewed by Koeva (2003).

In the debate on the risk diversification motive for bank merger and acquisition, some argued that banks choose target that allow for a significant reduction in the risk exposure. Others suggest that, because of the moral hazard created by deposit insurance, a merger or acquisition gives the acquiring bank a good opportunity to increase its deposit insurance subsidy either by increasing its risk exposure or by attempting to become too big to fail. Some also argue that risk considerations play no significant role in banks merger policies.

According to Benson (1995), the response of typical managers of banks on the issue of motives for consolidation is that it is for risk reduction purposes. However, the recent consolidation process in the banking industry around the world has shown that it helps to produce less risky organization through asset diversification (Hudges, 1996, 1999; Craig and Santos, 1997; Sander and Wilson 1999 etc).

Kumbhakar and Sakar (2003) study whether and how deregulation, assumed to generate increased competition, affected the profitability of Spanish savings banks between 1986 and 1995. Their panel study uses a flexible variable profit function and incorporates time-varying technical efficiency. Output is proxied by total loans and deposits. They find

declining levels of output technical efficiency, high rates of technical progress, and increasing trend growth in productivity. Liberalization of volume and interest rates has been observed to raise profitability in the banking sectors of Norway (Berg, Forsund, and Jansen, 1992) and Turkey (Zaim, 1995).

Enendu (2003) analyzes ex-ante commercial bank interest rates spreads in Nigeria. He finds that macroeconomic and monetary policy/ financial regulation factors were more important than bank-specific factors. Given the small sample of banks (13 in total) the results are not representative for the whole Nigerian banking sector.

Hence, our review of literature pertaining to consolidation reveals contending opinion on the impact of consolidation on (performance) efficiency of participating banks.

It also reveals the possible reduction of risk insolvency through asset diversification and increase in efficiency gains if greater diversification improves the risk expected return trade off only if two sound banks merge.

### **2.7.1 CONSOLIDATION AND THE EFFECIENCY OF BANKS.**

Several studies had been conducted in an attempt to find out the effect of consolidation on the efficiency of the banking sector. Amongst them is the study of Vander-Vennet (2002), who conducted a research on cross-border European Union merger and acquisitions, and pointed out that the typical deal is characterised by the takeover of a poorly performing bank by a relatively efficient foreign bank. The study finds evidence of an increase in realised profits, but not in operational efficiency, at least in the short term and the finding is attributed to different legal and tax systems, which prevent the full exploitation of synergies in cross-border bank consolidation. Hughes *et al.* (2003), find a slightly different picture, where the key for successful banking mergers is said to be efficient bank corporate governance structures. Their analysis found that an increase in acquired assets improves the financial performance of banks with less entrenched management, which is defined as a low proportion of the bank owned by management.

With respect to overall efficiency and resilience to economic shocks, Beck *et al.* (2003), looked at banks in 70 countries (39 developed c and 31 from emerging countries) from 1980 to 1997 and find a higher resilience to economic shocks in more consolidated banking systems with better diversified banks, which are also easier to monitor. On the other hand, too concentrated banking system might be subject to other forms of idiosyncratic risks undermining the financial system such as in case of scandals or fraud.

Mitchener (2005), confirmed that the expansion of statewide branch banking induced competition among banks and thereby removed weak and inefficient banks through failures, liquidations and consolidations in the U.S. in the 1920s, which consequently improved the stability of the banking system. In addition, Mitchener (2005c), show an external effect of branch banking, using the data on California in the 1920s and 1930s. They find that many small unit banks were exposed to competition induced by the emergence of large branch banking institution. Also, Boyd and Graham (1998), however, find evidence of higher risk-seeking and failure rates for large banks in the 1990s.

Berger *et al.* (1999), review existing research concerning the causes and consequences of the consolidation of the financial services industry in the U.S. They point out that the evidence is consistent with improvements in profit efficiency, and diversification of risks, but little or no cost efficiency improvement on average; and potential costs to the financial system from increases in systemic risk or expansion of the financial safety net. In a relatively recent study, Cebenoyan and Strahan (2001), find that increasingly sophisticated loan management practices by U.S. banks, usually associated with size and scope of their activities, do not reduce bank risk.

Berger and Humphrey (1997) point out however that the effects of deregulation may depend on industry conditions prior to reform and on the type of measures implemented. There is empirical evidence that shows a decline in cost productivity immediately after deregulation (Berger and Mester, 2001; Humphrey and Pulley, 1997; All of these findings in these studies gave the basis for further research in the developing



Bauer, Berger, and Humphrey, 1993) though improved output and quality of output led to higher profit productivity (Berger and Mester, 2001). Bhattacharyya, Lovell, and Sahay (1997), find that in India, the impact of deregulation is conditioned by ownership, though researchers point out that in most developing countries deregulation occurred after public sector banks became too dominant to be motivated to change (Denizer, 1997).

Several studies for US banks suggest that liberalization of deposit rates has little or no effect (Bauer, Berger, and Humphrey, 1993; Elyasiani and Mehdi, 1995). Hughes et al. (1996) find that geographical expansion has affected profitability in the US, as do Jayaratne and Strahan (1998). In India however, the huge expansion in branch banking occurred after the 1969 nationalization of the sector.

In the Nigerian context, Hesse (2007), studied the intermediation efficiency in the Nigerian pre-consolidated banking sector during 2000-2005 using unique bank-by-bank balance sheet and income statement information. It was found that larger banks have enjoyed lower overhead costs, increased concentration in the banking sector has not been detrimental to the spreads, both increased holdings of liquidity and capital might have led to lower spreads in 2005, and a stable macroeconomic environment is conducive to a more efficient channeling of savings to productive investments.

### **2.7.2 CONSOLIDATION AND PROFITABILITY OF BANKS**

The basic aim of a bank's management is to achieve a profit, as the essential requirement for conducting any business (Borovikova 2000). At the macro level, a sound and profitable banking sector is better able to withstand negative shocks and contribute to

the stability of the financial system. The importance of bank profitability at both the micro and macro levels has made researchers, academics, bank managements and bank regulatory authorities to develop considerable interest on the factors that determine bank profitability Berger (2000).

(Bhattacharya and Patel, 2003; Kumbhakar and Sarkar, 2003) so that deregulation benefits private banks. There is some evidence that private banks in India are more profitable than the public sector banks (excluding the State Banks of India and their branches , De Nicole( 2003). However, Koeva (2003) finds that even though nationalized banks appear to be less profitable than private and foreign banks, ownership is not the key determinant of efficiency and profitability. She identifies the main determinants of intermediation costs as operating costs, priority sector lending, nonperforming loans, investment in government securities, and the composition of deposits.

Kumbhakar and Sarkar (2003) use a cost function approach to find that deregulation has not yet yielded efficiency gains in general, though private banks have increased profitability by expanding output. Koeva (2003) finds that profitability declines with concentration in India;

In the Nigerian context, a study conducted by Enendu (2003), indicated that competition level in the Nigerian banking industry and the degree of foreign ownership of the industry have negative relationships with the profitability of banks operating in Nigeria. The research on firm's profitability have been widely studied theoretically and empirically.

The studies can be grouped into two, viz: those that have focused on a particular country (e.g. Berger *et al.*, 1993 and Berger, 1995) and those that have focused on a panel of countries ( Haslem, 1968; Short, 1979; Molyneux and Thornton, 1992; Claessens *et al.*, 1998; and Demirgüç-Kunt and Huizinga, 1999). Based on the findings of these and other related studies, the effect of consolidation on profitability can be identified.

It has been argued that, in concentrated banking systems, bigger, politically connected banks may become more leveraged and take on greater risk since they can rely on policymakers and regulators to help when adverse shocks hurt their solvency or profitability (Hughes and Mester, 1998). It has also been argued that the higher the concentrations in the local banking market, the higher prices are for financial services and, consequently, the higher the banks' profits. This argument is empirically supported by Ravenscraft (1982).

Keeley (1990), Besanko and Thakor (1993), and Hellmann *et al.* (2000) are of the opinion that stiffer competition leads to reduced market power and more aggressive risk taking by banks. Competition arising from the liberalization of the banking system might erode banks' market power (Keeley, 1990) and encourage bank shareholders to pursue riskier policies in order to try to maintain their former profits. Examples of these riskier policies are taking on more credit risk in their loan portfolios, lowering capital levels, or both.

In the Indian context, in particular, a research agenda focused on the interaction between competitiveness, banking costs, and profitability would be a significant contribution to the literature.

Price-setting behavior may be endogenous not just to market structure, but also to size and deregulation. Interest rate deregulation may lead to an increase in bank funding costs and a fall in bank profitability. This could be countered through an increase in the number and price of services offered by banks (Humphrey and Pulley, 1997), a strategy that is easier for larger banks to effect. This is consistent with a fall in spreads for large banks with high non-interest expenditure and income.

## **2.8 THEORETICAL FRAMEWORK OF BANK EFFICIENCY**

Since the period of slavery and feudalism the world has observed advanced technological and organizational progress, which caused increase in the efficiency of economic organizations. According to Wilkin (1997), acceptance of economic efficiency as a key criterion of economic valuation was owing to representation of classical economics, mainly Adam Smith as well as representative of classic utilitarianism, including John Stuart Mill and Jeremy Bentham who promoted liberalism and individualism. Economic liberalism advocates laissez-faire capitalism, liberal principles of decision making and emphasizes the importance of firm efficiency. Those ideas were accepted by neo-realist theories with special contribution of Ludwig von Mises and Friedrich A von Hayek.

Efficiency has often been identified with productivity. Adam Smith in his famous book “An Inquiry into the Nature and Causes of the Wealth of Nations” states that the division of labor will provide the greatest improvement in productivity and worker skill (Smith, 1976). Marx drew a sharp distinction between the productivity of labor in terms of physical outputs produced, and the value or price of those outputs. He rejected the

possibility of a concept of productivity that would be entirely neutral and unbiased by the interests of different social classes. According to Marxists, productivity growth without simultaneous wage rise increase the extraction of surplus value from the working class.

Apart from above-mentioned theories, the focus on economic efficiency is also given by welfare economics, which attempts to maximize social welfare by examining the economic activities of the individuals. The first fundamental theorem of this theory is that competitive markets are efficient and lead to a unique and optimal allocation of resources (allocative efficiency). Pareto efficiency as a measure of social welfare is used by many scholars as their efficiency goal. According to this measure, a situation is optimal only if no individuals can be made better off without making someone else worse off. Contrary, Situations are considered to have distributive efficiency when goods are distributed to those individuals who can gain the most utility from them. Reading of Samuelson and Nordhaus (1995) confirms that competition of the market mechanism assures efficiency and everyone's welfare. They admit, however, that a perfect and absolutely efficient competitive mechanism has never existed and never will. In the literature looking specifically at banks there is a wide range of definitions of efficiency. The term is approached from various angles. Efficiency also measures use of the specific goals as the basis for determining efficiency.

Efficiency is analyzed from the point of economic theory and organization theory. It is possible to investigate efficiency at the level of bank or its organizational units, and for particular bank's activities. According to Drucker, who explains the difference between

efficiency and effectiveness, “efficiency means doing things right. and effectiveness means doing the right things”. Pure economic concept of efficiency assumes that efficiency is the ratio of total output goods with respect to input resources. Efficiency is regarded to be higher with higher level of this ratio.

Koeva (2003) defines efficiency as an indicator showing the ability of bank managers and its staff to keep the rate of increase in revenues and income at the level that exceeds the rate of increase in operational costs. Up to Srinivasan (1992), efficient activities are those activities which not only lead to achieving intended goals but also assure economic benefits higher than inputs.

In this my study, different techniques have been employed to estimate efficiency. Most economists generally accept the principle of rational behavior and analyze banks utilizing the neo-classical theory of the firm. Such approach makes possible to use traditional economic measures of efficiency (inputs, outputs, cost constraints, etc.). However, in the reality banks operate under uncertainty and imperfect information. This suggests that banks should not be assessed on the basis of traditional efficiency measures alone, and that assessing their overall performance requires assessing both efficiency and risk factors. Banks strate gy goal should be risk-adjusted profit maximization.

Avkiran (1999) presents different possible views on bank efficiency, which include distinction between: Organizational efficiency which deals with organization goals, its resources, internal and external environment, and business performance through time; Financial efficiency which examines those items that are financial in nature (included in

banks financial statements), for example, by use of financial ratios; Cost efficiency which determines how close bank's costs lie to the efficient cost frontier for given inputs and their ratios (technology).

Rogowski (1998a) points out that study on measuring bank efficiency have focused on two alternative approaches: analysis of technical efficiency, analysis of scale and scope efficiency. Basic concepts for measurement of technical efficiency of a firm in an industry by estimating production function of firms, which are fully efficient (i.e. frontier production function) was suggested by Farrell (1957). His definition of the efficient firm is "its success in producing as large as possible an output from a given set of inputs". He defines technical efficiency as a firm's success in producing maximum output from a given set of inputs, i.e., producing on the technical frontier. The production function can be estimated from sample data employing either a non-parametric (mathematical programming) or a parametric (econometric) approach. Technical efficiency is evaluated by the unit's distance from the (best practice) production frontier. Technical efficiency index can be scored from 0 to 100%. Index equal to 100% represents full efficiency (the production unit belongs to the production frontier); whereas scores below 100% indicate some relative inefficiency.

Rogowski (1998) marks that there are two measures of technical efficiency, which are primarily used in the literature: output-oriented and input-oriented technical efficiency.

Input-oriented technical efficiency or X-efficiency refers to selecting the appropriate inputs, i.e. the optimal scale and mix of inputs, given the output bundle. One of the most common measures applied is cost X-efficiency. In output-oriented technical efficiency the

focus is on increasing output without changing the inputs used. It is, among others, used for revenue analysis.

Measuring of technical efficiency is a very popular approach used to estimate firms' efficiency. In Poland, however, literature concerning banks not often utilizes this approach. Studies on the efficiency of the Polish banking industry, which employed technical efficiency measures, were undertaken a short time ago. Based on the results, Poland's banks rankings were made. Preferred methodology in those studies is Data Envelopment Analysis, which is a non-parametric linear programming-based technique.

The effect of scale means that an economic unit would obtain marginal output proportionately higher than an increase in input. Scale economies refer to how the organization's scale of operations is related to cost. Scale economies allow the long run average costs to fall with increases in bank size, for example, through mergers.

As Gospodarowicz (2000) remarks, the advantages of scale economies in the banking sector mainly arise from: larger ability to subdivide and specialize tasks when bank size increases, and reduction of deposit risk accompanied by increase in bank's balance sum and deposits amounts with constant administrative costs.

The problem of measuring cost inefficiency is to isolate it from the effect of random factors on production costs. At least four cost frontier methods have been used to measure inefficiencies in studies of the banking sector: the stochastic frontier approach, the distribution free approach, the thick frontier approach, and the data envelopment analysis. As the efficient cost frontier is not *a priori* known, the objective of these approaches is to



estimate it by using the data. However, each approach is based on different assumptions and thus may lead to quite different results.

The stochastic frontier approach assumes that deviations of realised cost from the cost frontier are due either to cost inefficiency or to random fluctuations or both. The inefficiencies are usually assumed to follow a truncated normal distribution, whereas the random fluctuations are assumed to be normally distributed. Although the stochastic frontier model gives inconsistent estimators when cross-sectional data are used for the estimation of the cost frontier, many of its assumptions can be relaxed when panel data are used.

The 'distribution free' approach is the method where, a data panel enables standard models of fixed and random effects to be estimated without needing to make any assumption about the distribution of the inefficiency term, provided that efficiency is constant over time (Schmidt and Sickles ,1984). This method is thus known as t and it was first used by Berger (1993) in the banking industry context. In the case of a fixed effects model, a bank specific constant is taken to be the bank's measure of inefficiency, while in the case of a random effects model the average predicted residual for each bank in the panel is the estimate of that bank's average inefficiency.

The thick frontier approach (Berger and Humphrey, 1991; Humphrey, 1993) attempts to reduce the impact of outliers in estimating the cost frontier and identifies a 'thick frontier' consisting of those firms which are on the frontier plus those close to it. The thick frontier method selects a larger subset of firms with only low costs - Most earlier studies of bank

efficiency, and in particular those dealing with the efficiency implications of bank mergers, are based on inter-temporal comparisons of simple financial ratios, such as operating costs divided by total assets, or the return on equity or assets, see for example (Rhoades ,1986; and Srinivasan,1992). However, there are several problems with these studies. As noted by Berger *et al* (1993, p. 233) “first and foremost, financial ratios may be misleading indicators of efficiency because they do not control for product mix or input prices”, as is the case with frontier methods. By comparing cost-to- asset ratios inter-temporally, it is “implicitly assumed that all assets are equally costly to produce (and all locations have equal costs of doing business). In addition, the use of a simple ratio cannot distinguish between X-efficiency gains and scale and scope efficiency gains”. Typically the quartile of firms with the lowest average cost - and estimates the 'thick' cost frontier from a standard regression using only these observations. Similarly the high cost frontier is determined from the quartile of firms with the highest average costs. Inefficiency is measured as the range between these two frontiers.

Finally, the data envelopment analysis has also been used extensively in banking studies. As against the three previous methods, this is a non-parametric approach that maximises a function of weighted inputs and outputs subject to given restrictions. It has the advantage that the efficient frontier is estimated solely on the basis of the data, without requiring the specification of a particular form for the cost function or the imposition of any distributional assumptions about the error term and/or the inefficiency term, which may not be met in practice. Being deterministic, this model does not allow for error. All deviations from the frontier are considered as inefficiencies. This often results in their

overestimation (Lozano-Vivas, 1998), as the method is very sensitive to extreme observations (outliers), to measurement errors and to the number of constraints specified. There is no consensus in the literature as to which method should, in general, be preferred. The choice usually depends on the available data

## **2.9 MEASURING THE EFFECIENCY OF BANKS**

Studies on the efficiency (performance) of banks usually base their analysis on cost ratio comparisons. There are several cost ratios to be used and each one of them refers to a particular aspect of bank activity. Piyu (1992), states that, financial ratios are often used to measure the overall financial soundness of a bank and the quality of its management. Bank regulators, for example, use financial ratios to evaluate a bank's performance as part of the CAMEL system. Mostly, a number of proxies such as Profits, liquidity, asset quality, attitude toward risk, and Management strategies must be considered. The changing nature of the banking industry has made such evaluations even more difficult, increasing the need for more flexible alternative forms of financial analysis

In recent years, there is a trend towards measuring bank performance using one of the frontier analysis methods. In frontier analysis, the institutions that perform better relative to a particular standard are separated from those that perform poorly. Such separation is done either by applying a non-parametric or parametric frontier analysis to firms within the financial services industry.

As mentioned above, there are at least four frontier analysis methodologies used to compute financial institution efficiency, and there is no consensus among researchers on which method is best. The approaches differ mainly in how they handle random error and their assumptions regarding the shape of the efficient frontier. The three main parametric methodologies include the stochastic frontier approach (SFA), the thick frontier approach (TFA), and the distribution-free approach (DFA). In general, parametric approaches specify a functional form for the cost, profit, or production relationship among inputs, outputs, and environmental factors, and allow for random error. The main nonparametric approach is data envelopment analysis. Originally developed by Charnes, Cooper, and Rhodes (1978), DEA computes the relative technical (or productive) efficiency of individual decision-making units by using multiple inputs and multiple outputs.

DEA has proven to be a valuable tool for strategic, policy, and operational problems, particularly in the service and nonprofit sectors. Its usefulness to benchmarking is adapted here to provide an analytical, quantitative benchmarking tool for measuring relative productive efficiency. That is, DEA generally focuses on technological, or productive, efficiency rather than economic efficiency.

Productive efficiency examines levels of inputs relative to levels of outputs. To be productively efficient, a firm must either maximize its outputs given its input quantities, or minimize its inputs given outputs. Economic efficiency is somewhat broader in that it involves optimally choosing the levels and mixes of inputs and/or outputs based on reactions to market prices. To be economically efficient, a firm seeks to optimize some

economic goal, such as cost minimization or profit maximization. In this sense, economic efficiency requires both productive efficiency and allocative efficiency.

As discussed in Bauer et al. (1998), it is quite plausible that some productively efficient firms are economically inefficient, and vice versa. Such efficiency mismatches depend on the relationship between managers' abilities to utilize the best technologies and their abilities to respond to market signals. Productive efficiency requires only input and output data, whereas economic efficiency also requires market price data. Allocative efficiency is about doing things right, and economic efficiency is about doing the right things right. DEA was developed specifically to measure relative productive efficiency, which is our focus here.

The choice of inputs and outputs in DEA is a matter of long standing debate among researchers. Two approaches exist. One is called the production approach, while the other is an intermediation approach. The production approach uses number of accounts of deposits or loans as inputs and outputs respectively. This approach assumes that banks produce loans and other financial services. The intermediation approach on the other hand considers banks as financial intermediaries and uses volume of deposits, loans and other variables as inputs and outputs. Most of the DEA studies follow an intermediation approach. Within the intermediation approach, the exact set of inputs and outputs used depends largely on data availability. As already stated DEA is sensitive to the choice of input-output variables. This is strength of the technique, since it reveals which of the input-output variables need to be closely monitored by bank management to improve

efficiency. Avkiran (1999) has attempted a similar two model analysis for Australian banks.

Using a sample of three (3) commercial banks in Nigeria, Tanko (2004) applied DEA and the Malmquist Productivity Index (MPI) under the constant return to scale assumption via an intermediation approach and found that average efficiency (performance) of the banks over the 5-year period showed constant improvements. In his intermediation model, he considered as input variables; net fixed assets and total earning assets and net operating income as output variables.

Wirnkar (2007) applied a DEA under constant return to scale; input orientation at maximum average on a sample of eleven commercial banks in Nigeria using the conjoint of input and output definition (production/intermediation approach) of services performed by commercial banks and found that consolidation improves banks efficiency.

Limam (2002) applied a stochastic approach using earning assets as output and fixed assets, labor and financial capital as inputs (intermediation model) in Kuwaiti banks and found that banks produce earning assets at constant returns to scale and hence have less to gain from increasing scale of production notably, through merging with other banks, than from reducing their technical inefficiency except for the largest two banks, National Bank of Kuwait (NBK) and Gulf Bank (GB). The results showed that larger bank size, higher share of equity capital in assets and greater profitability are associated with better efficiency.

Applying the stochastic frontier with shadow cost function model using an intermediation approach for all banks in Romania 1994 – 2002, Kumbhakar and Sakar (2003) found that, the restructuring of the problem banks was successful in reducing technical inefficiencies while the increased distortion regulation had little effect on decreasing the bank inefficiencies.

Gringorian and Manole (2002) applied the Value Added Approach of input/output definition in DEA on banks in fourteen transition economies and found; that well capitalized banks are ranked higher in terms of their ability to collect deposits than their poorly capitalized counterparts; that banks with a larger share of a given country's market are likely to be more efficient than their domestically owned counterparts (including state-owned and private domestic); that privatization of banks does not lead to statistically significant improvements in efficiency unless it results to a controlling foreign ownership; that although there seem to be some indication that prudential regulations have impact on efficiency of banks, the effects are not uniform across different prudential norms; that banks in countries with relatively low foreign exchange exposure regulations seem to be doing better than those in countries with tighter policies; that banks in higher per capital income countries are more efficient in terms of attracting more deposits and generating stronger cash flows than banks in low income countries, lastly, that securities market and non-bank financial institutions development hinders the efficiency of banks.(Tanko 2004)

In the context of this research, different approach and variables were adopted as explained in the methodology of the study.

### 2.9.2 An Overview of Data Envelopment Analysis Technique

DEA is a linear programming technique initially developed by Charnes, Cooper and Rhodes (1978) to evaluate the efficiency of public sector non-profit organisations. Sherman and Gold (1985) were the first to apply DEA to banking. DEA calculates the relative efficiency scores of various Decision-Making Units (DMUs) in the particular sample. The DMUs could be banks or branches of banks. The DEA measure compares each of the banks/branches in that sample with the best practice in the sample. It tells the user which of the DMUs in the sample are efficient and which are not. The ability of the DEA to identify possible peers or role models as well as simple efficiency scores gives it an edge over other methods. As an efficient frontier technique, DEA identifies the inefficiency in a particular DMU by comparing it to similar DMUs regarded as efficient, rather than trying to associate a DMU's performance with statistical averages that may not be applicable to that DMU. DEA modelling allows the analyst to select inputs and outputs in accordance with a managerial focus. This is an advantage of DEA since it opens the door to what-if analysis. Furthermore, the technique works with variables of different units without the need for standardisation (e.g. dollars, number of transactions, or number of staff). Fried and Lovell (1994) have given a list of questions that DEA can help to answer.

However, DEA has some limitations. When the integrity of data has been violated, DEA results cannot be interpreted with confidence. Another caveat of DEA is that those DMUs indicated as efficient are only efficient in relation to others in the sample. It may be possible for a unit *outside* the sample to achieve a higher efficiency than the best practice DMU *in* the sample. Knowing which efficient banks are most comparable to the



inefficient bank enables the analyst to develop an understanding of the nature of inefficiencies and re-allocate scarce resources to improve productivity. This feature of DEA is clearly a useful decision-making tool in benchmarking. As a matter of sound managerial practice, profitability measures should be compared with DEA results and significant disagreements investigated. The DEA technique has been used in efficiency analysis of banks (rather than branches); some recent examples are Yue (1992), Berg et al. (1993), Favero and Papi (1995), Wheelock and Wilson (1995), Miller and Noulas (1996), Resti (1997) and Sathye (2001)<sup>2</sup>.

## **CHAPTER THREE**

### **RESEARCH METHODOLOGY**

#### **3.1 Introduction:**

Research can be defined as the process of arriving at dependable solutions to a problem, through planned and systematic collection of data (Osuala, 2003). It serves as an important tool for advancing knowledge, promoting progress and enabling man to relate more effectively with his environment to accomplish his purpose and to resolve conflicts

This chapter tries to develop systematic structure of methods used, sources of data, population of the study, sample size and tools of data analysis, among others.

#### **3.2 Research Design**

The research methods adopted for this study were the historical and descriptive method. Thus, both of them were elucidated based on their relevance to this work.

**Historical Research Method** deals with the determination, evaluation and explanation of past events especially for the purpose of obtaining a clear, better and more reliable prediction of the future. This research is interested in determining the trend of performance of the studied banks, in the past six years (three years pre-consolidation 2003-2005 and three years post-consolidation 2006-2008). As such, this proves historical research method is relevant in analyzing the previous annual reports of the selected banks

to get the information that would serve as a yardstick of comparison with the post consolidated banks' annual reports.

**Descriptive Research Method** explains and interpretes the actual phenomenon that is being studied and it also gives one a clear picture of a situation or a population by describing the event (phenomenon). The research intends to explain the results of efficiency measuremesnt, trend analysis as well as hypotheses tested ; hence the relevance of descriptive research method is inevitable.

### **3.3 Population and Sample Size of the study**

The population of this study is the deposit money banks that acquired other banks and operated prior to and after the consolidation exercise . This gives a total population of twelve (12) banks. Also, the study covers a period of six years with five years pre-consolidation reform (2003-2005) and three years post-consolidation (2006-2008).

Therefore, the sample size of this study is six (6) banks based on the strength of their capital base. Thus, they are arrived at by taking the five banks with capital base of over N200 billion which are First Bank of Nig. Plc, Oceanic Bank plc, United Bank for Africa plc, Union Bank of Nig. plc, and Zenith Bank plc.

And the one bank from the group of banks that have capital base of more than N100 billion but less than N200 billion which is Guaranty Trust Bank plc. Thus six banks represent 50 % of the twelve banks that acquired other banks, and retain their original name which according to Lucey (1995) is a good representation of the population size.

Emphasis is given to those that are involved in acquisition rather than those involved in merger because, banks that acquire others show a signal of financial strength and stability. While those that merge might be having one problem or the other.

### 3.4 Sampling Technique

To arrive at the sample size of six, we adopted stratified sampling technique where we stratified into group of acquisition, and group of merger. They are also stratified into three sub-groups based on the asset size.

The reasons behind the first grouping are that, the banks emerged from the consolidation with their original names, and are the twelve largest banks by assets values in 2005 except Access bank, Afribank, and Wema bank. (Banking Supervision Annual Report, 2005).

The following table presents banks that emerged after the consolidation as at 2009

**Table 3.4.1 Emerging banks after the Reform as of 2009**

S/N	BANKS THAT ALREADY EXIST, AQUIRE OTHERS & MAINTAINING THEIR ORIGINAL NAMES		
1	ACB : Access Bank Plc	7	UBA : United Bank for Africa
2	AFB : Afribank plc	8	UB : Union Bank Plc
3	FBN : First Bank plc	9	ZB : Zenith Bank plc
4	GTB: Guarantee Trust Bank Plc	10	DB ; Diamond Bank plc
5	ICB : Intercontinental Bank Plc	11	WB; Wema Bank Plc
6	OCB : Oceanic Bank plc	12	Ecb; Ecobank

The stratified sampling technique came up with a list of banks that acquire others with the originality of their names from which a sample is drawn (Baker, 1999), which is made up of 3 groups of the quoted banks according to the size of their assets

as at 31st December, 2005. The logic behind the sample selection, as stated earlier, is to avoid bias and have a good basis for generalization. We, therefore, stratified the sample using the asset base as separate stratum. The three (3) categories of the sampled DMBs are:

- i. Those with asset base below N 100 billion: Access Bank, Afribank and Wema Bank. FSB, Finbank.
- ii. Those with asset base of more than N100 billion but less than N200 billion: GTB, Intercontinental Bank and Diamond Bank.
- iii. Those with asset base of more than N200 billion: First Bank, Union Bank, Zenith bank, Oceanic bank and UBA.

### **3.5 Methods of Data Collection**

The data utilized by the study are secondary data extracted from the annual reports and statements of accounts of the selected banks. Other instruments of secondary data collection utilized are journals, bullions, quarterlies, newspapers and stock exchange factbook.

### **3.6 Data Analysis Techniques**

The techniques adopted for the purpose of this study are Data Envelopment Analysis (DEA) and T-test .DEA is a linear programming based technique for measuring the relative performance of organisational units where the presence of multiple inputs and outputs makes comparisons difficult. The study employs the model used by Siems and Barr (1998) which is an output oriented model where Decision Making Unit (DMU) are deemed to produce the highest possible amount of output with the given amount of input.

The efficiency measure is then a function of weights of the ‘virtual’ input-output combination. Formally the efficiency measure for the DMU<sub>0</sub> can be calculated by solving the following mathematical programming problem:

$$\text{Max } h_0(u,v) = \{s \sum_{r=1} u_r y_r^0\} / \{m \sum_{i=1} v_i x_r^0\} \quad \text{Equa. (1)}$$

$$\{s \sum_{r=1} u_r y_{rj}\} / \{m \sum_{i=1} v_i x_{ij}\} \leq 1, j = 1, 2, \dots, j_0 \dots n \quad \text{Equa. (2)}$$

$$u_r \geq 0, r = 1, 2, \dots, s$$

$$v_i \geq 0, i = 1, 2, \dots, m$$

Where  $x_{ij}$  = observed amount of input of the  $i^{\text{th}}$  type of the  $j^{\text{th}}$  DMU ( $x_{ij} > 0, i = 1, 2, \dots, n, j = 1, 2, \dots, n$ ) and  $y_{rj}$  = observed amount of the  $r^{\text{th}}$  type of the  $j^{\text{th}}$  DMU ( $y_{rj} > 0, r = 1, 2, \dots, s, j = 1, 2, \dots, n$ ). The variables  $u_r$  and  $v_i$  are the weights to be determined by the above programming problem.  $s$  is the total number of input variables ( in this study, 4 inputs) and  $m$  is the total number of output variables (in this study, 3 outputs).  $s = 4$  and  $m = 3$ .

The input variables are: salary expense, other non-interest expense, interest expense, and purchased funds (deposits) which represents resources required to operate a bank. The three outputs are: Loan, interest income, and non-interest income which primarily represent desired outcomes.

T-test is used in determining the effect of introducing consolidation on the efficiency, loan size/spread and profitability generated from intermediation of banks in Nigeria.

The formula for the t-test computation is

$$t = \frac{\bar{x}_1 - \bar{x}_2}{\sqrt{\frac{\sum d^2 - (\sum d)^2/n}{n(n-1)}}$$

$X''_1$	<i>Mean of group one</i>	$\Sigma x_1/n$
$X''_2$	<i>Mean of group two</i>	$\Sigma x_2/n$
$D^2$	<i>Sum of difference square</i>	$Dxd$
$N$	<i>Number of sample</i>	<i>Total Number of Sample Banks</i>

Source: Lucey (2000)

The research made use of EMS 1.30 software for efficiency measurement and SPSS software in testing the hypotheses of the study.

### **3.7 Justification of the Methods Used**

The secondary source of data collection was used because analyses were based on financial statements as well as the abundance of literature on the topic making the primary source irrelevant.

The assessment is based on consolidation and past performance of the studied banks, hence the choice of the historical method to study the trend of performance before and after the combination. However, the sample size of six (6) was considered appropriate because the study intends to determine the real impact of consolidation on various performance indicators.

Any scientific method of sampling eliminates the problem of biasness. Therefore, stratified sampling was applied to avoid being bias. The use of trend analysis is justified by the need to analyze the strength and weakness of the studied banks' performance before and after consolidation. DEA model with four inputs and three output variables is actually assumed to give the best measure of efficiency of these banks. Also, t-test is considered to be the best tool to be in testing the hypotheses.

### **3.8 SUMMARY OF THE CHAPTER**

The chapter examined the research methods used by the research coupled with the population and sampling design of the study. Due to the nature of the research, historical and descriptive research methods were utilized. As regards to the data analysis techniques, the DEA and t-test were adopted to test the formulated hypotheses.



## CHAPTER FOUR

### DATA PRESENTATION, ANALYSIS AND INTERPRETATION

#### 4.1 INTRODUCTION

This chapter deals with the presentation, analysis and interpretations of the data gathered for the purpose of empirically testing the hypotheses of the study. This is in order to establish whether as a result of consolidation efficiency, loans size/spread, and profitability due to intermediation of banks are substantially improved or not.

#### 4.2 Data Analysis of the Variables under Study

The following table gives the values of size of loans and advances before and after the consolidation reform.

Table 4.2.1 Loans and Advances given by the selected banks

	Size of Loans advanced within the Post-Consolidation Period			Size of Loans advanced within the Pre-Consolidation Period		
	2008	2007	2006	2005	2004	2003
<b>FBN</b>	437,768,000	219,185,000	175,657,000	114,673,000	78,040,000	56,046,000
<b>GTB</b>	288,152,339	115,746,009	83,476,852	65,035,248	43,675,606	30,663,550
<b>OCB</b>	574,581,746	338,338,721	98,915,390	77,715,546	24,251,234	12,874,707
<b>UBA</b>	421,748,000	320,229,000	107,194,000	67,610,000	56,136,000	46,076,000
<b>UB</b>	244,845,000	149,376,000	116,060,000	78,684,000	78,338,000	54,560,000
<b>ZB</b>	413,731,491	218,305,419	199,707,860	122,494,396	53,391,209	27,290,021

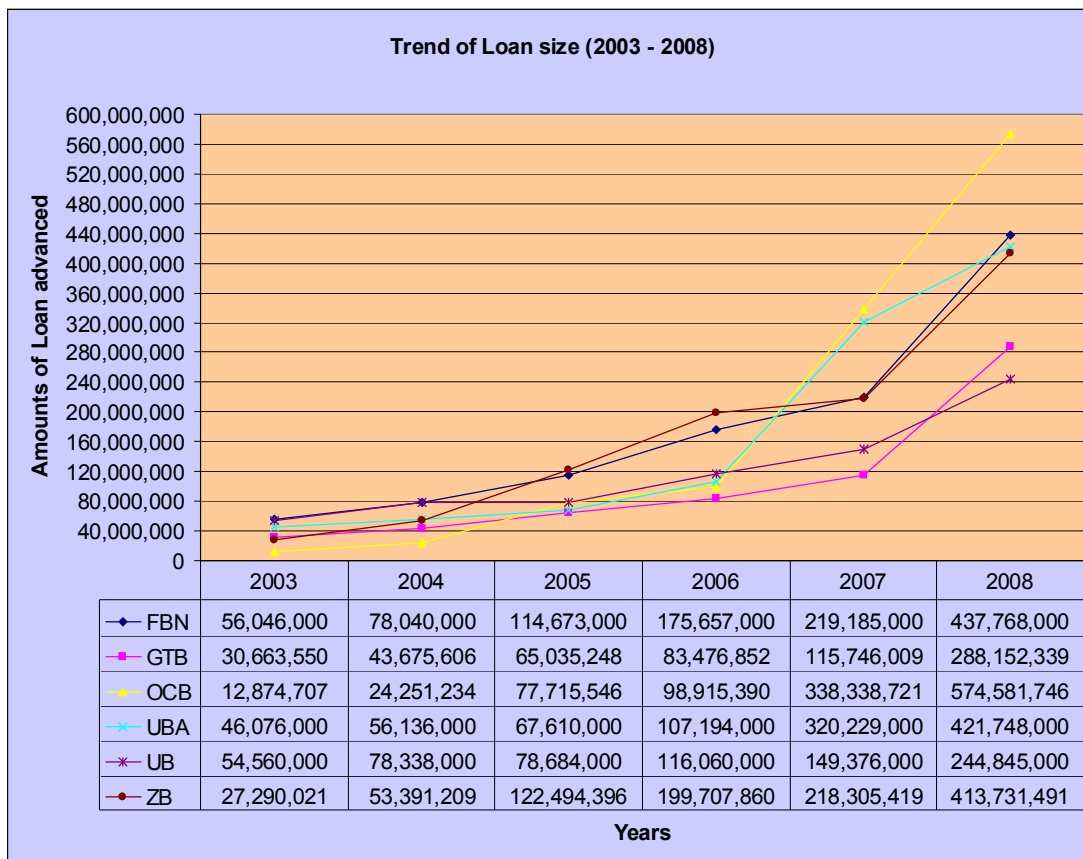
Source: Various Annual Reports.

From the table above, the year 2008 has the highest loans figure of N574,581,746 by Oceanic bank plc. It is then followed by First bank plc and United bank for Africa with a figure of N437,768,000 and N421,748,000 respectively. The bank with the least figure was Union bank plc. As of the period of time before the reform, the year 2005 has the

highest loan figure of N122,494,396 from Zenith bank plc. It is then followed by First bank and Union bank with respective figures of N114,763,000 and N78,684,000. The bank with the least figure of N65,035,248 was Guaranty trust plc.

The figures from Table 4.2.1 were plotted on the graph in order to establish the trend of the loans and advances from the pre-consolidation period to post consolidation. The following graph shows the trend effect.

Graph 4.2.1(a) Loans and Advances Trend



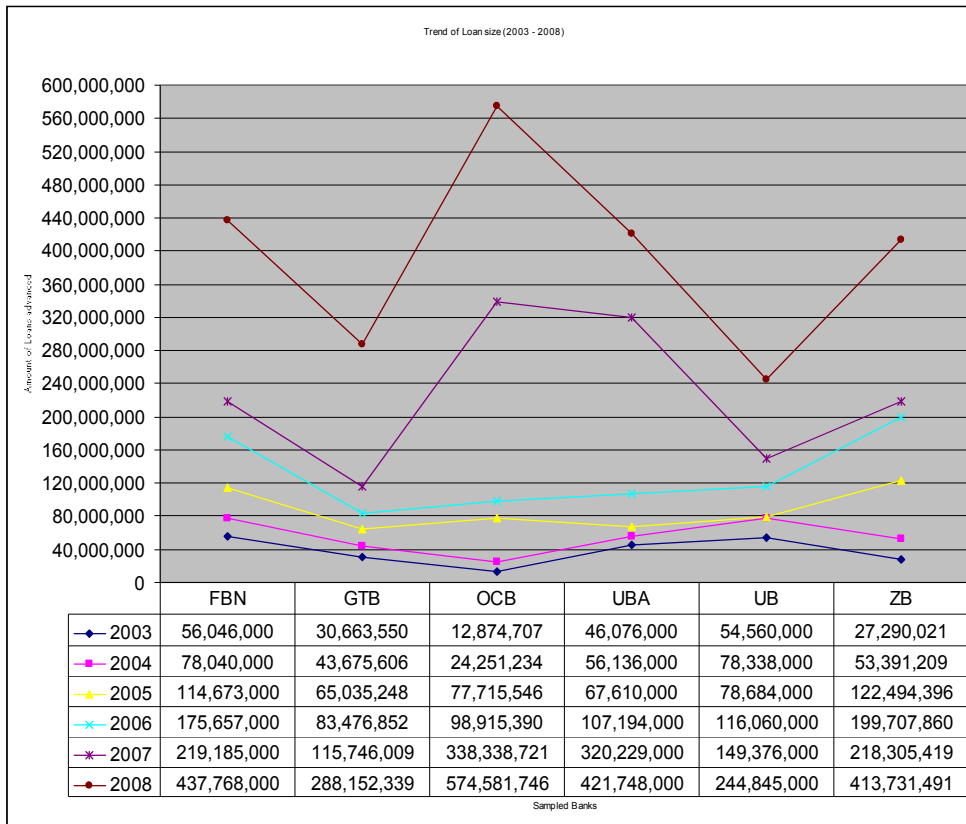
The above graph confirmed the features exhibited by Table 4.2.1. From the graph, it can be seen that the year 2008 has the highest loan and advances disbursement figure of

N574,581,746 from Oceanic bank plc. It is then followed by the year 2007 with the disbursement figure of N338,338,721 from Oceanic bank plc. From the year 2007 to 2008, the percentage increment of loans and advances figure was 70%.

It can also be seen from the graph that from the pre- to post consolidation periods, the loans and advances figures have been increasing on yearly basis though not at the same proportion.

The data in the same table 4.2.1 are used in plotting the following graph that shows the trend of loans and advances in relation to the respective banks concerned.

Graph 4.2.1(b)



From the graph, Oceanic bank has the highest loans and advances, followed by First bank and United bank for Africa as indicated by the table figures as of the year 2008. On the

overall the bank with the least loans and advances figure was Oceanic bank plc as at the year 2003.

The following table gives the values of profit realised from lending before and after the consolidation reform.

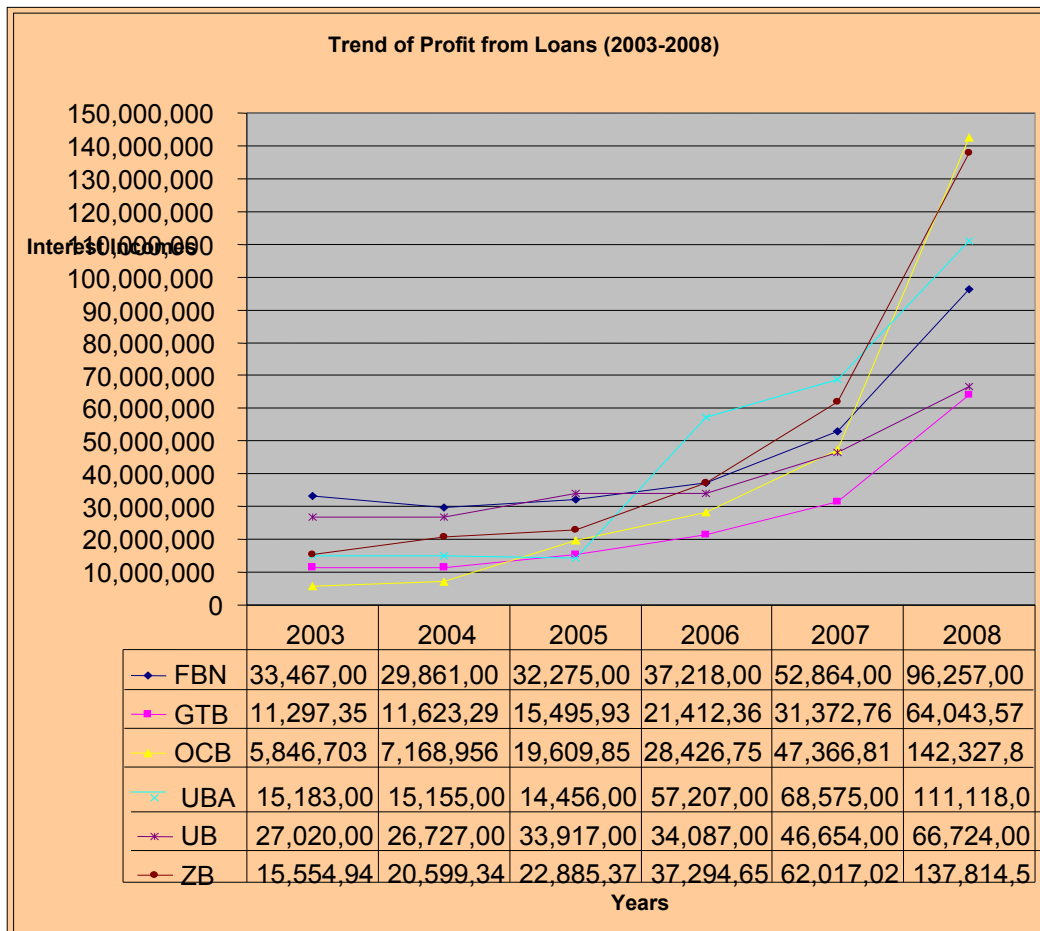
Table 4.2.2 Profits generated from intermediation of the selected banks

BANKS / YEARS	Trend of Profit from Loans advanced ( Interest Income ) within the Post-Consolidation Period			Trend of Profit from Loans advanced ( Interest Income ) within the Pre-Consolidation Period		
	2008	2007	2006	2005	2004	2003
<b>FBN</b>	96,257,000	52,864,000	37,218,000	32,275,000	29,861,000	33,467,000
<b>GTB</b>	64,043,570	31,372,760	21,412,361	15,495,935	11,623,293	11,297,351
<b>OCB</b>	142,327,854	48,351,490	28,426,753	19,609,857	7,168,956	5,846,703
<b>UBA</b>	111,118,000	68,575,000	57,207,000	14,456,000	15,155,000	15,183,000
<b>UB</b>	66,724,000	46,654,000	34,087,000	33,917,000	26,727,000	27,020,000
<b>ZB</b>	137,814,567	62,017,026	37,294,653	22,885,377	20,599,345	15,554,948

From the table above, the year 2008 has the highest profits from loans figure of N142,327,854 by Oceanic bank plc. It is then followed by Zenith t bank plc and first bank plc with a figure of N137,814,567 and N96,257,000 respectively. The bank with the least figure was GT bank plc. As of the period of time before the reform, the year 2005 has the highest loan figure of N33,917,000 from Union bank plc. It is then followed by First bank and Zenith bank plc with respective figures of N32,275,000 and N22,885,377. The bank with the least figure of N14,456,000 was United bank for Africa plc.

The first graph is showing the varying trend of profit from loans advanced by banks where the lines are representing the banks, the years are on the X-axis, and the amounts are on the Y-axis. The brief description of the graph is provided below it.

Graph 4.2.2(a)

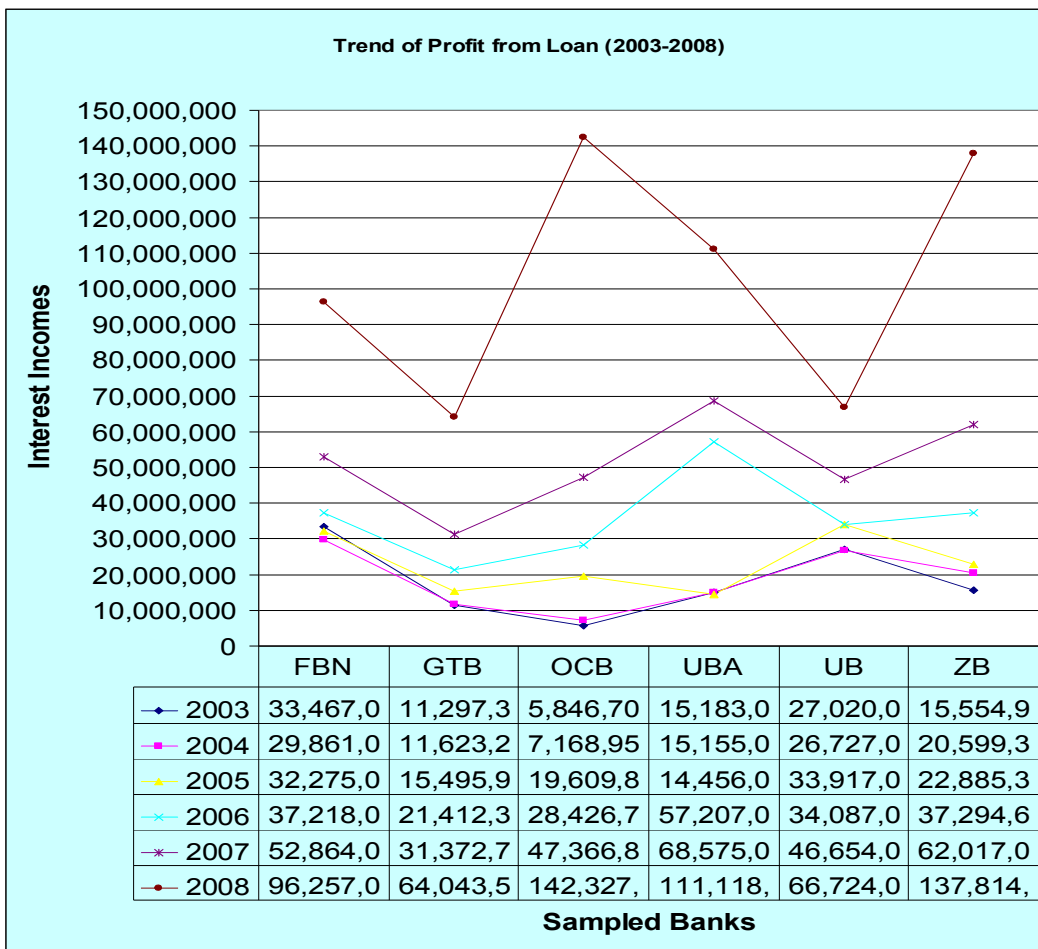


The above graph confirmed the features exhibited by Table 4.2.2. From the graph, it can be seen that the year 2008 has the highest profit from loan and advances disbursement figure of N142,327,854 from Oceanic bank plc. It is then followed by the year 2007 with the disbursement figure of N68,575,000 from United bank for Africa (UBA) plc. From the year 2007 to 2008, the percentage increment of Profitability of lending was 94%.

It can also be seen from the graph that from the pre- to post consolidation periods, the loans and advances figures have been increasing on yearly basis though not at the same proportion. From the year 2003 to the year 2004, the percentage increment was 32%.

The second graph however, shows the varying trend of the loans where the lines represents the years, the banks are on the x-axis and the amounts are on the y-axis. A brief description of the graph is provided below it.

Graph 4.2.2(b)



From the graph, year 2008 has recorded the highest profit figure of N96,257,000, it is then followed by the year 2007, and the year 2006, where the respective figures were

N68,575,000 and N57,207,000. The bank with the highest figure in 2008 was Oceanic bank plc. As for the year 2007 and 2006, the bank that emerged with the highest figures was United bank for Africa plc. The year with the least profit figure from the graph was the year 2003 from Guaranty Trust Bank.

### 4.3 HYPOTHESES TESTING

As already stated in chapter one, three hypotheses were formulated for testing. The first hypothesis deals with whether consolidation reform has significant effect on the efficiency of Nigerian banks or not. The hypothesis was tested using DEA and T-test.

The result of the efficiency measurement is summarized in the following table. The full result is in appendix 2.

**TABLE 4.3.1: EFFICIENCY SCORES**

S/N	YEARS BANKS	2003 %	2004 %	2005 %	2006 %	2007 %	2008 %	AVERAGE (2003- 2008)	Ranking
1	FBN	80.31	58.29	92.39	92.78	84.07	94.46	80.38	3rd
2	GTB	35.66	54.90	70.66	54.32	95.09	92.51	67.19	6th
3	OCB	100.00	76.82	52.05	100.00	53.40	82.59	77.48	4th
4	UBA	88.94	93.22	92.78	100.00	100.00	90.00	94.16	1st
5	UB	27.96	100.00	24.87	91.59	91.89	88.36	69.78	5th
6	ZB	47.47	66.99	95.75	84.58	100.00	100.00	82.47	2nd
	AVERAGE	63.39	75.04	71.42	83.88	87.41	91.32		

SOURCE: EMS 1.30 Result

From the table above, United bank for Africa (UBA) appeared as the most efficient bank for the entire period based on the ranking. It maintains an efficiency score of 94.16% indicating optimum use of inputs (I,N,S,D) to produce output.(1,2,3). This is followed by

Zenith Bank Nigeria plc with an efficiency score of 82.47% with mild fluctuations during the period. The third bank in terms of efficiency was First Bank of Nigeria (FBN) with a score of 80.38%. This is followed by Oceanic Bank plc (OCB) with an efficiency score of 77.48%. The fifth and sixth in terms of ranking are Union Bank of Nigeria plc (UBN) and Guaranty Trust Bank (GTB), with respective scores of 69.78% and 67.19%.

The efficiency scores averages of the pre and post consolidated periods are subjected to T-test to determine the effect.

The following table presents the outcome of the test.

**Table 4.3.2 Paired Samples Test**

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	VAR00001 - VAR00002	17.58667	4.52739	2.61389	6.34001	28.83332	6.728	2	.021

Source: SPSS Result

From table 4.3.2 above, the t value is 6.728 and the p value is 0.021, which is significant at 5% and 10% level. This implies that the efficiencies of banks after the consolidation have substantially improved. This gives the basis for rejecting the null hypothesis one and accepting the alternate. This result is however in conformity with the findings of Tanko (2006) and Winkar (2007) who had adopted DEA to evaluate the Nigerian banking sector efficiency and found a constant improvements. While other studies in developed economies were conducted i.e Berger et al (1993), Jarantne and Strahan (1998) and Huges et al (1998) e.t.c It opposed the study of Keeley (1990), Besanko and Thakor (1993), and Hellmann *et al.* (2000)



As for the **Second hypothesis** that deals with whether consolidation reform has any significant effect on the size and spreads of loans by banks in Nigeria or not, T-test is also used in testing the hypothesis. The following table presents the outcome of the test.

Table 4.3.3: Paired Samples Test

	Paired Differences					t	d f	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
				Lower	Upper			
Pair 1 VAR00001 – VAR00002 (Post-Cons)-(Pre-cons)	190859072.79334	73839577.38025	30144881.23406	113369188.65629	268348956.93038	6.331	5	.001

Source: SPSS Result

From table 4.3.3 above, the t value is 6.331 and the p value is 0.001, which is significant at 1%, 5% and 10% level. This implies that size and spreads of loans of banks after the consolidation have substantially improved. This gives the basis for rejecting the null hypothesis two and accepting the alternate. This result is therefore in conformity with the findings of the study of Enendu (2003) and Hesse (2007) in Nigerian studies .And also agrees with the studies of Berger and Mester (2001), Boyd and Graham (1998), cebonoyan and Strahan (2001) and De Nicole (2003). This result however opposed the studies of Koeva (2003) in India, and Kumbhakar & Sakar (2003).

The **third hypothesis** was also tested using T-test and it deals with whether consolidation reform has any significant effect on profits realised from lending by Nigerian banks or not. The following table presents the outcome of the test.

#### 4.3.4: Paired Samples Test

		Paired Differences					T	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	VAR0001 - VAR0002	43590977.33334	20208115.01877	8249928.40991	22383861.21769	64798093.44898	5.284	5	.003

Source: SPSS Result

From table 4.3.4 above, the t value is 5.284 and the p value is 0.003, which is significant at 1%, 5% and 10% level. This implies that size and spreads of loans of banks after the consolidation have substantially improved. This gives the basis for rejecting the null hypothesis three and accepting the alternate. The findings is in conformity with that of Beck et al (2003) and Vander Venet (2002).

#### 4.4 POLICY IMPLICATION OF THE FINDINGS

This chapter has three hypotheses which the first is tested with DEA efficiency measurement system software EMS 1.30. From the result, the alternate hypothesis was accepted that the reform has significant effect on efficiency of Nigerian banks.

This implies that the banks' management and the regulatory authority can make use of this variables and approach to be able to evaluate the efficiency of the banking industry.

The second finding indicates that management of banks in Nigeria will be able to know the extent to which more capital availability through consolidation has an effect on the size /spread of loans disbursed by the banks.

The third hypothesis shows that the banks can use this technique to find out the contribution of the various sources of bank's profitability, so that more attention would be paid on it.

#### **4.5 SUMMARY OF THE CHAPTER**

This chapter, described the variable used in establishing evidence for conclusion Data were summarized in tables, described and been subjected to trend analysis by use of line graph were utilized for displaying the trend of loan size/spread, and also, the trend of profit from lending of banks.

Furthermore, EMS 1.30 was used to urn DEA in order to find out the efficiency of the sampled banks. Lastly, hypotheses formulated were tested with T-test by use of SPSS software. All the found results had been linked with the prior literatures so as to reflect all the current and future implications.

## **CHAPTER FIVE**

### **SUMMARY, CONCLUSION, AND RECOMMENDATIONS**

#### **5.1 Summary**

Nigerian banking industry embarked on consolidation reform with the aims of achieving higher efficiency, profitability, stability, and greater level of intermediation which is the paramount function of banks. The thesis seeks to find out whether the reform yields the desired outcome of doing it in terms of efficiency, intermediation and profitability of banks operating in the Nigerian banking sector.

In chapter two, domestic and foreign literatures have been reviewed to identify the previous studies made with their methodologies and then establish the existing gap.

Chapter three described the methodology used where the study has a population of twenty-four (24) banks, a sample size of six banks and a time period of six years. The six years constitute of three years pre and three years post consolidation. Efficiency measurement system 1.30 by Hogler was used to compute the DEA of sampled banks efficiency. Also, descriptive analysis and t-test analysis was used to describe the data and also test the formulated hypotheses respectively.

The fourth chapter analysed and found that consolidation has significant effect on the efficiency of banks in Nigeria. It also established that there is significant effect of the reform on intermediation of banks operating in the sector. Furthermore, the study confirmed the reform significant effect on the profits of Nigerian banks.

## **5.2 Conclusions**

Based on the analysis and findings of the study, we concluded the following;

Firstly, consolidation reform has significant effect on the efficiency of banks in Nigeria..

This is because the pre-consolidation percentage (%) efficiencies in 2003, 2004, and 2005 are all less than that of post-consolidation period of 2006, 2007 and 2008.

Secondly, consolidation reform has significant effect on the quantum (size) of loans and level of intermediation of banks in Nigeria.

Thirdly, consolidation reform had really created more funds available for loan disbursement in the post-consolidation period of 2006, 2007 and 2008 through the increased capital base.

Fourthly, consolidation reform has significant effect on the profit generated from banks lending in Nigeria.

Lastly, as displayed by the trend analysis, the post-consolidation period of 2006, 2007 and 2008 had the highest lending profit generation which banks largely depends on for their profitability.

## **5.3 Recommendations**

This study has the following recommendations based on the findings.

- i. The managements of banks should work hard to ensure that adequate measures had been put in place to determine the operational /intermediation efficiency of their banks so that effective and efficient utilisation of resources would be maintained.
- ii. The Nigerian banking regulators should endeavour to determine the potential

outcomes of any reform, ordinance, and regulation before it is made mandatory to the banks to comply with. This is because some reforms might not be beneficial. As shown in the case of Union bank, which acquired Broad bank, very huge liability was inherited which cause drastic technical and economic efficiency for it

- iii. The management and staff of banks should evaluate the basic sources of banks' profitability (i.e. lending or other services) so that strategies, innovations and more products would be introduced to capture bigger market segment. This is because, if higher profit can be realized from lending, more loan strategies should be brought and marketed to capture more customers.
  
- iv. The shareholders, potential investors and managements of banks need to properly evaluate the efficiency and viability of every investment before choosing the bank in which to invest into since banks are always faced with liquidity problems.

#### **5.4 AREAS FOR FURTHER RESEARCH**

Academic researchers should investigate more into the technical, and the cost efficiency of banks in Nigeria using any parametric tool given the dynamic nature of the financial sector.

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## APPENDICE(S)

### Appendix 1 : Data for DEA Analysis

#### Year 2008

	INTEREST EXPENSE {i}	NON-INTEREST EXPENSE {N}	SALARY EXPENSE {S}	DEPOSITS {D}	INTEREST INCOME {1}	NON-INTEREST INCOME {2}	LOANS ADVANCES {3}	AND
<b>FBN</b>	22,283,000	26,636,000	31,305,000	661,624,000	96,257,000	34,343,000	437,768,000	
<b>GTB</b>	21,325,605	24,902,871	10,520,939	446,818,523	64,043,570	31,098,102	416,444,077	
<b>OCB</b>	58,786,830	77,804,331	11,210,345	848,298,407	142,327,854	42,583,858	574,581,746	
<b>UBA</b>	39 800,000	58, 107,000	21,103,000	1,258,035	111 118,000	42, 974,000	421 748,000	
<b>UB</b>	18,420,000	14,162,000	21,386,000	649,334,000	66,724,000	26,211,000	244,845 1	
<b>ZB</b>	49,962,969	85,094,715	31,562,720	1,161,475,513	137,814,567	52,260,467	413,731,491	

#### Year 2007

	INTEREST EXPENSE	NON-INTEREST EXPENSE	SALARY EXPENSE	DEPOSITS	INTEREST INCOME	NON-INTEREST INCOME	LOAN ADVANCES	AND
<b>FBN</b>	22,283,000	26,636,000	31,305,000	661,624,000	96,257,000	34,343,000	437,768,000	
<b>GTB</b>	21,325,605	24,902,871	10,520,939	446,818,523	64,043,570	31,098,102	416,444,077	
<b>OCB</b>	58,786,83	77,804,331	9,555,696	848,298,407	142,327,854	42,583,858	574,581,746	
<b>UBA</b>	39 800,000	58, 107,000	21,103,000	1,258,035	111 118,000	42, 974,000	421 748,000	
<b>UB</b>	18,420,000	14,162,000	21,386,000	649,334,000	66,724,000	26,211,000	244,845 1	
<b>ZB</b>	49,962,969	85,094,715	31,562,720	1,161,475,513	137,814,567	52,260,467	413,731,491	

#### Year 2006

	INTEREST EXPENSE {i}	NON-INTEREST EXPENSE {N}	SALARY EXPENSE {S}	DEPOSITS {D}	INTEREST INCOME {1}	NON-INTEREST INCOME {2}	LOANS ADVANCES {3}	AND
<b>FBN</b>	7,750,000	15,975,000	14,679,000	390,846,000	37,218,000	24,025,000	175,657,000	
<b>GTB</b>	7,982,295	7,408,758	3,193,197	212,833,770	21,412,361	10,320,365	83,476,852	
<b>OCB</b>	12,523,658	18,689,012	7,087,704	310,333,081	28,426,753	12,947,439	98,915,390	
<b>UBA</b>	24,879,000	43,540,000	17,132,000	776,135,000	57,207,000	28,872,000	107 194,000	
<b>UB</b>	7,199,000	11,178,000	13,424,000	275,457,000	34,087,000	16,224,000	116,060,000	
<b>ZB</b>		31,298,175.00	,224,517 31		37,294,653	20,927,170	199,707,860	
	10,462,632.00			392,863,699.00				

#### Year 2005

	INTEREST EXPENSE {i}	NON-INTEREST EXPENSE {N}	SALARY EXPENSE {S}	DEPOSITS {D}	INTEREST INCOME {1}	NON-INTEREST INCOME {2}	LOANS ADVANCES {3}	AND
<b>FBN</b>	5,854,000	26,648,000	11,936,000	265,378,000	32,275,000	17,200,000	114,673,000	
<b>GTB</b>	6,638,628	10,190,900	2,395,564	95,563,587	15,495,935	7,059,605	65,035,248	
<b>OCB</b>	4,699,612	11,370,760	3,075,510	167,400,994	19,609,857	<b>13,785,550</b>	77,715,546	
<b>UBA</b>	3,490,000	16,039,000	6,667,000	205,110,000	14,456,000	11,050,000	67,610,000	
<b>UB</b>	6,480,000	4,892,000	12,784,000	200,511,000	33,917,000	10,862,000	78,684,000	
<b>ZB</b>	5,620,169	18,153,540	5,860,620	233,413,428	22,885,377	12,028,085	122,494,396	

#### Year 2004

Year  
2003

		INTEREST EXPENSE {i}	NON-INTEREST EXPENSE {N}	SALARY EXPENSE {S}	DEPOSITS {D}	INTEREST INCOME {1}	NON-INTEREST INCOME {2}	LOANS ADVANCES {3}	AND
1	<b>FBN</b>	4,374,000	11,515,000	11,464,000	207,181,000	29,861,000	15,260,000	78,040,000	
2	<b>GTB</b>	5,123,427	7,900,225	1,776,361	74,222,497	11,623,293	5,188,554	43,675,606	
3	<b>OCB</b>	2,512,227	5,468,340	1,796,576	68,953,667	7,168,956	5,454,527	24,251,234	
4	<b>UBA</b>	3,107,000	13,099,000	5,864,000	151,929,000	15,155,000	8,773,000	56,136,000	
5	<b>UB</b>	8,077,000	15,259,000	11,733,000	241,585,000	26,727,000	8,749,000	78,338,000	
6	<b>ZB</b>	3,331,910	13,797,311	4,285,445	131,095,341	20,599,345	10,365,450	53,391,209	

**Year 2003**

		INTEREST EXPENSE {i}	NON-INTEREST EXPENSE {N}	SALARY EXPENSE {S}	DEPOSITS {D}	INTEREST INCOME {1}	NON-INTEREST INCOME {2}	LOANS ADVANCES {3}	AND
1	<b>FBN</b>	4,456,000	13,312,000	8,166,000	199,294,000	33,467,000	11,588,000	56,046,000	
2	<b>GTB</b>	5,505,229	6,399,927	1,168,764	51,067,765	11,297,351	4,350,680	30,663,550	
3	<b>OCB</b>	1,866,174	5,787,554	1,665,914	49,365,830	5,846,703	5,207,234	12,874,707	
4	<b>UBA</b>	3,676,000	12,185,000	4,903,000	142,427,000	15,183,000	8,537,000	46,076,000	
5	<b>UB</b>	5,709,000	3,427,000	9,211,000	224,347,000	27,020,000	7,692,000	54,560,000	
6	<b>ZB</b>	2,289,282	10,049,072	2,982,003	61,574,455	15,554,948	13,437,110	27,290,021	

**Appendix 2 : Efficiency scores of the sampled banks**

Year  
2003

	DMU	Score	I {I}{V}	N {I}{V}	S {I}{V}	D {I}{V}	1 {O}{V}	2 {O}{V}	3 {O}{V}	Benchmarks	{S} I{I}	{S}
1	FBN	80.31%	0.59	0.22	0	0	1	0	0	0		

Year	DMU	Score	I {}{V}	N {}{V}	S {}{V}	D {}{V}	1 {}{O}{V}	2 {}{O}{V}	3 {}{O}{V}	Benchmarks
1	FBN	80.31%	0.59	0.22	0	0	1	0	0	0
2	GTB	35.66%	0	0	0.36	0	0.04	0	0.96	1
3	OCB	137.49%	0.37	0.61	0.39	0	0	0.21	0.79	2 (0.13) 4 (0.01) 5 (0.00)
4	UBA	88.94%	0.31	0.22	0.36	0	0	0	1	(0.48)
5	UB	27.96%	0	0.28	0	0	0.28	0	0.72	1
6	ZB	47.47%	0.47	0	0	0	0.05	0.95	0	1

Year	DMU	Score	I {}{V}	N {}{V}	S {}{V}	D {}{V}	1 {}{O}{V}	2 {}{O}{V}	3 {}{O}{V}	Benchmarks
1	FBN	58.29%	0.03	0.56	0	0	0.66	0.34	0	1
2	GTB	54.90%	0	0	0.55	0	0	0	1	1
3	OCB	76.82%	0	0.49	0.28	0	0	1	0	0
4	UBA	93.22%	0.79	0	0.14	0	0	0	1	0
5	UB	100.00%	0	1.01	0.24	0	0	0	1	1 (0.94) 2 (0.57)
6	ZB	66.99%	0.25	0	0.42	0	0.91	0.09	0	0

Year	DMU	Score	I {}{V}	N {}{V}	S {}{V}	D {}{V}	1 {}{O}{V}	2 {}{O}{V}	3 {}{O}{V}	Benchmarks
1	FBN	92.39%	0.92	0	0	0	0.34	0.16	0.5	0
2	GTB	70.66%	0	0	0.03	0.67	0.39	0	0.61	0
3	OCB	52.05%	0.17	0	0.35	0	0	1	0	0
4	UBA	92.78%	0.93	0	0	0	0	1	0	0
5	UB	24.87%	0	0.25	0	0	1	0	0	0
6	ZB	95.75%	0.78	0	0.18	0	0.5	0	0.5	0

Year	DMU	Score	I {}{V}	N {}{V}	S {}{V}	D {}{V}	1 {}{O}{V}	2 {}{O}{V}	3 {}{O}{V}	Benchmarks
1	FBN	72.78%	0.69	0.04	0	0	0	0.5	0.5	0
2	GTB	54.32%	0	0.27	0.28	0	0.71	0	0.29	2
3	OCB	100.00%	0	0	0.17	0.99	1	0	0	2 (1.12) 5 (0.26)
4	UBA	100.00%	0	0.41	0.14	1.75	0.5	0	0.5	2 (1.62) 5 (0.26) 6 (0.91)
5	UB	91.59%	0	0.31	0	0.61	0.5	0	0.5	2
6	ZB	84.58%	0.39	0	0.46	0	0	0.5	0.5	1

Year	DMU	Score	I {}{V}	N {}{V}	S {}{V}	D {}{V}	1 {}{O}{V}	2 {}{O}{V}	3 {}{O}{V}	Benchmarks
1	FBN	84.07%	0.84	0	0	0	0.03	0.47	0.5	1
2	GTB	95.09%	0	0.78	0.17	0	0	0.5	0.5	0
3	OCB	53.40%	0	0	0	0.53	0.5	0	0.5	2
4	UBA	100.00%	0	0	1.11	0	0	0.5	0.5	3 (1.37)
5	UB	91.89%	0	0.64	0	0.28	0	0.5	0.5	0
6	ZB	100.00%	1.03	0	0.19	0	0	0.5	0.5	1 (0.32) 3 (0.82)

Year	DMU	Score	I {}{V}	N {}{V}	S {}{V}	D {}{V}	1 {}{O}{V}	2 {}{O}{V}	3 {}{O}{V}	Benchmarks
1	FBN	<u>94.46%</u>	0.84	0	0	0	0.5	0	0.5	1

2	GTB	<u>92.51%</u>	0.13	0.25	0.23	0	0	0.5	0.5	1
3	OCB	<u>82.59%</u>	0	0	0.63	0	0.5	0	0.5	0
4	UBA	<u>90.00%</u>	0	0	0	0	0.5	0	0.5	0
5	UB	<u>88.36%</u>	0	0.82	0	0	0	0.5	0.5	0
6	ZB	<u>100.00%</u>	1.59	0	0.17	0	0.5	0	0.5	1 (0.34) 2 (1.99)

**Appendix 3.1: Summary of the Efficiency Scores / Ranking.-----Hyp 1**

S/N	YEARS BANKS	2003 %	2004 %	2005 %	2006 %	2007 %	2008 %	AVERAGE	Ranking	SUM
1	FBN	80.31%	58.29%	92.39%	72.78%	84.07%	94.46%	80.38%	3rd	482.30%
2	GTB	35.66%	54.90%	70.66%	54.32%	95.09%	92.51%	67.19%	6th	403.14%
3	OCB	100.00%	76.82%	52.05%	100.00%	53.40%	82.59%	77.48%	4th	464.86%
4	UBA	88.94%	93.22%	92.78%	100.00%	100.00%	90.00%	94.16%	1st	564.94%
5	UB	27.96%	100.00%	24.87%	91.59%	91.89%	88.36%	69.78%	5th	424.67%
6	ZB	47.47%	66.99%	95.75%	84.58%	100.00%	100.00%	82.47%	2nd	494.79%
	<b>SUM</b>	380.34%	450.22%	428.50%	503.27%	524.45%	547.92%			
	<b>AVERAGE</b>	<b>63.39%</b>	<b>75.04%</b>	<b>71.42%</b>	<b>83.88%</b>	<b>87.41%</b>	<b>91.32%</b>			

**Appendix 3.2: T-Test Result for Hypothesis I**

**Paired Samples Statistics**

	Mean	N	Std. Deviation	Std. Error Mean
Pair 1 VAR00001	87.5367	3	3.72162	2.14868
VAR00002	69.9500	3	5.96249	3.44245

**Paired Samples Correlations**

	N	Correlation	Sig.
Pair 1 VAR00001 & VAR00002	3	.651	.548

**Paired Samples Test**

	Paired Differences					t	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
				Lower	Upper			
Pair 1 VAR00001 - VAR00002	17.58667	4.52739	2.61389	6.34001	28.83332	6.728	2	.021

**Appendix 4.1: Data for Hypothesis II**

BANKS / YEARS	Size of Loans advanced within the Post-Consolidation Period			Size of Loans advanced within the Pre-Consolidation Period		
	2008	2007	2006	2005	2004	2003
<b>FBN</b>	437,768,000	219,185,000	175,657,000	114,673,000	78,040,000	56,046,000
<b>GTB</b>	288,152,339	115,746,009	83,476,852	65,035,248	43,675,606	30,663,550
<b>OCB</b>	574,581,746	338,338,721	98,915,390	77,715,546	24,251,234	12,874,707
<b>UBA</b>	421,748,000	320,229,000	107,194,000	67,610,000	56,136,000	46,076,000
<b>UB</b>	244,845,000	149,376,000	116,060,000	78,684,000	78,338,000	54,560,000
<b>ZB</b>	413,731,491	218,305,419	199,707,860	122,494,396	53,391,209	27,290,021

SOURCE: ANNUAL REPORTS

## Appendix 4.2 : T-Test Result for Hypothesis II

### Paired Samples Statistics

	Mean	N	Std. Deviation	Std. Error Mean
Pair 1 Post-consolidation (VAR00001)	251278768.1834	6	69641654.82425	28431086.52707
Pre-consolidation (VAR00002)	60419695.3900	6	16500830.42194	6736435.81099

### Paired Samples Correlations

	N	Correlation	Sig.
Pair 1 VAR00001 & VAR00002	6	-.144	.786

### Paired Samples Test

		Paired Differences				t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference			
					Lower	Upper		
Pair 1	VAR00001 – VAR00002 (Post-Cons)- (Pre-cons)	190859072.79334	73839577.38025	30144881.23406	113369188.65629	268348956.93038	6.331	5 .001

### Appendix 5.1 : Data for Hypothesis III

BANKS / YEARS	Trend of Profit from Loans advanced ( Interest Income ) within the Post-Consolidation Period			Trend of Profit from Loans advanced ( Interest Income ) within the Pre-Consolidation Period		
	2008	2007	2006	2005	2004	2003
<b>FBN</b>	96,257,000	52,864,000	37,218,000	32,275,000	29,861,000	33,467,000
<b>GTB</b>	64,043,570	31,372,760	21,412,361	15,495,935	11,623,293	11,297,351
<b>OCB</b>	142,327,854	48,351,490	28,426,753	19,609,857	7,168,956	5,846,703
<b>UBA</b>	111,118,000	68,575,000	57,207,000	14,456,000	15,155,000	15,183,000
<b>UB</b>	66,724,000	46,654,000	34,087,000	33,917,000	26,727,000	27,020,000
<b>ZB</b>	137,814,567	62,017,026	37,294,653	22,885,377	20,599,345	15,554,948

SOURCE: ANNUAL REPORTS

### Appendix 5.2 : T-Test Result for Hypothesis III

#### Paired Samples Statistics

	Mean	N	Std. Deviation	Std. Error Mean
Pair 1 VAR00001	63487797.500	6	16590953.64206	6773228.46154
VAR00002	19896820.1667	6	8793491.04266	3589927.68538

#### Paired Samples Correlations

	N	Correlation	Sig.
Pair 1 VAR00001 & VAR00002	6	-.191	.717

#### Paired Samples Test

	Paired Differences					t	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
				Lower	Upper			
Pair 1 VAR00001 – VAR00002	43590977.33334	20208115.01877	8249928.40991	22383861.21769	64798093.44898	5.284	5	.003

### Appendix 6.1: Emerging Banks after Banks Consolidation

S/N	BANKS THAT ALREADY EXIST, AQUIRE OTHERS & MAINTAINING		BANKS THAT WERE FORMED BY MERGERS AND USING NEW
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	<b>THEIR ORIGINAL NAMES</b>		<b>NAMES.</b>	
1	<b>ACB</b> : Access bank Plc	1	ETB Plc	
2	<b>AFB</b> : Afribank plc	2	FCMB Plc	
3	<b>FBN</b> : First bank plc	3	Fidelity bank	
4	<b>GTB</b> : Guarantee trust bank Plc	4	NIB	
5	<b>ICB</b> : Intercontinental bank Plc	5	IBTC Stanbic chartered bank Plc	
6	<b>OCB</b> : Oceanic bank plc	6	Platinum Habib bank Plc	
7	<b>UBA</b> : United Bank for Africa	7	Skye bank	
8	<b>UB</b> : Union bank Plc	8	Spring bank	
9	<b>ZB</b> : Zenith bank plc	9	Standard chartered bank	
10	<b>DB</b> ; Diamond bank plc	10	Stanbic bank	
11	<b>WB</b> ; Wema bank Plc	11	Sterling bank	
12	<b>Ecb</b> ; Ecobank	12	Unity bank	