

**CRANFIELD UNIVERSITY**

**Paul Femi Johnson**

**Developing the Mortgage Sector in Nigeria through the  
provision of Long-term Finance:  
An efficiency perspective**

**School of Management**

**DBA THESIS**

**Academic Year: 2010 - 14**

**Supervisors: Dr. Catarina Figueira (Lead)  
Professor Joseph Nellis  
Dr. Ronny Manos**

**March 2014**

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## Abstract

This research investigates the role of efficiency in attracting long-term finance to the mortgage sector. Within the framework of the traditional economic theory, the new institutional theory and the theory of mortgage collateral, the study investigates the efficiency of primary mortgage banks and the perceived efficiency of the larger system within which they operate using quantitative and qualitative techniques.

Quantitative data were extracted from the financials of 27 mortgage banks in Nigeria, which constitute about 90% of the size of the entire industry in Nigeria, as measured by banks' total assets. These were analyzed using data envelopment analysis (DEA) and stochastic cost frontier (SCF) analysis to determine the efficiency of mortgage banks in Nigeria.

In-depth interviews and focus group discussions were conducted among 40 CEOs of mortgage banks in Nigeria to investigate the perceived efficiency of both the banks and the entire mortgage sector. This sample constitutes about 54.2% of the CEOs in the industry and represents all geopolitical zones and ethnic groups where mortgage banks exist in the country. A review of housing finance policies, systems and sources of funds in thriving emerging economies was also conducted with the aim of drawing lessons from them that are applicable to improving the efficiency of the Nigerian mortgage sector. The findings from the review formed the basis of a mixed method questionnaire survey to investigate the existing and potential sources of funds for housing finance, to assess the acceptability and suitability of lessons drawn from other countries in Nigeria and to make policy recommendations for improving the efficiency of the Nigerian mortgage sector.

The findings reveal that on average, mortgage banks in Nigeria are 33% - 49% efficient compared to best practice firms within the sector. Ownership structure and bank size influence the efficiency of these banks. Banks owned by private organizations and commercial banks are more efficient than those owned by the government or religious organizations. Banks with average total assets in excess of ₦5 Billion are more technically efficient than those with total asset less than ₦5 Billion.

Practitioners perceive the mortgage banks and the larger system within which they operate as only about 10% efficient. This perceived efficiency is much lower than the technical efficiency measured in the quantitative assessment. Through the lens of institutional theory, this low rating is attributed to the negative perception of the institutional structures of the mortgage sector by mortgage finance practitioners. The findings also reveal that two categories – external and internal factors – impair the efficiency of the sector. The regulative constraints account for 55% of challenges to efficiency, normative constraints account for 24%, while cultural cognitive constraints account for 21%. The study identified accumulated deposits in pension funds, unclaimed dividends, funds in dormant accounts of commercial banks and other financial institutions, and funds from insurance companies, as possible sources of long-term funds for housing finance, while a concerted effort is being made to set up a secondary mortgage facility. The findings also reveal that effective government policies, regulation and amendment of existing laws would help improve the efficiency of the mortgage banking sector and attract investors to this sector.

Keywords: Efficiency, Housing finance, Mortgage sector, Enabling policies, Nigeria.

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## Dissemination

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Co-authors: Figueira, C. and Nellis J. G.

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## Definition of terms

**Allocative efficiency:** This is the type of efficiency that measures whether for any level of production, inputs are used in the proportion that minimizes the cost of production, given input prices (SCRCSS, 1997). Ncube (2009) also defines allocative efficiency as the extent to which resources are being allocated to be used with the highest expected value.

**Benchmarking:** The process of comparing the performance of an individual organization against a benchmark or ideal level of performance. Benchmarks can be set on the basis of performance over time or across a sample of similar organizations, or against some externally set standard. (SCRCSS, 1997)

**Best practice:** In this context, the set of management and work practices which results in the highest potential, or optimal quantity and combination of outputs for a given quantity and combination of inputs (productivity) for a group of similar organizations. Best practice can be identified at a number of levels, including organizational, national and international. (SCRCSS, 1997)

**Bureaucratic efficiency:** This refers to the efficiency of the administrative structures and the set of regulation put in place by the internal regulatory agencies - such as FMBN and MBAN and external regulatory agencies such as the Central Bank of Nigeria (CBN), Securities and Exchange Commission (SEC), Nigeria Stock Exchange (NSE), Nigeria Deposit Insurance Corporation (NDIC), etc., to rationalize, render effective and professionalize the mortgage sector. (Blau and Meyer, 1987).

**Cost efficiency:** This is where an organization is technically and allocatively efficient, and hence, produces a given quantity, quality and mix of outputs at minimum possible cost given existing knowledge of technologies and people's preferences (Ncube, 2009). Isik and Hassan (2002), also define cost efficiency as a measure of the deviation of a bank's cost from the best practice bank's cost, assuming that both banks produce the same type and quantity of output and both operate under the same environmental conditions.

**Cultural Cognitive Constraints:** Constraints to development that stem from cultural practices or beliefs.

**Data Envelopment Analysis (DEA):** A linear programming technique that identifies best practice firms within a sample and measures efficiency based on differences between observed and best practice units. DEA is typically used to measure technical efficiency. (Coelli et al., 2005)

**Decision Making Units:** The organizations or units being examined in a DEA study (in this case, the mortgage banks). (Coelli, 1996)

**Efficiency:** This is the criterion for optimizing performance with respect to a pre-specified objective such as input or cost minimization, and profit or output maximization. (Akinwunmi, 2009)

**Linear programme:** A set of linear mathematical equations for which a solution can be obtained subject to an upper bound (maximization), or a lower bound (minimization). (Drake, Hall and Simper, 2005)

**Non-scale technical efficiency:** This represents a proportion of technical efficiency that cannot be attributed to divergences from optimal scale (scale efficiency); sometimes known as managerial efficiency or pure technical efficiency. (SCRCSS, 1997)

**Normative Constraints:** Constraints to development that stem from socially shared expectations of appropriate behaviours from operators and associated organizations.

**Peers:** In DEA studies, the group of best practice organizations with which a relatively inefficient organization is compared. (Coelli et al., 2005)

**Production frontier:** The curve plotting the minimum amount of an input (or combination of inputs), required to produce a given quantity of output (or combination of outputs). (Coelli, 1996)

**Regulative Constraints:** Constraints to development as a result of the laws and regulations.

**Returns to scale:** Relationship between output and inputs. Returns can be constant, increasing or decreasing depending on whether output increases in proportion to, more than, or less than inputs respectively. In the case of multiple inputs and outputs, this means how outputs change when there is an equi-proportionate change in all inputs. (Banker and Thrall, 1992)

**Scale efficiency:** The extent to which an organization can take advantage of returns to scale by altering its size towards optimal scale (which is defined as the region in which there are constant returns to scale in the relationship between outputs and inputs). (SCRCSS, 1997)

**Slacks:** The extra amounts by which an input (output) can be reduced (increased) to attain technical efficiency after all inputs (outputs) have been reduced (increased) in equal proportions to reach the production frontier. (Coelli, 1996)

**Stochastic Frontier Analysis (SFA):** This is an alternative approach to the estimation of frontier functions using econometric techniques. It uses available data on firm level to estimate the cost or production function frontier against which other firms within the sample are compared. The difference in the efficiency level of other firms and the efficient firm(s) is used as a measure of inefficiency of those other firms. It has advantages over DEA when data noise is a problem.

**Technical efficiency:** This is the rate of conversion of physical inputs such as labour services and raw materials or semi-finished goods into outputs. Technical efficiency is determined by the difference between the observed ratio of combined quantities of an entity's input to output and the ratio achieved by best practice. It can be expressed as the potential to increase quantities of outputs from given quantities of inputs, or the potential to reduce the quantities of inputs used in producing given quantities of outputs. Technical efficiency is affected by the size of operations (scale efficiency) and by managerial practices (non-scale technical efficiency). It is defined independently of prices and costs. (SCRCSS, 1997; Coelli, 1996)

**Total factor productivity (TFP):** This is the ratio of the quantity of all outputs to the quantity of all inputs. TFP can be measured by an index of the ratio of all outputs (weighted by revenue shares) to all inputs (weighted by cost shares). (Coelli et al., 2005)

## List of Acronyms

CAR	Capital Adequacy Ratio
CBN	Central Bank of Nigeria
CRS	Constant Returns to Scale
CV	Coefficient of Variation
DEA	Data Envelopment Analysis
DRS	Decreasing Returns to Scale
FDI	Foreign Direct Investment
FMBN	Federal Mortgage Bank of Nigeria
GDP	Gross Domestic Product
IRS	Increasing Returns to Scale
LPO	Local Purchase Order
LR	Liquidity Ratio
MBAN	Mortgage Banking Association of Nigeria
MBS	Mortgage-backed securities
NHF	National Housing Fund
NHTF	National Housing Trust Fund
PMB	Primary Mortgage Bank
PMI	Primary Mortgage Institution (same as PMB)
REIT	Real Estate Investment Trust
RTS	Returns to Scale
SCF	Stochastic Cost Frontier
SFA	Stochastic Frontier Analysis
SE	Scale Efficiency
TE	Technical Efficiency
VRS	Variable Returns to Scale

## **CHAPTER ONE: LINKING DOCUMENT**

# 1.1 Introduction

## 1.1.1 Housing finance in emerging economies

All over the world, the rate of urbanization has soared as more people now live in cities than in rural areas (Boleat and Walley, 2008, Chiquier and Lea, 2009). According to UN (2010), by the end of 2030, two-thirds of the world population will be living in urban centres. The implication of this for an emerging economy like Nigeria is enormous. Therefore the need for an efficient and stable mortgage finance system to enable urban dwellers acquire decent houses that meet global standards is now of great importance.

While considerable skills and resources have gone into improving the efficiency of mortgage finance systems in advanced economies, the same cannot be said of many developing countries, and this is critical as most of the latent demand for housing finance services over the next 30 years will be in emerging markets (Chiquier and Lea, 2009) because the rate of urbanization is highest in developing countries.

As in other emerging economies, Nigeria is experiencing rapid urbanization and the proportion of the population living in urban areas has increased from 48% in 2008 to 52% in 2011 and it is forecasted to increase to over 40% in the next five years (Boleat and Walley, 2008). Despite various government interventions and huge private sector investments through provision of loans by mortgage finance institutions and commercial banks, and direct construction of houses by both the public and private sector, the housing problem in the country still remains intractable; the housing deficit statistics is increasing rapidly as many of the urban dwellers in Nigeria still do not have access to decent and affordable housing. According to Ademiluyi (2010), the level of production of housing in Nigeria is only 2 dwelling units per thousand people which is grossly inadequate compared to the required rate of about 8-10 dwelling units per thousand people as recommended by the United Nations.

Furthermore, housing finance remains underdeveloped in most emerging markets and Nigeria is no exception. Residential mortgage lending is typically small in scale, difficult to access and only bank-based with little reliance on capital markets (Chiquier and Lea, 2009). The lack of financial services in developing countries have a significant negative impact on the efficiency of urban investments, of which housing constitutes probably about 60% (Stone, 2006) if the experience of advanced economies is any guide.

In Nigeria, access to mortgage finance has been constrained by an underdeveloped housing finance system and slow mortgage market development as a result of the lack of an effective legal, regulatory and institutional framework, inadequate access to long-term funding, cumbersome property registration procedures, and lax collateral enforcement as well as ineffective foreclosure procedures. Ademiluyi (2010) attributes the housing problem in Nigeria to the absence of specified criteria, principles and philosophy with planned aims and objectives that define the overall housing policy on which housing

programmes and delivery systems should be based. Boleat and Walley (2008), and Johnson, Figueira and Nellis (2013) posit that mortgage market development in Nigeria is hindered by two critical factors namely: inefficient mechanism for transferring property and the absence of long-term finance for home buyers.

Literature (Hoek-Smit, 2005, Chiquier and Lea, 2009) asserts that initiating and implementing appropriate policies directly leads to and significantly impacts growth in housing finance markets and overall housing delivery. In addition, a significant and sustainable progress has been observed with countries like Chile, Malaysia and Mexico where policies to mitigate the common challenges to successful housing finance systems have been enacted and implemented.

This thesis therefore sets out to investigate the challenges to an efficient mortgage/housing finance system in Nigeria and make relevant policy recommendations to mitigate them. This will ultimately help to develop an efficient mortgage sector with adequate funding techniques to meet the burgeoning housing needs of the nation.

The rest of this section provides the background and the rationale for this thesis and outlines how the independent projects that make up the research are framed and linked. In addition, the following section discusses the literature and theories that inform the study and gives a summary of the research process. Also, a summary discussion and implications of the findings are considered and the section ends with the limitations of the study and areas for further research.

### **1.1.2 Background**

The housing sector plays a critical role in a country's welfare as it directly affects not only the well-being of the citizenry, but also the performance of other sectors of the economy, (Sanusi, 2003). Housing facilitates urban development and promotes socio-economic well-being, and is a vital instrument for personal and national economic development (Chiquier and Lea, 2009). An effective and buoyant housing sector is an indication of a strong programme of national investment; it serves as the platform for and the first step towards future economic growth and social development (Ajanlekoko, 2001).

Apart from this, Sanya (2011) asserts that the housing and mortgage value chain encompasses a minimum of 50 separate job functions and thus, having a well developed and efficient mortgage and housing sector will lead to the creation, deepening, and sustenance of numerous jobs for both professionals, and skilled and unskilled employees in the economy.

The housing sector in Nigeria is a combination of many interrelated components, which include land, infrastructure, building materials, policies, building regulations and, more importantly, the finance component. Finance in housing delivery is very important because of the huge capital requirement for housing production.

As evident in developed economies, mortgage financing represents the *de facto* means of housing finance. In developed countries, the mortgage market is among the largest components of the capital markets. In the United States, for example, mortgage debt is the

largest component of the domestic debt markets. In 2011 this figure was put at \$13.8 trillion (Grandfather Economic Report, 2013). Contrary to what obtains in developed economies, mortgage financing is a channel that is either only just starting to take root or is largely under-utilized in the developing economies of the world.

In Nigeria, the opportunities in the mortgage sector remain hugely unexploited. Presently, the mortgage sub-sector accounts for less than 10% of Nigeria's Gross Domestic Product (GDP), (Lead Capital, 2011), as against in the USA where mortgage debt accounts for 86% of the GDP. This therefore means that great opportunities exist for growth, development and investment, and the potentials of this sector to boost the nation's economy cannot be overemphasized.

The mortgage industry in Nigeria is comprised of a few active players, which are mostly bank subsidiaries and a collection of relatively undercapitalized, independent mortgage institutions. As a result of the absence of long-term funds and high interest costs, their modes of operations are patterned after the lending activities of commercial banks. These institutions include semi-government agencies, mortgage banks and building societies. The major problem faced by the mortgage industry in Nigeria has been the inadequate supply of long-term funds, which represent the major means of providing mortgages.

The mortgage banking system in Nigeria has relied solely on accretions of meagre statutorily compulsory savings into the National Housing Trust Fund (NHTF) scheme. The antithesis of this is what obtains in the developed countries of the World where a huge portion of the countries' GDPs is tied up in mortgages. As a result of this anomaly, there have been moves by the regulatory authorities in Nigeria to increase the supply of long-term funds for lending to prospective homeowners. A few of these efforts include the recent recapitalization of Primary Mortgage Banks (PMBs) in Nigeria, the pensions and financial sector reforms, the recently promoted Federal Government of Nigeria (FGN) Mortgage-Backed securities, etc. These efforts have, however, not yielded the desired results, as the problem of finance in the sector is far from being solved.

### **1.1.3 Rationale**

In spite of the critical role of finance in housing delivery, literature (Chiquier and Lea, 2009; Hoek-Smit, 2005) provides evidence that finance is the greatest challenge to housing production in emerging economies, and Nigeria is no exception (Adedokun et al., 2011; Ademiluyi, 2010; Akinwunmi, 2009).

There are many constraints limiting the availability of housing finance in Nigeria. Some of these constraints were identified by Buckley and Kalarical (2004), and Merrill (2006), as unstable macroeconomic conditions, a weak legal framework for property rights, lack of mortgage market infrastructure, and unavailability of funds for long-term finance to promote financial intermediation.

From other sources, including Tiwari and Moriizumi (2003), poor access to finance has been widely identified as the major impediment to having affordable housing in Nigeria. Indeed, the problem of access to finance is recognized as one of the major constraints of housing finance in most emerging economies (Chiquier and Lea, 2009).

The problem of poor access to finance in the mortgage sector presents itself as having 'two faces'. On the one hand, poor access to finance for mortgage lending could mean an outright lack of funds. Due to the peculiarity of mortgage lending, poor access could also mean the inadequacy of available funds from short-term deposits for the long-term lending which mortgage finance requires. This study considers poor access to finance from both perspectives.

This thesis tackles the issue of lack of funds in the mortgage sector from the angle of efficiency because literature (Chiquier and Lea, 2009; Hoek-Smit, 2005; World Bank and IFC, 2005) provides evidence that the housing sector will have the expected impact on the economy only where the mortgage market is efficient. An efficient mortgage market is one that has devised effective means to overcome obstacles, mostly lack of funds for long-term lending, but also others such as lending restrictions, lack of financial infrastructure, legal and regulatory constraints, limited institutional capacity, and lack of access to mortgage credit, to mention a few.

Greater efficiency in the mortgage market will attract investors and ensure availability of funds for long-term lending, and construction finance for the supply side stakeholders such as finance providers and developers. It will also enhance end-users' access to credit facilities and this will stimulate demand and at the same time improve affordability in the housing market.

Apart from this, an efficient mortgage market typically has a catalytic impact on the development of housing finance by enhancing the depth, stability and effectiveness of several institutions, such as banks (both commercial and mortgage banks), contractual savings institutions, capital markets, and community institutions such as co-operative societies, that are channelling funds between surplus and deficit agents in the housing and mortgage markets.

Regardless of the specifics of housing in any country, most housing markets are comprised of four critical components – institutional, financial, human resource, and infrastructure (Hoek-Smit, 2005; El-Kafrawy, 2012). For any economy to achieve an efficient mortgage market, these critical components must be effectively harnessed; they must be available in the right degree, and synchronized in the right quantity for efficiency to be attained.

However, even when the components are correctly synchronized to suit the economy, the peculiar characteristics of housing itself, such as its immobility and location specificity, often create market inefficiencies. When this happens, government regulation, through macroeconomic management and housing sector-specific policies, becomes essential to improve housing market efficiency and drive growth in the sector.

To corroborate this, Hoek-Smit, (2005), drawing on an international comparative study of 65 countries, asserts that policies matter more than endowment (GDP) in improving mortgage market efficiency. She also suggests that for impressive results, mortgage market inefficiencies are better tackled from the policy perspective because policies have

a major impact on house prices, quality, and tenure choice. The policy perspective also has a great influence on housing production and investment in the housing sector, coupled with the fact that it influences the role finance providers play in the sector.

The proposition of this research is that mortgage market efficiency can only be attained when new policies are enacted to eradicate or at least alleviate the legal impediments and bureaucratic bottlenecks that are in existence, which prevent the generation of long-term funds internally and also discourage foreign investors from bringing long-term funds into the market. In essence, an effective housing finance policy is fundamental to the creation and sustenance of a thriving and flourishing mortgage sector, which is imperative for the reduction of the housing deficit in Nigeria.

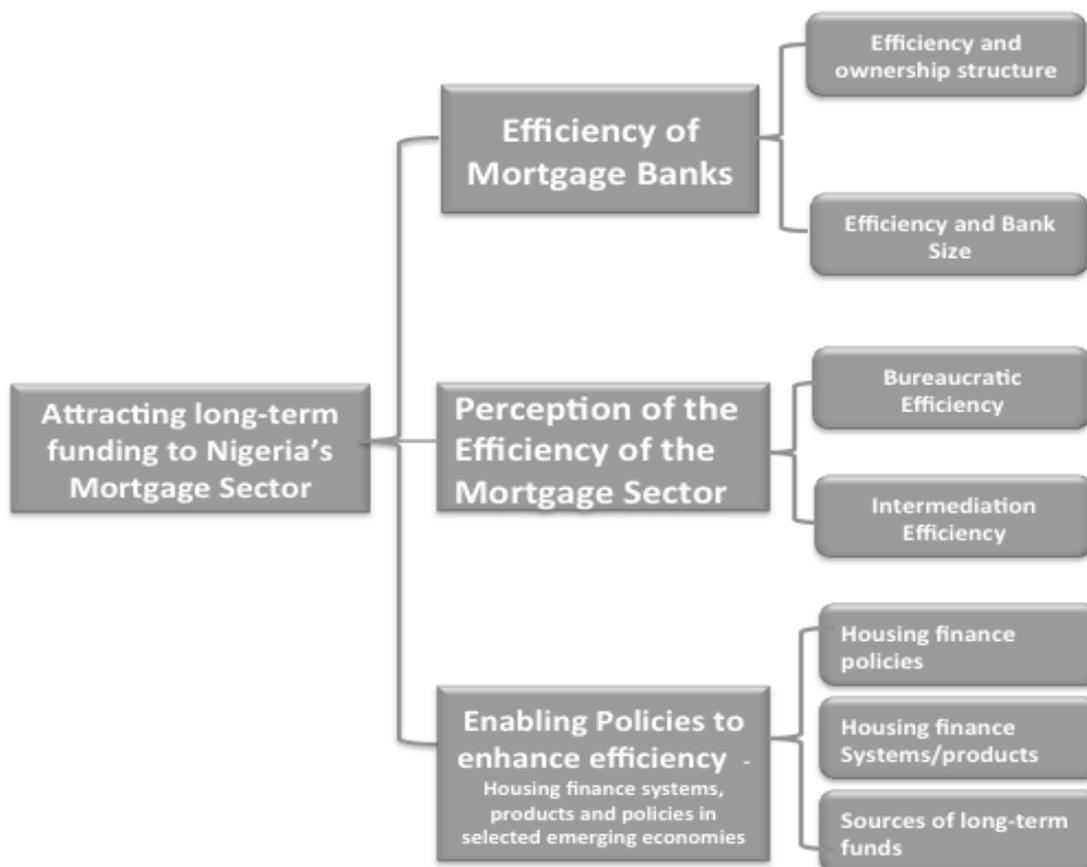
Most research carried out on the Nigerian mortgage market has focused on areas such as demand (Adedokun et al., 2011), supply (Akinwunmi, 2009; Pius, 2012), accessibility and affordability (Ademiluyi, 2010; Aribigbola, 2008). These research interests essentially border on the impact and dynamics of endowment factors on the market. Policy researches on the Nigerian mortgage market are few and far between. However, considering the level of inefficiency of the sector (as evidenced in the results of projects one and two), a holistic approach to improving the efficiency of the market through policy initiatives is clearly necessary.

Thus, this project responds to the need for a clear strategy to improve the efficiency of the mortgage market in Nigeria, especially on the finance side (because finance is considered to be the pivot of housing (Yakubu, Salawu and Simba, 2012)), by developing policies to strengthen the financial components of the market in order to create an enabling environment that will attract and sustain long-term funds in the sector.

#### **1.1.4 Framework of the thesis**

This thesis was executed in three independent but thematically related projects. The focus of Project one is to investigate, using quantitative techniques, the level of efficiency of mortgage banks within the sector. Project two examines the perception of practitioners of the efficiency of the mortgage banking system and the larger environments within which the practitioners operate. Project three investigates housing finance policies as well as long-term finance sources and products in selected emerging economies that share similar characteristics with Nigeria in order to draw lessons for the Nigerian mortgage sector. Data were also obtained through a mixed method questionnaire survey to investigate the existing and potential sources of funds for housing finance, and to make policy recommendations for improving the efficiency of the Nigerian mortgage sector. Figure 1.1 provides an overview of the framework for this research.

Figure 1.1: Research framework



The entire thesis is scaled into three projects based on the schematic framework above. As established by Tiwari and Moriizumi (2001), efficiency is a very important prerequisite for attracting funds for mortgage lending. Therefore the research investigates the efficiency of individual banks within the sector. Subsequently, the thesis examines the perceived efficiency of the mortgage banks and the array of institutions, regulations and bureaucracies that make up the mortgage system from the perspectives of CEOs of mortgage banks.

Having quantified the level of efficiency of the mortgage banks, assessing the perceived efficiency of the larger systems and identifying the constraints to efficiency, a review of thriving mortgage and housing finance systems in other emerging economies was conducted. This was done with the intent of drawing lessons to help improve the efficiency of the Nigerian mortgage system. Housing finance systems, policies, and sources of long-term funds in selected emerging economies that share similar characteristics with Nigeria, but whose housing delivery is significantly better than Nigeria's, were examined. The findings from these countries were juxtaposed with the present situation in Nigeria, and a survey was then conducted through three different sets of questionnaires, with policy suggestions made by the respondents. Relevant lessons that would be of help to Nigeria were drawn from the review and the suggestions, and the final recommendations for the housing and housing finance sector generally were made based on these.

The specific objectives of the projects that make up the entire thesis are outlined as follows:

**Project one:** Project one addresses the efficiency of mortgage banks. The broad objective of this project is to carry out a quantitative assessment of the efficiency of firms in the Nigerian mortgage banking sector. In order to achieve this, the following specific objectives are defined:

- To investigate the efficiency of the selected firms with the intent of identifying the best practice mortgage banks within the sector.
- To examine efficiency differences among firms based on ownership structure and bank size.
- To investigate the trend of efficiency in the mortgage banking sector.
- To compare the parametric, non-parametric and classical methods of efficiency measurement.

**Project two:** In order to provide a rounded approach to the efficiency estimation, Project two investigates efficiency from a wider scope and with a qualitative approach. The specific objectives of Project two are:

- To investigate how efficient CEOs perceive the intermediation process of the mortgage banks to be.
- To investigate how efficient CEOs perceive the whole mortgage sector to be.
- To find out the factors perceived to drive efficiency in the sector.
- To examine the constraints that impede efficiency in the sector.
- To explore how constraints to efficiency can be mitigated.

**Project three:** The overall aim of Project three is to proffer policy recommendations to mitigate the inefficiencies observed in the mortgage banks and the mortgage sector at large which ultimately will lead to the creation of an enabling environment for the mortgage market and housing finance in Nigeria. To achieve this, the following are the objectives:

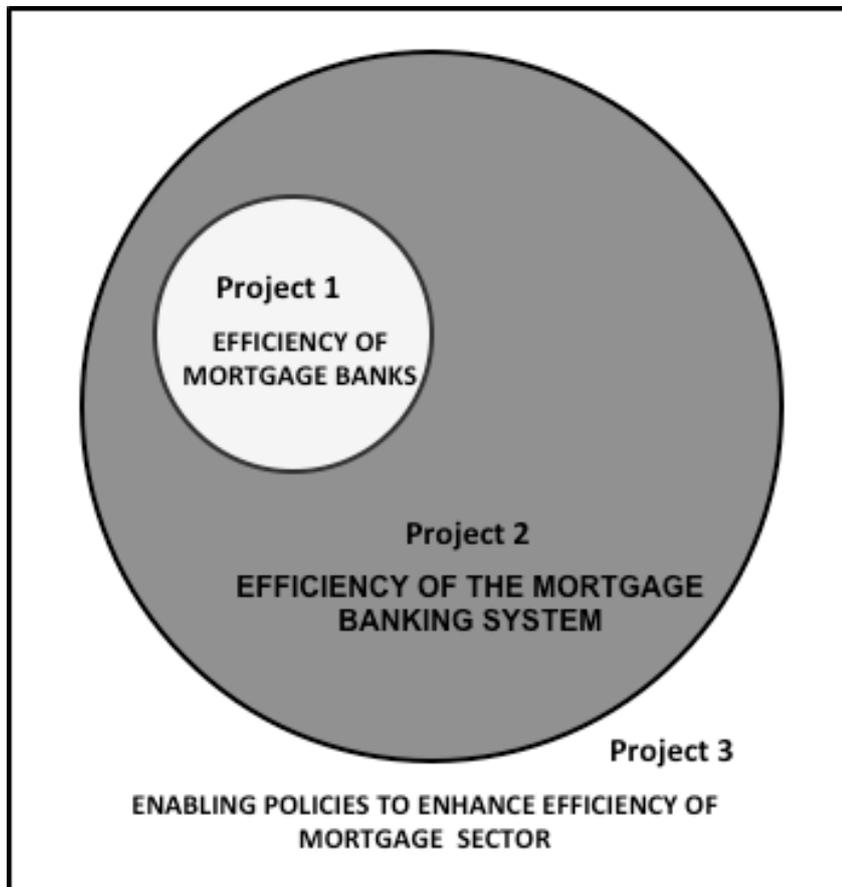
- To undertake a review of housing finance policies, products and systems used in five emerging economies – Brazil, Chile, Malaysia, Mexico and South Africa – that share similar socio-economic characteristics with Nigeria but have been able to develop mortgage markets that are significantly larger<sup>1</sup> and more efficient than that of Nigeria.
- To draw lessons applicable to Nigeria in terms of the sources of funds for housing finance, the structure of the housing finance system and the presence (or absence) of a secondary mortgage facility, from these countries.
- To assess the suitability of the lessons drawn from other emerging economies for Nigeria by conducting a survey based on the outcome of the first two steps.
- To make policy recommendations based on the analysis of data from the survey.

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<sup>1</sup> The ratio of mortgage loans to GDP is 4.8%, 11%, and 33% in Brazil, Mexico and Malaysia respectively, while it is a meagre 0.5% in Nigeria.

The conceptual framework for the entire thesis, comprised of Projects one, two and three, is depicted in Figure 1.2.

Figure 1.2 Conceptual framework



## 1.2 Overview of literature

On a worldwide basis, housing finance is growing at an unprecedented rate (Chiquier and Lea, 2009). In the last decade, outstanding mortgage debt in the US has increased by more than 80% and other developed economies like the United Kingdom, Netherlands and Australia have experienced a high surge in mortgage debt as well. Housing finance has also experienced significant improvements in a few middle-income countries like the Republic of Korea, South Africa, Chile and Malaysia.

Housing finance is a major factor that determines the quality and tenure of housing consumption, the overall financial portfolio of the public, and the stability and effectiveness of the financial system. According to Renaud (2004) and Warnock and Warnock (2007), without a functional and efficient housing finance system, a well functioning mortgage market which is instrumental to the housing sector's contribution to economic growth and improved standards of living would be lacking.

In contrast to the growth of housing finance in developed countries, housing finance is developing at a rather slow pace in most emerging markets (Renaud, 2004) as housing

remains mostly self-financed by households' equity or financed outside the formal financial sector. According to Chiquer and Lea (2009), in sub-Saharan African countries, residential mortgage lending is typically small in scale, difficult to access and only bank-based with little reliance on capital markets. However, in light of the rapid urbanization that most developing countries are experiencing, it is envisaged that there will be a high latent demand for housing (Adedokun *et al*, 2011) and self or informal sector financed housing will be inadequate to meet the huge housing requirement that will result.

Mortgage finance improves the operation of the housing market and the economy both directly by facilitating transactions, and indirectly by improving the environment in which transactions take place. The use of debt allows households to better match the timing of their housing expenditures with the flow of services they receive. Housing is a long-lived, durable asset that provides a flow of services over a long period (frequently outliving its occupants). A household can purchase more housing at an earlier stage in the life cycle using debt, as opposed to paying for it all at once through accumulated savings. Furthermore, because housing provides such good collateral, mortgages are usually the lowest-cost way for households to finance general borrowing for consumption, non-housing investment, or business formation.

In spite of the merits of mortgages for financing housing, the experience in Nigeria is that mortgage lending is small in scale and difficult to access. Ademiluyi (2010) attributes the housing problem in Nigeria to the absence of specified criteria, principles and philosophy with planned aims and objectives that define the overall housing policy on which housing programmes and delivery system should be based. While Boleat and Walley (2008) and Johnson, Figueira and Nellis (2013) posit that housing development in Nigeria is hindered by two critical factors namely: inefficient mechanism for transferring property and the absence of long-term finance for home buyers.

Tiwari and Morizumi (2001) asserts that inefficiency in the housing finance system is one of the greatest deterrents to availability of funds for mortgage lending. Warnock and Warnock (2008) further asserts that efficiency cannot be attained in the absence of a well functioning housing finance system.

Housing finance systems refers to the mechanisms, instruments and policies through which financial resources from both the public and private sectors is mobilized and channelled into housing developments. Housing finance system is somewhat different from the general system of financing because the housing sector is confronted with some peculiar challenges due to the nature of its operations.

The availability of adequate and long-term finance is the cornerstone of any effective and sustainable housing policy and strategy. Renaud (2004) suggests that basically, the system of housing finance used in a country is determined by the total resources available in the country, the degree of urban concentration, geographical scale, the structure of financial policies and the kind of regulatory environment, among other reasons.

A review of literature (Chiquier and Lea, 2009) also reveals that there are two fundamental systems of housing finance; one system is based on the mobilization of deposits directly from the public and the other is based on indirect mobilization of financial resources through the sale of debentures of various maturities to the capital market. The building society or savings and loans system of housing finance in the U.S. is a typical example of the former. This system has been used as a model in many other countries as well.

Whatever system of housing is adopted in a country, Warnock and Warnock (2008) asserts through empirical evidence, that certain conditions are prerequisites to the development of an efficient and effective housing finance system. Not surprisingly, many of the factors associated with well-functioning housing finance systems are those that also help to secure long-term finance for the housing market. Therefore, emerging economies that want to grow their mortgage market must ensure that these conditions, i.e. macroeconomic stability, property appraisal, availability of information on the borrower, secure collateral, legal protection for both lender and borrower, mortgage related insurance, multiple sources of funds and liquidity facilities, are satisfied.

Macroeconomic stability is a fundamental requirement for an efficient mortgage finance system. Chiquier and Lea, (2009), Merrill (2006) and Warnock and Warnock (2012) assert that an unstable macroeconomic environment poses a high risk to the lender. For instance, where inflation is volatile, lenders would incur substantial interest rate risks if they lend at a fixed rate, so they tend to pass the risks to the borrower by offering variable rate loans. However, no matter who bears it, interest rate risks could cripple the development of the housing finance system.

According to Merrill (2006), sound property appraisal will enhance the efficiency of the overall housing market because it will afford the buyers better information to judge the relative value of the property they want to purchase. According to Chiquier and Lea (2009), a system for accurate assessment of the value of a property is also a crucial support function to mortgage finance because the accuracy of valuation determines the true level of loan-to-value ratio (LTV) and LTV is an important predictor of default. So sound and accurate property appraisal helps borrowers to correctly value what they want to purchase and it also helps the lender to accurately determine if the borrower has sufficient capacity to pay back the loan.

Credit bureau reports on the debt and loan repayment history of a prospective borrower provides crucial information for the lender to assess the credit worthiness of the borrower. Despite its necessity and importance, many emerging markets have difficulty convincing borrowers to supply adequate information. Moreover, credit information is scarce in emerging mortgage markets because of the time it requires for newly established markets to build up credit histories.

Deposit taking institutions usually fund mortgages through deposits. However, if this is the only source of funds, housing finance will run into problems; a reliance on deposits limits funding sources by geographical location and it will also prove inadequate in the long run as it will be financing long-term investments with short-term loans, and given that housing

is expensive, short-term loans are insufficient to fund home purchase (Warnock and Warnock, 2008). An additional source of long-term funds for the housing finance system is the secondary or capital market. Whatever the source of funds for a mortgage market, a liquidity facility is still necessary to provide a backup for lenders in case of temporary liquidity crunches.

In summary, the basic infrastructure that promotes the efficient functioning of housing finance systems include factors that promote long-term lending such as the ability to value property and to repossess it in case of default, credit information of borrowers and favourable macroeconomic conditions, as well as factors that promote the mobilization of funds.

A proper understanding of how housing markets work is crucial to formulating enabling policies and developing effective strategies that will adequately leverage available and usually limited resources to create a functioning and vibrant housing sector. Market forces of demand and supply fundamentally shape housing sector performance across all economies and within similar housing markets (Jiboye 2011; Akinwumi, 2009; Warnock and Warnock, 2007).

According to IMF (2011) and World Bank (2009a), housing demand is typically similar and predictable within and across countries; the demand for housing increases with increase in income in every urban society. This is largely due to the increased priority accorded to housing as income increases and food and other basic necessities are better taken care of. For a given level of income, housing demand is determined by availability of finance and prevailing interest rates (Warnock and Warnock, 2007). Some studies (Warnock and Warnock, 2008; UN, 2010; IMF, 2011) also suggest that the rate of population increase, tenure security, and sometimes taxes and subsidies are the main determinants of the housing demand.

Housing supply on the other hand tends to be less predictable across countries. This, to a large extent, is due to the differences in the regulatory environment, especially the land use policies and building regulations (World Bank, 2009b; Jiboye, 2011) and the structure of the construction sector (Warnock and Warnock, 2008) among other reasons. In the context of the overall housing market, finance is a critical factor that influences the interaction between the demand for and the supply of housing; it is a binding constraint on the demand for housing.

Demand and supply parameters are influenced by background factors which are fixed in the short run, such as, in the case of demand, income, demographic factors, and cultural preferences and, in the case of supply, climate, topography, and technology (World Bank, 2009b). In addition, they are influenced by a variety of policy instruments, some of which shift demand and supply curves up or down, and some of which change their shape and, hence, the responsiveness of demand and supply to market conditions.

Policies could influence housing and housing finance in any of the following ways:

- More secure and freely exchangeable property rights and availability of housing finance increase demand by either increasing overall willingness to pay for housing, changing the sensitivity of demand to income and wealth changes, or both (Akinwunmi, 2009, Chiquier and Lea, 2008).
- Housing subsidies may increase demand for housing services among beneficiaries by increasing their ability to pay (Aribigbola, 2008).
- Infrastructure improvements increase supply by lowering housing supply costs, increasing the responsiveness of housing supply to demand shifts, or both (Boleat and Walley, 2008).
- Land use and building regulations decrease supply by raising housing supply costs, decreasing the responsiveness of housing supply to demand shifts, or both (Nubi, 2002).
- Increasing the degree of competition in the supply of land and housing increases the responsiveness of supply to demand and is likely to lower prices.

Unavailability of alternative secure assets in the economy may also increase demand for housing as a store of wealth and policies that stimulate demand, in the presence of responsive supply systems, unambiguously increase the amount of housing services (and might or might not increase the price of housing). Policies that facilitate supply unambiguously lower prices as well as increase the amount of housing services.

The principal stakeholders responsible for establishing the parameters of demand and supply in the housing market are the consumers, producers, financiers and the government. The consumers aspire to get the best quality houses at the lowest possible prices, the producers and financiers try to maximize profits, while the government has a variety of objectives concerning both the demand and supply of housing, the most obvious one being the improvement of the welfare of citizens. According to Chiquier and Lea (2009), the strategies employed by the government to achieve their various housing objectives, in many instances, discourages housing market financiers from being active participants.

The institutional framework in operation also influences the functionality of a housing market. The institutional framework is determined by a number of legal underpinnings which include the strength of property rights (Ademiluyi, 2010), the laws that determine the rights of borrowers and lenders (Warnock and Warnock, 2008), the efficiency of the legal system, the cost, duration and effectiveness of the foreclosure/eviction processes (Ibem, 2010) and lack of essential information on housing transactions and credit. These factors

according to (Warnock and Warnock, 2007) are also the determinants of the market depth of housing finance.

This project responds to the need for a clear and effective strategy for attracting, acquiring or generating and sustaining long-term funds for the mortgage sector. It is significant because it will not only provide practical policy recommendations for improving the mortgage credit provision in Nigeria, but it will also act as a developmental roadmap that can be tailored to Nigeria's peculiar needs.

### **1.2.1 Theoretical framework**

Theories are representations of certain properties, characteristics or phenomena that are considered important or ideal to explain certain real life issues. The overarching theoretical reference for this study is the theory of financial intermediation. However, this central theoretical framework is supported by other relevant theories at different stages of the research. The theory of financial intermediation is buttressed with the traditional economic theory of production in the first phase. It is combined with the new institutional theory in the second phase and it is enhanced with the theory of mortgage collateral in the third and final phase of the research.

The theory of financial intermediation is based on the concept of transaction cost and information asymmetry. The theory holds that financial intermediaries exist to channel funds between surplus and deficit agents (Tiwari and Moriizumi 2003). While significant changes in global financial landscape has led to a decline in transactions cost and information asymmetry in commercial banking, this is not the case in mortgage banking, especially in an emerging economy like Nigeria. It is important to mention that with advancement in information technology, deregulation and deepening of financial markets, transaction cost and information asymmetry has declined significantly in developed economies. This exposed the traditional intermediation theory to some criticism. In response to this, a new variant of the intermediation theory considers the intermediation process a value adding economic process. (Allen and Santomero, 1997, Scholtens and Wensveen, 2003)

A bank's ability to perform its intermediation function efficiently – to obtain accurate information concerning its customers' financial prospects and to write effective contracts and enforce them – depends to a large extent on the property rights, legal, regulatory, and contracting environments in which they operate (Warnock and Warnock, 2008). Differences in these features across political jurisdictions can lead to differences in the efficiency of banks across jurisdictions.

Current practices and literature show that these necessary conditions for mortgage intermediation are deficient in Nigeria. The aim of the entire thesis is to investigate different dimensions of the inefficiencies observed in the Nigerian mortgage banking system and proffer plausible solutions to mitigate them. Thus, the theory of financial intermediation underpins the entire study.

There are two broad approaches to measuring performance and efficiency in bank or

bank-related studies, the non-structural approach and the structural approach (Bauer et al, 1998). The non-structural approach uses a variety of financial ratios or other measures of performance based on the market value of a firm to assess efficiency or to compare performance among banks. The structural approach on the other hand, fits a performance equation either with a frontier or non-frontier technique to capture best practice and to gauge the inefficiency.

Literature (Hughes and Mester, 2008) provides evidence that performance or efficiency studies based on the non-structural approach have no unifying theory to provide a framework. However, efficiency studies that employ the structural approach are based on the theoretical framework of traditional economic theory of production.

Older studies (Berger and Mester 1997, Mortimer 2002) investigate efficiency by applying only the framework of traditional microeconomic theory of production to banking firms. More recent literature (Barra, Destefanis and Lavadea, 2011, Musonda, 2008, Olaosebikan 2009, Rehman and Raof 2010) views a bank as a financial intermediary; hence, in addition to the traditional microeconomic theory of production, such studies include the financial intermediation theory as the theoretical framework. In agreement with literature, the first phase of this research is based on the framework of traditional economic theory of production and the theory of financial intermediation.

In addition to the financial intermediation theory, the economic theory of production provides the theoretical basis for Project one (Mester 2003, Rao 2003). The traditional economic theory of production relates to how efficiently a firm transforms its input to output (Banker and Thrall 1992). The traditional economic theory identifies at least three types of efficiency: allocative, technical and economic. Allocative efficiency refers to the choice of an optimum combination of inputs consistent with the relative factor prices. Technical efficiency shows the ability of firms to employ the 'best practice' in an industry, so that no more than the necessary amount of a given set of inputs is used in producing the best level of output. Economic efficiency is the product of the allocative and technical efficiencies.

To assess the efficiency of the larger systems within which mortgage banks operate as well as the bureaucracies that govern their operations, the perceived efficiency of the sector was investigated through the lens of institutional theory. Institutional theory asserts that the institutional environment can strongly influence the development of formal structures and efficiency in an organization, sector, or institution, often more profoundly than market pressures (Scott 2001). Also, the theory posits that there are three factors – normative (constraints to development as a result of the laws and regulations), regulative (constraints to development that stem from socially shared expectations of appropriate behaviours from operators and associated organizations), and cultural-cognitive (constraints to development that stem from cultural practices or beliefs) – that constrain institutional efficiency. Institutional theorists further suggest that how entrepreneurs perceive the efficiency of their institutional environment affects how they perceive the efficiency of their individual firms (Scott 2004). The efficiency of the mortgage sector was assessed through this framework.

Institutional theorists posit that sometimes, the institutional environment impacts the development of the formal structures in an industry or sector more significantly than the market forces in operation (DiMaggio and Powell, 1991; Meyer and Rowan, 1977). Certain institutional structures, such as land registry and the titling process, legal procedure for foreclosure and eviction, property rights framework, structure of the mortgage market, regulatory bodies, and the structure of the financial market, are critical and fundamental to the Nigerian mortgage system. Institutional theory is used as a theoretical framework to investigate the impact of the institutional structure and bureaucracies on the efficiency of the Nigerian mortgage sector.

The third theory that informs this thesis is the theory of mortgage collateral. The theory posits that policies can be either incentives or disincentives to lending and borrowing in housing finance (Butler 2013). The theory also asserts poor legal fundamentals – in particular the inability to create and enforce a mortgage lien in a reasonably efficient and cost-effective manner – leads to increased risk of lending, higher risk premiums in loan interest rates, higher transaction costs and markets that are both smaller and shallower in terms of income strata served. Hence, by enacting policies to provide an efficient means of recapturing an investment, the costs and risks of mortgage lending are reduced. When this happens, investors are more willing to make funds available and the challenge of dearth of funds will be mitigated (Butler 2013).

## 1.3 Summary of research methodology

This section summarizes the research methodology of the entire thesis. The section is in two parts. The first part summarizes the research process. It outlines the steps taken to achieve the objectives of the study in line with the framework provided in section 1.1.4. The second part gives a summary of the research methods employed in the three phases of the study.

### 1.3.1 Research process

A preliminary project was carried out to define the scope and extent of the whole thesis. Here the issues to be investigated in the entire study were researched and domains of literature review for the thesis defined.

The aim of the scoping study was to investigate the drivers of the development of mortgage banking sectors and factors that aid in securing long-term funds. The scoping study gave a background of the housing and mortgage sector in Nigeria, highlighting the rationale for the choice of topic, and establishing the role of efficiency in attracting long-term finance to mortgage banking sectors. This study focused on literatures in the domains of efficiency in the Banking and Mortgage sectors, long-term finance sources and products, and developing economies.

The domain of efficiency in the Banking and Mortgage sectors focused on literatures on efficiency relating to ownership structure, prevalent policies, economic development stage, and intermediation, while the domain of developing economies focused on literatures that addressed the triggers of growth in the mortgage banking sectors of developing economies, especially through the use of subsidies and government policies in the development of effective products and an enabling environment.

At the end of the scoping study, it was decided that two overarching questions should guide the entire thesis:

- What adequate/enabling policies will promote efficiency in the Nigeria mortgage sector?
- What are the possible ways the mortgage sector in Nigeria could attract long-term finance?

This scope of the entire thesis was decided with the scoping study, in the hope that providing answers to these questions will help to address the critical problems of mortgage financing in Nigeria.

The thesis was conducted in three independent but thematically linked projects. Each project addresses specific aspects of both the efficiency and dearth of long-term finance issues by using adequate research methods.

Project one investigates the current level of efficiency of the mortgage banking sector in Nigeria by measuring the efficiencies of selected firms from the industry for the five-year

period of 2006-2010. An overview of the performance of the sector was first assessed with a range of financial ratios and the efficiency was measured with parametric and non-parametric techniques – Data Envelopment Analysis (DEA) and Stochastic Frontier Analysis (SFA). The analysis focused on comparing the selected firms based on their technical efficiencies first on the firm level, and then at the industry level.

In contrast to Project one, which aimed at determining through quantitative methods, the level of efficiency of mortgage banks as the basic building block of the housing finance system in Nigeria, Project two was set to investigate the perceived efficiency of the mortgage sector as a whole. The aim of this study is to investigate how Chief Executive Officers (CEOs) of Mortgage Banks in Nigeria perceive the efficiency of their industry in terms of housing finance provision, explore why inefficiencies exist in the sector, and how the constraints to efficiency can be mitigated. While Project one adopts the quantitative research method, Project two was executed with a qualitative research paradigm to provide a holistic view.

Project three was designed to investigate long-term mortgage finance sources and products in emerging economies that share comparable characteristics with Nigeria but have stronger housing finance systems and have been able to effectively manage housing deficits in their countries. The result of this literature-based investigation and the results of the previous two projects formed the crux of the questions asked in the survey that was conducted to achieve the objective of Project three.

Project three adopted a mixed research paradigm. It was executed with a survey conducted using a questionnaire that featured both closed-ended and open-ended questions. The closed-ended questions allowed respondents to select predefined answers on a Likert scale (a quantitative approach), while the open-ended questions gave the respondents the opportunity to express their opinion in their own words without restriction (qualitative approach). This part of the questionnaire was designed to obtain insightful and unstructured answers that better reflect respondents' thoughts and preferences, and it was analyzed in the same way as qualitative data.

Table 1.1 Overview of research projects

	<b>Project one</b>	<b>Project two</b>	<b>Project three</b>
<b>Title</b>	Efficiency of the Mortgage Banking Sector in Nigeria – A Quantitative Measurement	Perception of CEOs of Mortgage Banks in Nigeria on the Efficiency of the Nigerian Mortgage System	Enabling Policies that promote Efficient mortgage market Operations
<b>Theoretical Framework</b>	Traditional Economic Theory	New Institutional Theory	Theory of Mortgage Collateral
<b>Approach</b>	Positivist Paradigm – Quantitative approach	Interpretivist Paradigm – Qualitative approach	Combined Perspective – Quantitative/Qualitative approach
<b>Methodology</b>	Quantitative analysis of selected variables from the financial records of selected banks over a 5-year period	Qualitative analysis of data from interviews and focus group discussions with CEOs of Mortgage Banks	A questionnaire survey with qualitative and quantitative responses
<b>Outcomes</b>	Determination of the efficiency of mortgage banks in Nigeria	Perception and qualitative ranking of the efficiency of the mortgage sector  Identification of constraints to efficiency	Investigation of housing finance sources and products in other emerging economies with a view to drawing lessons for Nigeria  Policy recommendations for creating an enabling environment for mortgage operations and enhancing the efficiency of mortgage banks and the mortgage sector as a whole

### **1.3.2 Research methods**

There are several issues that must be considered when one sets out to do academic research. The researcher needs to give serious thought to “what to research” and “how to go about it” among other issues. The appropriate answers to these questions often depend on why the research was initiated in the first place. There are many practical reasons why a researcher undertakes an inquiry, and these reasons often influence the choice of research method. However, the choice of research methodology adopted for an academic research exercise should not be made based on practicalities alone. The philosophical and theoretical principles that guide research should also be considered because a proper consideration of the appropriate research paradigm will enable researchers to undertake uniquely powerful and insightful inquiries.

Philosophical paradigms are based on assumptions about how the world is perceived and how we can best come to understand it. There are different philosophical paradigms that guide research. They include the positivist and interpretivist approaches at the extreme ends of a continuum with varying philosophical positions aligned between them. However, no research paradigm is superior to any other. Each has a specific purpose in providing a distinct means of producing unique knowledge.

A philosophical paradigm is a comprehensive belief system, worldview, or framework that guides research and practice in any field (Willis, 2007). From a philosophical perspective, a paradigm comprises a view of the nature of reality (i.e. ontology) – whether it is external or internal to the knower; a related view of the type of knowledge that can be generated and standards for justifying it (i.e. epistemology), and a disciplined approach to generating that knowledge (i.e. methodology)

#### **1.3.2.1 Quantitative research**

To investigate the efficiency of mortgage banks, a positivist research paradigm was adopted. This is a scientific research paradigm that strives to investigate, confirm, refute or predict hypothesized phenomena (Taylor and Medina, 2011). It is particularly useful in natural science, physical science, and to some extent, in the social sciences, especially where very large sample sizes are involved. From the scoping study, it had been hypothesized, based on the research of Tiwari and Moriizumi (2003), that there is a dearth of long-term funds in the sector because the sector is inefficient. So, this approach was adopted to confirm or refute the hypothesis.

In alignment with the philosophical paradigm adopted, a quantitative assessment of the efficiency of selected banks in the sector was estimated with two empirical techniques, DEA and SFA. However, prior to the efficiency estimation, a range of financial ratios was used to assess the performance of the sector in order to provide a general overview of the industry.

The estimation techniques employed in this project are DEA and SFA, using a Stochastic Cost Frontier (SCF). DEA is a non-parametric approach to efficiency estimation, while SFA

is a parametric one. Parametric and non-parametric approaches differ in the sense that the former make certain assumptions regarding the frontier they construct and the existence of random errors, while the latter do not rely on any underlying assumptions.

Variables that represent important input and output processes of loan origination and disbursement in the mortgage sector were identified, and the appropriate/relevant ones for this exercise selected. The variables identified are number of staff, staff costs, overheads, fixed assets cost, depreciation, rent and rates, number of branches, administrative expenses, other operating costs, costs of funds, mortgage department costs, total assets, shareholders' funds, loan value, loan types, number of customers, turn around rate (loan approval duration), interest rate margin, and origination fees.

The variables were further categorized as input or output. Number of staff, staff costs, overheads, fixed assets cost, depreciation, rent and rates, number of branches, administrative expenses, other operating costs, costs of funds, mortgage department costs, total assets, and shareholders' funds were all classified as input variables, while loan value, loan types, number of customers, turn around rate, interest rate margin, and origination fees were classified as output variables.

#### **1.3.2.1.1 Variable selection**

One of the main difficulties in the use of DEA to estimate efficiency, particularly in the banking industry, is the selection of appropriate variables. The DEA efficiency measure is extremely sensitive to the choice of input and output variables. This is because the technique depends on comparing a firm's cost/profit/other outcome of interest, with those of a best-performing firm within the sample. So the inclusion of non-related or irrelevant variables in the frontier specification could lead one to mislabel a firm as efficient when in reality, it is not.

To address this peculiarity, ten variables believed to constitute important inputs in the process of mortgage loan origination and three variables believed to provide good measures of mortgage bank output were identified and their values for the five-year period under consideration (2006-2010), were extracted from the financials of selected banks. The variables were further grouped into three, based on the perceived relationship between them. The grouping is itemized below:

**Group 1 (Staff Costs):** Staff Costs

**Group 2 (Capital):** Total Assets, Fixed Assets Costs, Overheads, Depreciation, and Rent and Rates. The values of the individual variables in this group were added together to form a new variable named Capital.

**Group 3 (Running Costs):** Administrative Expenses, Other Operating Costs, Cost of Funds, and Mortgage Department Cost. The values of individual variables in this group were added together to form a new variable named Running Cost.

Staff Costs and the two new variables – Capital and Running Costs – are used as the three input variables for the analysis. Loan Volume, Interest Rate Margin and Origination fees are used as the three output variables.

### **1.3.2.1.2 Model specification**

A model was defined for each of the output variables, Loan Volume, Interest Rate and Origination fees, and paired with the three input variables to investigate their individual effect on the efficiency of the firms. A fourth model, which combined all the three output variables with the input variables, was also defined. The analysis was first done year-by-year for each model with both the CRS and VRS technologies, and then a composite analysis spanning the whole five-year period using the Malmquist technology was also carried out. This arrangement gives a total of four variable sets to be analyzed for each time period, giving a total of twenty cross-sectional analyses and four longitudinal analyses. DEAP Software version 2.1 developed by Tim Coelli was used for the analysis.

### **1.3.2.2 Qualitative research**

The positivist paradigm focuses on the objectivity of the research process, (Creswell, 2008) and mostly involves quantitative methods of data collection and analysis. While the results obtained using experimental methods provide valuable insights into the nature of reality, those results may lack external validity, i.e. the relations observed in the laboratory may not be the same in the more complicated external world where more factors interact.

To provide a holistic approach to the determination of the efficiency of the sector, Project two adopted an interpretivist approach. The approach helped to understand the efficiency issue from the viewpoint of respondents, through detailed descriptions of their cognitive and symbolic actions, and through the richness of meaning associated with observable behaviour (Hughes, 2012). In Project two, the aim was to investigate the efficiency of the sector from the perspective of the CEOs of mortgage banks using qualitative research methods to collect and analyze the data.

#### **1.3.2.2.1 Data collection**

Data were collected using the semi-structured interview and focus group methods. This allowed the CEOs to convey to the researcher the efficiency of the sector from their own perspective and in their own words. For the data collection, 55 CEOs were pre-selected using the following variables; mortgage bank's balance sheet size, number of branches, number of loans originated, years of experience as the CEO, location, and brand visibility. All the CEOs were contacted and agreed to participate in the data collection exercise subject to their availability. 15 CEOs were eventually interviewed and 30 responded for the focus group sessions.

In order to obtain a national spread which will make for a representative sample for the interviews, 10 interviews were conducted with CEOs based in Lagos (the West and commercial capital of Nigeria, which used to be the country's capital until 1985), three interviews were conducted with CEOs based in Abuja (the North, the seat of government, and country's capital), one from the South West, and one from the extreme North.

A total of 40 CEOs formed the sample for this study (Five CEOs participated in both the interviews and focus group sessions). This sample constitutes about 54.2% of all the CEOs of the mortgage banks in Nigeria. It is believed that this sample is representative of the industry because it is comprised of mortgage banks in all the geopolitical zones and ethnic groups of the nation where mortgage banks exist. Apart from this, 70% of CEOs in the sample are from Lagos State, and this reflects the distribution of mortgage banks in Nigeria; 61% from Lagos, 10% from Abuja, and 29% spread over 23 states of Nigeria.

#### **1.3.2.2 Data analysis approach**

The data obtained from respondents during the interview sessions and focus group discussions were first transcribed and edited to eliminate typographical errors. Subsequently, the transcribed data was sent to all the participants in the data collection exercise to validate the content.

After validation, the transcribed data was entered into NVIVO 9 software for analysis. The analysis process started with a process of coding the data. Codes were generated as they emerged from the data. The initial codes generated from the responses were further reviewed and merged together based on similarities in meanings or classifications until mutually exclusive and exhaustive codes were obtained. A total of 46 codes emerged. These were later merged into 12 mutually exclusive and exhaustive codes that formed the basis for inferences drawn from the data. In addition to the coding, constraints identified by respondents were categorized in accordance with components of the institutional theory.

#### **1.3.2.3 Mixed method research**

This thesis, in agreement with Hoek-Smit (2005), takes the position that for effective results, inefficiencies in mortgage/housing finance are better tackled from the policy perspective. For a policy research, both the objectivity that a positivist research perspective provides and the subjectivity that an interpretivist perspective gives is necessary. Therefore the investigation of relevant policies to enhance the efficiency of the sector incorporates both the quantitative and qualitative research paradigms.

A mixed research method was implemented with a survey, using a semi-structured questionnaire with both closed-ended and open-ended questions. The closed-ended questions allowed respondents to select predefined answers on a Likert scale while the open-ended questions gave the respondents the opportunity to express their opinion in their own words without restriction. This part of the questionnaire was designed to gain insightful and unstructured answers that better reflect their thoughts and preferences.

The survey was designed to involve three key stakeholders in the housing/mortgage market, the consumers, the finance providers and the government, the latter facilitating the interaction between the former two. The consumers are the mortgage finance seekers and prospective homeowners, the producers and finance providers include the Federal

Mortgage Bank of Nigeria (FMBN), Mortgage Banks, Commercial Banks that give mortgage loans, real estate developers and other non-bank mortgage finance providers such as cooperatives, etc., while the government is comprised of all public sector parastatals and agencies concerned with land, housing construction and delivery, and housing finance.

#### **1.3.2.3.1 Sample selection**

##### **Consumers**

Consumers for the survey were selected from the three identified sub-sectors of the Nigerian housing market – the informal sector, the formal open market sector and the formal subsidized sector. The informal sector comprises small and medium scale entrepreneurs who do not qualify for a formal mortgage. More often than not, this category of people, even when they are financially capable of taking out mortgage loans, are denied access to them because they do not have proof of the consistency of their financial capability. The formal open market sector comprises the customers of financial institutions that give mortgage loans. This sector is primarily made up of middle- and high-income earners. The subsidized sector is a subset of the open market comprised of workers in both the public and private sectors and a few higher net-worth entrepreneurs who contribute to and are eligible to access loans from the National Housing Fund. The selection was randomly done but the number of respondents selected from each sub-sector was done to reflect the composition of people in the different sub-sectors. The sample of consumers was selected within Lagos state alone. This is because Lagos is the commercial nerve centre and the most populous state in the federation.

##### **Finance providers**

The existing mortgage banks form the population for this group. Two officers – the CEO and the Head of Operations – of these banks were the targets for questionnaire administration. These officers were selected because they have in-depth understanding of mortgage operations and would be able to provide satisfactory answers to the questions. However, where they were not available, they could delegate the administration to any other member of staff capable of providing adequate answers.

##### **Government**

Government parastatals and agencies responsible for housing and infrastructure development and housing finance are the target group for this category. These include the Federal Housing Authority, the Federal Housing Corporation in all the 36 states of the federation, Ministry of Housing and Urban Development in all the 36 states, the Central Bank of Nigeria (CBN), the FMBN and other agencies.

### **1.3.2.3.2. Research instruments**

Three different questionnaires were designed to address the identified target groups. Each questionnaire focused on issues relevant to the identified target group. The questionnaire for the consumers sought to identify the existing sources from which consumers obtain housing finance, and the ease of obtaining finance from each of these sources. It also sought the opinion of the respondents on adopting some strategies that have been used for housing finance in some emerging economies that have comparable characteristics to Nigeria. Finally, respondents were requested to make recommendations that they believe would aid the availability of housing finance in Nigeria.

The questionnaire for mortgage finance providers addressed some issues revealed in Project two as the causes of inefficiencies in the mortgage system. Such issues include existing sources of funds and the adequacy of such funds for long-term lending. The questionnaire also featured questions that investigated the possibility of raising long-term funds from the capital market and existing pools of funds in dormant accounts of commercial banks, unclaimed dividends, as well as pension funds. It also investigated finance providers' views on the impact of long-term funds' products, such as securitization, mortgage-backed securities, bonds, real estate investment trusts and liquidity facilities in securing funds for the sector. Finance providers were also allowed to make policy recommendations that they believed would foster development in the housing/mortgage sector.

The third questionnaire was designed for government agencies that handle housing/mortgage issues. It featured questions to identify the measures that consumers and finance providers respectively can put in place to help government agencies serve them better and consequently to improve the efficiency of the system. It also asked questions to find out what steps the government could take, either solely or in collaboration with industry regulators such as the CBN and the Mortgage Banking Association of Nigeria (MBAN), to enhance the efficiency of the system.

In summary, the thesis is based on both the positivist and interpretivist perspectives of research and inquiry. Project one employed the positivist perspective and used quantitative methods to estimate the efficiency of mortgage banks. To provide a balance and mitigate the limitations of the positivist paradigm, Project two was designed based on the interpretivist paradigm and allowed some interaction between the researcher and respondents in order to give a holistic approach to efficiency estimation. Project two investigated the efficiency of the whole mortgage sector with emphasis on the institutional framework and regulatory guidelines and bureaucratic processes in the system. Having quantified the level of efficiency of the mortgage sector and identified the constraints to efficiency within the system, Project three makes policy recommendations to mitigate the identified constraints and enhance the efficiency of the sector. The design of Project three incorporates both the positivist and interpretivist approaches.

## **1.4 Summary and discussion of findings**

A summary of the results of the entire thesis is presented in this section. Also the contribution of this research to practice, knowledge and research methods is highlighted.

### **1.4.1 Summary of findings**

#### **Efficiency of mortgage banks and the mortgage sector**

The first phase of this research investigated the efficiency of mortgage banks in Nigeria. Findings suggest that, relative to the best performing banks in the system, the average efficiency score of the mortgage banks investigated is between 33% and 49%, depending on the measure of output used. This is rather low in comparison with the 70% average reported for Egypt and other African countries (Poshakwale and Qian, 2011). With the three output variables combined, the average efficiency increased considerably. However, the high variability of efficiency scores observed suggests that individual firms may deviate from this average considerably.

Also, most of the inefficiencies observed are due to management practices rather than operations on an inappropriate scale. About 80% of the inefficient banks however, exhibited increasing returns to scale, especially in 2010. Although these banks were, on average, inefficient over the time period, they are becoming more efficient. For these banks, an adjustment of their scale of operations will probably make some difference to their productivity.

Investigation into efficiency with respect to bank size reveals that large banks consistently show higher technical efficiency than small banks, although this difference is not statistically significant with loan value as the output measure. This result agrees with other efficiency studies (Isik and Hassan, 2002; Kosmidou and Zopounidis, 2008; Lea, 2001). Small banks, however, display significantly higher scale efficiency than the large banks.

With respect to ownership, efficiency measured with loan value as the output variable reveals that banks with private ownership seem to have a significantly higher technical efficiency level than banks with other ownership structures, although the difference is not significant for government-owned banks in 2006 and 2007. This is attributable to the fact that during this period, government-owned banks enjoyed certain policy advantages in terms of funding which banks with other forms of ownership structures did not enjoy and this tipped the balance in their favour. Mortgage banks owned by churches are the least efficient. There is no significant difference in the efficiency scores of privately owned and commercial bank-owned firms.

The results further suggest that mortgage banks owned by churches are significantly more scale efficient than banks with other ownership structures. This result agrees with several researches on banking efficiency. Mortgage banks owned by churches are relatively small compared to most of the other banks. Banking efficiency studies often suggest that small-sized firms are generally more scale efficient than large banks.

With interest rate margin as the measure of output, the results suggest that government-owned banks are more technically efficient than banks with other ownership structures, although this did not hold in 2008 when church-owned banks momentarily had a significantly higher technical efficiency score, compared to all the others. This could mean that the impact of the global financial crisis which hit the Nigerian economy in 2008 was not as hard-felt by church-owned mortgage banks compared to banks with other types of ownership, possibly because church-owned mortgage banks could leverage on additional financial support from the goodwill of both the church and church members, unlike other banks that depend solely on the financial market for sustenance. Additionally, church-owned mortgage banks are the most scale efficient and government-owned banks are the least scale efficient. With origination fees as the measure of output, church-owned banks still show significantly higher scale efficiency than other banks with different ownership structures, and commercial bank-owned mortgage banks are the least efficient.

The results also suggest that there was a marginal productivity decline in the sector during the period considered. Although large banks seemed to experience marginal productivity improvement compared to small banks, this difference is not statistically significant. Investigation of productivity gains based on the different ownership structures also did not indicate any significant improvement in their productivity level throughout the period. This suggests that productivity is more a function of an individual bank's technical efficiency and the overall technological change within the sector, than bank size and ownership.

The results of the cost efficiency using an SCF indicate a somewhat lower efficiency score than the DEA, although the standard deviation values are also appreciably lower than what was obtained in the DEA. First, this suggests less variation in the cost incurred by individual firms in the sector. Apart from this, the lower average efficiency scores and lower variability from the SCF is also attributable to the fact that the frontier in an SCF is bounded by a functional form and not just driven by the sample, as in the case of DEA. The results suggest that small banks are significantly more cost efficient than large banks.

The real highlight of the first phase of this thesis is the empirical assessment and evaluation of the efficiency of the mortgage banks. Being able to put a value on how efficient the mortgage banking sector is has provided an important decision making tool for stakeholders in the industry, such as mortgage bank CEOs, the government, and especially investors.

In order to provide a holistic view and mitigate the limitations of the quantitative research approach, a qualitative assessment of the perception of practitioners about the efficiency of the mortgage banks and the larger system within which they operate, Project two, was executed.

The result of Project two shows that CEOs perceive the mortgage banks to be only about 10% efficient. A comparison of this rating with the average efficiency scores obtained in the quantitative analysis done in Project one shows that there seems to be a wide margin between the quantitative result and the ratings given by practitioners. However, both estimates still place the sector at the lower end of the efficiency ladder when compared with other countries in sub-Saharan Africa.

Applying a framework of Institutional theory provided some insight into the disparity between the quantitative efficiency measurement and the perception of CEOs. Hasselmann and Watchel (2007) provide evidence that the institutional environment influences the perception of business owners about the success, growth and efficiency of their businesses. Spencer and Gomez (2004) also assert that the more positive entrepreneurs' perception of the regulatory, normative and cultural-cognitive dimensions of the institutional environment, the better their perception and assessment of their firms' performance. Based on this, the possible explanation for the difference in the actual efficiency measurement and the perception of CEOs, is the negative perception of the institutional environment.

In identifying the constraints to efficiency in the sector, the CEOs categorized these factors into two broad groups. The responses of two CEOs clearly illustrate this:

*"My reasoning is that there are broadly two factors that affect our efficiency. The first is one that is external to us such as official bureaucracy, etc. These factors are external to us, and though we can try as much as possible to influence them, we really don't have a lot of influence over them, at least at the moment. That is why I say they are actually external to us. And then we have factors that relate to our own internal operations."*

Another CEO put it this way:

*"... some are micro, and by that I mean limited to our organisations and over which some organisational influence can be exerted, and some things can be done differently, while others are outside of our scope and they are outside of the control of the organisation, so they are external..."*

This categorization aligns with the institutional theory framework, which is the theoretical basis on which Project two was based. Institutional theory postulates that organizations are constrained by pressures, which sometimes arise from external sources, and sometimes from within the organization or institution itself. The external constraints are referred to as regulative constraints while the internal constraints are further categorized as either normative or cultural-cognitive constraints. The results of Project two show that 55% of the constraints identified fit the regulative constraints in institutional theory, 24% fit the normative, and 21% fit the cultural cognitive categorizations in institutional theory.

Apart from identifying and categorizing the constraints to efficiency, CEOs that responded to the interview and focus group sessions made suggestions for improving the efficiency and performance of the sector. To mitigate the constraints, 25% advocated for a change in policies and some form of official bureaucracy while 8% addressed issues pertaining to review of legislations; 10% of the responses also touched on clear communication between practitioners and regulators as well as between practitioners and customers; 9% of the responses advocated for improvement in technology; 8% addressed regulations; 9% also suggested improvement in data collection; 2% addressed delinquency ratios; 4% advocated for collaboration among mortgage banks; and 2% suggested improving publicity and awareness for the sector. The following response summarizes the priority respondents gave to the issue of policy:

*“In order of importance, I believe improvements in government policy is the most important way our efficiency can be enhanced at the moment. It is very key. Most of the other issues can be sorted out if the bureaucracy is favourable. Removal of legal impediments is also critical, and then we can think of other issues like recapitalization of mortgage banks, intervention funds, liquidity facilities, a vibrant secondary mortgage market, regulators, advocacy and creating awareness, etc.”*

The suggestions for improving efficiency include policy reforms, removal of legal impediments, effective regulation, data adequacy, clarity of roles and functions, training and manpower development, technology, creating awareness, funding, and collaboration between operators and industry regulators. These suggestions were further developed into a framework that can effectively provide a focus for planning interventions to enhance efficiency. The framework emphasises the dynamic interaction between the factors and the constraints they address. Changes in one or more related factors could cause a ripple effect to diminish or exaggerate other factors.

#### **1.4.2 Existing and potential sources of funds for housing finance**

Having addressed efficiency issues with the PMBs and the larger mortgage sector, the thesis narrowed down to housing finance in the last phase. The final project investigates the availability and adequacy of the existing sources of funds for consumers and finance providers, and potential sources that could be explored for mortgage finance.

The findings also reveal that consumers prefer to obtain housing finance from mortgage banks than other formal sources, such as commercial banks, and other informal sources, such as developers, employers or family and friends. They are also extremely likely to explore other depository forms of housing finance such as housing finance schemes for public sector workers, private sector workers, the self-employed, and special citizens.

The results further suggest that mortgage finance providers are in favour of utilizing pooled funds and accumulated deposits for mortgage lending. With regard to sourcing for funds through the capital market, on average, only about 35% of the respondents consider utilizing the capital market, either as single lenders or through a secondary mortgage facility, to raise funds for mortgage lending. This suggests that exploring housing finance from pension funds, insurance funds, funds from dormant accounts in commercial banks, and unclaimed dividends of organizations listed on the Nigerian stock exchange might be a viable alternate source of funds for housing finance.

The results also highlight that for consumers and finance providers, the NHTF scheme is the most available source of housing finance. However, both consumers and finance providers agree that the NHTF scheme is grossly inadequate to meet the growing demand for housing finance because the scheme is plagued with challenges.

The findings also suggest that finance providers are biased towards funding mortgages through some form of pooled funds and long-term deposit schemes rather than the capital market. This could be due to the fact that most CEOs of mortgage banks, having been

active players in the commercial banking system previously, have an idea of how much funding could be pooled from deposits. While this may be a viable source of funding, it may not afford mortgage users the opportunity of converting their investments in housing into assets that could be used to raise more funds in future. If housing finance is funded through pooled funds and deposits alone, investments in housing will largely remain dead assets.

On the part of the government, the results reveal that government agencies believe there is a need for consumers and finance providers to work closely with the government to enhance housing finance, while the government needs to put in place the necessary infrastructure, such as credit bureaus and liquidity facilities, in addition to exempting mortgage banks from some taxes or at least reducing the amount of tax housing finance providers pay.

All the agencies surveyed considered it to be very necessary for the government to establish a customer care unit where consumers could be educated on the requirements for land/property registration and where complaints about the same could be handled promptly. 93.3% also considered it necessary for the government to establish legislation that favours the acquisition of land and properties and to considerably reduce the cost and time it takes for land titling and documentation.

### **1.4.3 Enabling policies to enhance efficiency**

The thesis also examines policies/strategies that could be adopted to enhance the efficiency of the Nigerian mortgage sector and to secure long-term funds from the perspective of the three principal stakeholders in the sector – consumers, finance providers and the government. Policy suggestions made by consumers covered three broad areas – legal and regulatory issues, financial issues and infrastructure issues – while policy suggestions proffered by the finance providers and government agencies were related to the legal/regulatory and financial issues.

**Legal/regulatory issues:** To enhance the efficiency of the mortgage sector, consumers suggested a reduction in costs associated with land transactions, elimination/reduction of delays in property/land registrations, land titling and documentation in obtaining a Certificate of Occupancy. Finance providers suggested policies to address the development of strong property and security rights, deregulation of the mortgage market, redressing the lengthy, rigid and ineffective foreclosure process, the abolition of the Land Use Act as well as the creation of an effective framework for the mortgage market. Government agencies suggested policies to address the reduction of cost in land/property transactions and strengthen the statutory verification and certification processes involved in title documentation.

**Financial Issues:** Housing finance providers advocated for a review of the existing allocation framework of pension funds to channel greater funds to the mortgage sector. They also suggested the reform of the NHTF Act to encourage more contribution from the

government and other institutional contributors, such as banks and insurance companies. They further suggested the creation of a secondary mortgage market and enactment of policies to reduce interest rates and inflation. Government agencies suggested the provision of subsidies for low- and middle-income earners, and intervention funds for finance providers.

**Infrastructure issues:** Consumers suggested that policies to make land available and affordable would also go a long way to enhance the availability and affordability of housing finance for them.

The policy suggestions made by respondents agree with those of other studies such as Boleat and Walley (2008); Chiquier and Lea (2009); Chiquier, Hassler and Lea (2004); IMF (2011); Oyalowo (2012); Warnock and Warnock (2008); World Bank, (2009); World Bank and IFC (2010).

Furthermore, the suggestions made by respondents for creating an enabling environment in which housing finance could thrive in Nigeria agree with strategies proffered in the Financial System Strategy (FSS 2020) (2007). FSS 2020 is a research conducted to investigate strategies for an integrated and sound financial system that will ensure that Nigeria joins the league of the top 20 largest economies in the world by 2020. Based on its findings, a 10-year programme was designed and is currently being implemented to ensure that the necessary financial, legal and institutional infrastructure is put in place to achieve the programme's objectives.

In addition, a unique result of this project is recognition of the fact that cultural-cognitive factors such as savings habits, debt utilization tendencies, and the debt repayment culture of Nigerians (with respect to both consumers and finance providers) also affect the efficiency of the mortgage sector.

#### **1.4.4 Discussion of findings**

Prior to the estimation of the efficiency of mortgage banks in Nigeria using quantitative techniques, an overview of the performance of these banks was conducted by examining their performance using relevant financial ratios. This preliminary assessment revealed that most of the banks included in the sample experienced low profitability during the five-year period (2006-2010) considered. This was due to loan losses and a general slowdown in business activities as a result of the global financial crisis of 2009. The crisis, which resulted in interest rates trending upward and profit margins thinning out, incapacitated mortgage banking and stifled the emerging mortgage market. Many banks had to engage in housing development and property trading to survive.

Apart from low profitability, the assessment also suggests that mortgage banking in Nigeria is underdeveloped. This is buttressed by the fact that the industry has generated less than 100,000 transactions in about five and a half decades. The sector's aggregate loans to total assets fall far below the best practices standard of at least 70%, as stipulated by the Central Bank of Nigeria. Mortgage to loanable funds for the five years ending 2012

averaged a meagre 17.51%, while the total mortgage market is put at a mere ₦127.5 billion (US\$850 million). The contribution of mortgage finance to Nigeria's GDP is close to negligible, with real estate contributing less than 5%, and mortgage loans and advances at 0.5% of GDP, compared to 77% in the US, 80% in the UK, 50% in Hong Kong, and 33% in Malaysia.

Mortgage banking lacks depth in Nigeria because a large segment of the population is excluded from access to mortgage finance. Mortgage finance is targeted mainly at the upper middle class and lower upper class segments, which constitute only about 33% of the population. The upper class which constitutes about 16% of the population do not really have any demand for mortgage loans as they can afford to make cash transactions. The remaining 51%, made up of the lower middle class and the lower class who really need housing finance through mortgages, are denied access due to the affordability parameters inherent in the mortgage system.

These parameters include 20% to 30% equity contribution, maximum tenure of only three to five years, high interest rates of between 17% and 25%, 33.3% mortgage payment to income ratio and the requirement of a verifiable income from which repayment could be deducted at source. The affordability element in the system is very necessary though, because without it, the banks would run at losses.

The affordability challenge is therefore a dual-faced issue. Due to the non-availability of long-term funding, the banks cannot afford to extend their services to high-risk customers, and at the same time, the people who need the mortgages most cannot afford to obtain them under the circumstances. The sheer size of the low-income population in Nigeria suggests a crucial opportunity for the growth and development of the mortgage banking sector if long-term funds are available and financiers can develop innovative instruments to reach the low-income segment of the population. However, even if long-term funds are available, to extend mortgages to the low-income segment of the population, there is the need for some credit enhancement such as mortgage insurance, to guarantee credit risk up to certain loss levels with high loan to value ratios and to reduce the amount of equity contribution required.

The insufficient capital base of the banks is also another factor that limits their ability to provide the needed finance to meet market demand. Prior to 2011, the minimum capital requirement for mortgage banks was ₦100 million (about US\$667,000). In 2011, the CBN mandated all mortgage banks to increase their working capital to ₦5 billion (about US\$33 million). The recapitalization exercise when concluded will help mortgage banks expand their coverage. The underdevelopment and inefficiency of the mortgage banks could also be attributed to the unavailability of a secondary mortgage bank/market. The absence of a secondary mortgage market to connect the capital market and institutional investors to the mortgage banks puts an enormous financial burden on mortgage banks to carry mortgage loans to maturity and this limits the ability of the banks to originate more loans.

Another challenge to the development of mortgage banking in Nigeria is inflation. Inflation in Nigeria is still in double digits, e.g. the inflation rate stood at 12% in December 2012. The major sources of inflationary pressure appear to be structural and infrastructural

constraints. The inflation rate is projected to maintain about 9.8% on average over 2013 and is expected to maintain some level of stability over the next four years. On average, the inflation rate is projected to maintain about 9.73% if the monetary authorities maintain a stringent monetary policy, and ensure stable fuel prices.

The investigation into the effect of ownership structure and bank size on performance is commonplace in banking efficiency studies (Figueira, Nellis and Parker 2006); however, such studies are few and far between for financial institutions in Nigeria (Sobodu and Akiode, 1998). Apart from this, the few banking efficiency studies undertaken in Nigeria focus only on commercial banks. This research is, therefore, unique because it is the first to investigate the efficiency of mortgage banks in Nigeria.

With respect to ownership structure and size, there seemed to be a considerable disparity in efficiency level of the banks investigated, depending on the variable used as proxy for efficiency. Privately owned mortgage banks and commercial bank-owned mortgage banks are the most efficient with respect to the volume of loans originated. This is not surprising because privately owned banks are out to maximize their profit and since they do not enjoy any intervention from the government, they solely depend on the profit from the volume of loans originated to survive. Mortgage banks owned by churches are the least efficient probably because of not being conventional profit making organizations; these banks may not pursue profit as aggressively as banks with other ownership structures. Apart from this, the fact that they have a potentially larger client base (church members) than other banks could also make them less aggressive in terms of loan origination.

With interest rate margin as the variable used as the proxy for efficiency, the results suggest that government-owned banks are more technically efficient than banks with other ownership structures, although this did not hold in 2008 where church-owned banks momentarily had a significantly higher technical efficiency score compared to all others. This could mean that the impact of the global financial crisis which hit the Nigerian economy in 2008 is not as hard-felt by church-owned mortgage banks compared to banks with other types of ownership, possibly because church-owned mortgage banks could leverage on additional financial support from the goodwill of both the church and church members, unlike other banks that depend solely on the financial market for sustenance (Adebambo, Oduwaye and Oduwaye 2012, Aluko 2012, Pius 2012). Additionally, church-owned mortgage banks are the most scale efficient, but government-owned banks are the least scale efficient. With origination fees, church-owned banks still show significantly higher scale efficiency than other banks with different ownership structures, and commercial bank-owned mortgage banks are the least efficient.

The results also suggest that productivity is more a function of an individual bank's technical efficiency and the overall technological change within the sector than bank size and ownership. In essence, the level of efficiency of a mortgage bank is determined primarily by its resources and management practices rather than by its size and ownership structure.

In summary, a banking sector's efficiency is usually a function of the efficiency of individual banks within the sector. It is widely accepted that the efficiency of the banking sector of a country is a key contributor to the macroeconomic stability of that country and also a

precondition for economic growth, and in the case of the mortgage banking sector, it is a crucial condition for the development of the housing sector. This study has provided evidence to suggest that most of the mortgage banks in Nigeria are inefficient in producing outputs. Also, the mortgage banking sector in Nigeria did not experience any productivity growth during the period investigated. This can be attributed to the fact that the mortgage banks in Nigeria did not take advantage of technological advancements, and they had to operate in an environment with unfriendly regulatory policies, coupled with the effects of the global financial crisis that originated from the United States, but whose ripple effect undoubtedly affected other economies, including Nigeria.

Furthermore, as derived from the interviews and focus group discussions with CEOs in the mortgage banking sector, the inefficiency observed in the sector is a result of the many challenges to its operations especially as regards the laws and policies regulating activities in the sector. These challenges no doubt have contributed to the gross inefficiency observed. Also the involvement of mortgage banks in non-mortgage related businesses such as direct construction of houses for sale, financing of local purchase orders (LPOs), and giving short-term loans for non-mortgage purposes is a constraint to efficiency, and could be responsible for the low performance in terms of the volume of loans originated. It is also a major departure from their primary mortgage financing role and a serious constraint to the offshoot of a much-needed secondary mortgage market.

The issue of departure from primary mortgage financing functions was not perceived as a constraint to efficiency by practitioners, but rather as a diversion in an effort to increase profit. However, efficiency in mortgage financing should not just be about profits and returns alone, attention should be paid to the volume of loans originated, with an acceptable level of quality of service, and minimal delinquency ratio.

The major challenges to efficiency, as revealed in the findings, are restrictive constraints imposed by external factors such as official bureaucracy, regulatory laws, weak property rights, cumbersome land registry and titling procedures, tedious foreclosure/eviction processes, and the lack of integrity, transparency and accountability of customers, which result in a high delinquency rate. These challenges are not peculiar to Nigeria alone, as other emerging mortgage markets in sub-Saharan African countries have experienced the same issues. Mass house ownership (especially by low- and middle-income earners), and eradication of slums will, however, not be a reality unless these issues are successfully mitigated.

A review or amendment of relevant laws, such as the Land Use Act will go a long way to boost efficiency in the sector. It is believed that the review of the Land Use Act and other legislations will facilitate the emergence of a much-needed secondary mortgage market which, with its attendant long-term funding sources, including foreign direct investments (FDIs), pool of contributory trust funds (specialized housing/shelter funds), pension funds, bank deposits, and government intervention funds, as well as its long-term funding products such as securitization, mortgage-backed securities (MBS), bonds, real estate investment trusts (REITs), liquidity facilities, etc., will significantly improve the efficiency of the mortgage banking sector.

Practitioners are also hopeful that if the on-going recapitalization exercise is successfully implemented, there will be more funds for mortgage banks to operate with, and this will increase their capacity and boost efficiency, at least in the short-term. This will also help the sector keep up with the pace of development in other sectors of the economy, and will reduce the bottlenecks experienced in the provision of housing, and fund flow process.

To address the internal constraints to efficiency, CEOs suggested that industry regulators should set clear and integrated guidelines and benchmarks that will set a standard for the quality of service delivery, the duration of loan origination, and quality of documentation required from customers, among other operational issues. This will ensure the smooth running of operations for practitioners, and challenge individual banks to focus on and emphasize efficiency in their operations. Some CEOs also advocated for more compliance with current regulatory requirements of the MBAN because cooperation in this regard will help to create more awareness for the sector.

Efficiency would be further enabled through the use of effective technology and adequate uniform underwriting standards. In summary, the mortgage banking sector in Nigeria is in its growth phase, as such there is room for improvement. Practitioners and industry regulators alike should look outside their immediate environment and market, and learn from developed economies in order to improve their efficiency.

Apart from addressing the inefficiencies of the mortgage banks, other fundamental issues such as monetary policies, economic growth, risk sharing, access to capital, and reduction of transaction costs, need to be addressed to ensure the development of an efficient housing finance system in Nigeria. By putting these fundamentals in place, different housing finance methods including mortgage finance, fully guaranteed loans, payroll-based systems, micro-finance methods, rentals, public/private partnerships, and securitization could be explored.

With respect to the cost and time of land/property titling and documentation, Warnock and Warnock (2008) and World Bank (2009), provide evidence that Nigeria is on a low rung of the ladder when compared with developed countries, and even other emerging economies such as Brazil, Mexico, Chile and South Africa. Reforms to address the time and cost of land/property registration in Nigeria should focus on the removal of any scope for special deals, waivers, and deferments. They should serve to ensure transparency in the process of title registration and documentation. They should also aim at reducing the number of stages in the entire process.

Other studies such as Boleat and Walley (2008), FSS 2020 (2007), have also emphasized the need to expunge the requirement for Governor's consent in land acquisition from the constitution. This is essentially seeking a legislative solution to an administrative problem. The constitutional need for Governor's consent in land transactions would not have been an issue if the Governor's consent could be obtained in a few days and at no cost (or at a meagre cost). This constitutional clause constitutes a constraint because the administrative process required to obtain the Governor's consent is fraught with problems, which constitute a major setback.

Existing housing finance sources are inadequate due to the non-availability of funds through mortgage bonds and MBSs in the Nigerian mortgage sector, and this can be attributed to a number of reasons. The development of the capital market is one. Although the capital market has acquired some depth in recent years, it still lacks considerable breadth, especially in terms of the variety of securities available as investment choices.

An important policy issue is how to link the housing sector to the capital market through the securitization of loans originated by individual finance providers, thus creating MBSs. In addition to developed economies, such as the US and UK, MBSs have proved to be an effective alternative housing finance option in emerging economies such as Chile, Malaysia and South Africa. This avenue, which is possible only through the creation of a secondary mortgage facility, is worth experimenting with in Nigeria.

With a secondary mortgage facility in place however, the next challenge will be to educate Nigerians on the advantages of MBSs. It appears that an average Nigerian believes in acquiring properties rather than creating assets. Properties have little value if they cannot be used as an asset, and securitization helps to convert properties to assets. This is where the advantage in MBSs lies. The pool of funds for mortgage finance will increase appreciably if existing mortgage loans are securitized and sold as assets.

With concerted efforts being put into establishing a mortgage refinance company, getting the finance providers and mortgage users to buy into the development is critical at this point to ensure a successful take-off of the scheme when it is completed

Several authors including Diamond and Lea (2009), Hoek-Smit (2005), have encouraged addressing housing finance issues from the policy perspective. Many studies (Guttentag and Lea 2005; Lea, 2005) have also demonstrated the positive impact of implementing appropriate policies on the growth of housing finance markets.

Macroeconomic stability is a prerequisite for the effective implementation of the policy recommendations because it is the cornerstone of any successful effort to increase private sector development and economic growth in every sector of the economy, especially the housing/mortgage sector. For successful implementation of some of these recommendations, the government needs to support the structural reforms with necessary macroeconomic reforms such as monetary and fiscal policies to lower inflation and interest rate, and hence reduce cost of funds for mortgage finance providers as well as cost of borrowing for the consumers. Such reforms will strengthen and improve the functioning of the mortgage market.

In addition to this, to successfully implement the recommendations made, there is the need for a complementary interaction between the public and private sectors. Considering the high population of the low-income echelon in the nation, the government needs to provide resources to improve the access of this segment of the population to housing finance. With the current level of development and efficiency of housing finance providers, it is unrealistic to expect the private market to provide affordable finance for the non-bankable population. Government should therefore initiate programmes such as tax waivers on interest income on savings, in order to stimulate savings for housing, and provide subsidies such as full or partial government guarantees on bond issuances on the

capital market for mortgage on-lending in order to reduce the cost of raising funds, and import waivers on house construction materials. These will improve the housing solutions and cost for low-income households.

The findings also suggest that it is necessary to explore other housing finance systems/models that are not dominated by the capital market, in order to find out how their products and structures are relevant to the Nigerian mortgage sector, the lessons that could be learned from them, and how they could be used to enhance mortgage financing in Nigeria.

## **1.5 Contributions of the thesis and implications of findings**

This section highlights the specific contribution of this thesis to knowledge, research methods and practice.

### **1.5.1 Contributions of the thesis**

#### **1.5.1.1 Contribution to Knowledge**

The essence of any inquiry is to make tangible contribution to the body of academic knowledge. The following are the specific contributions of this thesis to literature:

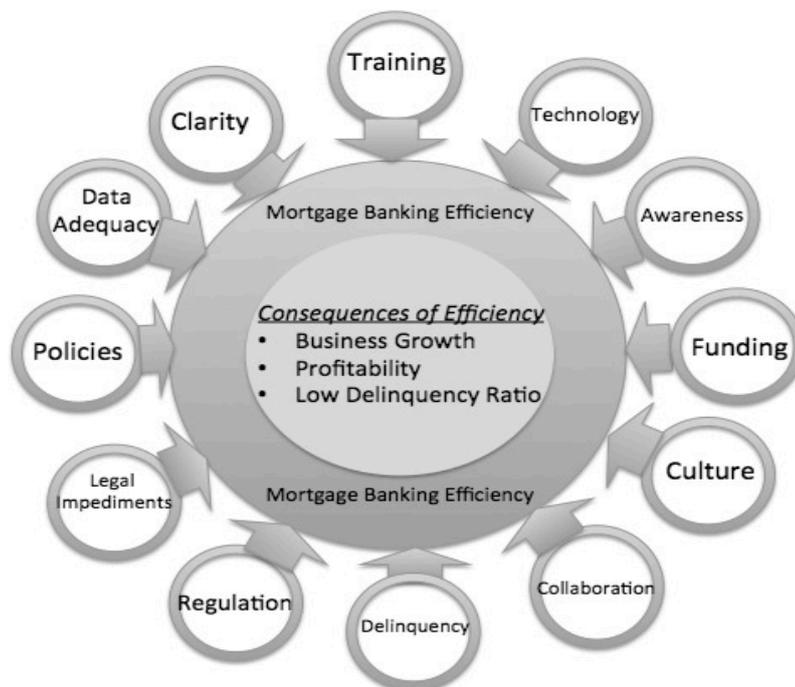
- 1. Determination of the efficiency of mortgage banks/mortgage sector in Nigeria:** This research is the first known attempt to empirically assess and evaluate the level of efficiency of mortgage banks in Nigeria. Being able to put a value on the level of efficiency of the sector is the unique contribution of this research to housing finance literature. There is no record of any previous project that has been able to quantify the efficiency of Nigerian mortgage banks. This contribution to knowledge and practice will provide an important decision making tool for stakeholders in the industry, such as mortgage bank CEOs, the government, and especially investors.
- 2. Identification of cultural-cognitive factors that affect the mortgage sector in Nigeria:** Mortgage efficiency literatures have identified five broad categories of constraint to efficiency. These are macro-level (macroeconomic) constraints, institutional constraints, financial constraints, infrastructural constraints and micro-level (organizational or operational) constraints. In addition to these five types of constraints, the findings of this thesis also show a new category of constraint – cultural-cognitive – that affects the mortgage sector in Nigeria. Cultural-cognitive constraints are manifest in savings habits, debt utilization tendencies, and the debt repayment culture. In addition to these, other unique findings of this thesis include consumers' willingness to continue contributing to the NHTF, in spite of its unimpressive track record and performance, finance providers' reluctance to explore the capital market for sourcing of long-term funds, and their preference for depository sources for pooling funds for housing finance.
- 3. Institutional theory perspective in the housing finance context:** This research also contributes to knowledge by the application of institutional theory in categorizing the constraints to housing finance. Through the lens of the institutional

theory, the research discovered a category of factors – cultural cognitive factors – that act as a constraint to the development of housing finance in Nigeria.

### 1.5.1.2 Contribution to practice

1. **Framework for efficiency:** The primary contribution of this project to practice is the development of a framework for the efficiency of the mortgage banking process, which incorporates both the external and internal factors that affect efficiency. With a proper understanding of the dynamics of this framework, practitioners can improve on the efficiency of their operations. Also, previous projects in banking efficiency have not examined the perception of practitioners on the efficiency of their firms or industry through the lens of institutional theory, so the result of this project is a unique contribution to the mortgage system/banking efficiency literature.

Figure 1.3: Framework for mortgage system efficiency



The framework in figure 1.3 shows the factors that impact on the efficiency of the mortgage banking sector and the consequences or results of having an efficient mortgage industry as derived from the findings. The framework is circular to reflect the dynamic nature of the constraints to the efficiency of the sector. It also reflects the fact that any change in one of the factors will cause a ripple effect either to diminish or exaggerate other constraints. This dynamism implies that the identified constraints exert their influence without any regularity over time and they affect the overall efficiency of the mortgage banking sector with varying impact.

Constraint is a limiting factor, which an institution must either adapt to or overcome. In mechanics, the word constraint is used to qualify factors that have any magnitude of interaction with other relevant factors, such that the nature of their interaction may be positive, negative or even null. Extending this meaning to the framework above, certain factors were identified, such as clarity, training, data

adequacy, and technology, as constraints that have positive interactions among themselves. If one of these constraints is effectively mitigated, it will have a positive ripple effect on all the other factors such that the negative consequences of those other factors will also be reduced.

Regulations, legal impediments and official bureaucracy form another combination of constraints that have positive interactions among themselves, and with awareness and funding. A conducive legal and regulatory environment will create the awareness for the industry and it will also attract long-term funds. Collaboration would have positive interactions with other factors such as technology, awareness, and training. A proper understanding of the dynamics of factors within this wheel will provide a focus for industry practitioners and regulators to plan programmes that will have optimal positive effects on the sector without overstressing resources.

### **1.5.1.3 Contribution to research methods**

In addition to contributing to practice and knowledge, this research has also made the following substantive contributions to research methods.

- 1. Mixed research method:** Usually, surveys are conducted and analyzed with a quantitative approach. However, in investigating the policy preferences of respondents, a survey that featured both quantitative and qualitative data collection and analysis was employed in this study. Normally, a survey will help to ensure a large coverage in data collection, but it will deprive the respondents of the opportunity to address the research issues in great depth and they will not be able to provide other views or perspectives that are not included in the questionnaire. Combining the conventional questionnaire format with open-ended sections that allowed the respondents to provide other views not addressed in the questionnaire helped to address the issues of depth and saturation of content, which the conventional survey would not have achieved.

In summary, the findings of this research have confirmed the assertion that lack of efficiency impedes access to and availability of long-term funds for housing finance in Nigeria. It also confirmed that the Nigerian mortgage market is inefficient. It identified a unique category of factors that impair the efficiency of housing finance and the development of the mortgage market, and also impede the availability of long-term funds.

### **1.5.2 Implications of the findings**

Drivers of the development of the mortgage sector in Nigeria and the constraints to the efficiency of the sector, as identified in this research, have significant implications for mortgage banks as important entities within the sector, the mortgage sector as a whole, and the country at large.

### **1.5.2.1 The mortgage banks**

The findings reveal that many of the mortgage banks investigated have a substantial amount of non-productive assets and this significantly contributes to low profitability for these banks. Some of these unproductive assets would be non-performing loans no doubt, and many of them could be other tangible assets that are not being put to optimal use. Mortgage banks need to develop a stricter and more uniform underwriting standard to reduce loan defaults and they also need to integrate financial planning and asset management into their operations.

Apart from this, the result also indicates an over-reliance on borrowings for a significant proportion of the capital requirement of these banks. It is hoped that the on-going capitalization exercise would help correct this to some extent.

Furthermore, the findings of this research provides evidence that with respect to mortgage loan originations, practitioners place a far greater focus on the speed of the origination process and the volume of loans originated within a specified period. While this is not bad in itself, an undue emphasis on quantity, to the detriment of quality, will ultimately impair the efficiency of the process. Mortgage bank operators need to pay attention to the quality of loans they originate to reduce delinquency. The response of one of the interviewees succinctly captures the implication of the quality of loans originated for mortgage banking operations.

*“Efficiency is not about the quantity or volume of loans given out alone, how much of these loans we are able to recover is very important. So, efficiency should be about the quantity of loans originated, but with an acceptable level of quality of the loans generated, and a minimal delinquency ratio. If we are able to give a lot of loans, but we can’t get customers to repay them, then we are still not efficient.”*

### **1.5.2.2 The mortgage sector**

The result of this research suggests that efficiency in the loan origination process constitutes one of the major constraints to the efficiency of the mortgage sector as a whole. The implication of this for practice is that concerted efforts by the internal regulatory body, the MBAN, to educate practitioners on the importance of efficiency in the loan origination process and their operations generally, are necessary. The MBAN also needs to set new standards for efficiency and develop relevant performance indicators to measure and assess the adherence of practitioners to these industry standards.

There is an urgent need for mortgage bankers to retool their loan origination processes and to strive for a more nimble operation that is focused on speed, accuracy and quality. While the onus rests on individual banks within the sector, the supervisory oversight provided by both the internal and external regulatory bodies can help to provide the necessary impetus the banks need to adjust and shore up their operations. To further foster loan origination and operating efficiency, and in the light of the upcoming Mortgage

Refinancing Corporation (MRC), it is imperative that the sector develops a uniform underwriting standard that is in line with global best practice.

The inclination of mortgage finance providers to favour pooled depository sources for funding their operations might pose a challenge to the successful take-off of the secondary mortgage market. There is, therefore, the need for the MBAN, the internal industry regulator, to educate mortgage bankers on the advantages of a secondary mortgage market, the benefits mortgage banks stand to gain by utilizing its service, and the procedure necessary to enjoy its benefits.

Another major implication of this research for practice is the need for capacity building. The sector needs to develop capacity in terms of manpower, technology and capital.

### **1.5.2.3 The Nation**

The result of Project two sheds light on some cultural inclinations of Nigerians that constitute impediments to the efficiency of the mortgage sector. One such culture is the hesitation or outright refusal to divulge personal information. Details of income and even age are seen as very private, and customers find it hard to divulge these details; hence it is difficult to rely on information provided by customers, and as such difficult to make timely loan decisions.

A lack of credit utilization and debt repayment culture in Nigeria is another constraint to the efficient operation of mortgage banks in Nigeria. Many Nigerians do not have a culture of debt, and only a small percentage of Nigerians use credit. While this may not be bad in itself, its implication is that even when mortgage loans are available, many people may still shy away from obtaining them. Some people deliberately avoid taking out mortgages, and those that do would rather prepay their mortgages than risk losing their homes and going through the social stigma of repossession. The few who do take out mortgages, experience has shown, lack the discipline to pay back without being forced to, because of the poor or non-existent savings culture. These pose a big challenge to the industry. These cultural tendencies if not effectively handled, may have serious negative implications for the sector.

The government, industry regulators, and mortgage finance providers need to educate the masses on the advantages of utilizing credit, especially for financing housing, through the use of mass media and other avenues. This, in addition to sensitizing Nigerians to use mortgage facilities, will also help to advertise mortgage finance institutions, especially the mortgage banks.

## 1.6 Conclusion

The results of this thesis have confirmed the assertion that lack of long-term funds is a major deterrent to the success of housing finance in Nigeria. The study has also underscored the fact that the necessity of an efficient mortgage market to the generation of long-term funds cannot be overemphasized.

The result of this research, however, has shown that the mortgage market in Nigeria is nascent and would need to undergo many adjustments before being capable of meeting the growing demand for housing finance. In order to revitalize mortgage finance, Nigeria must overcome its complex multi-sectoral challenges rooted in institutional legacies and real economy inefficiencies.

Housing finance would need to be integrated into the financial system as a whole if it is to assume the proportions required to finance the projected needs. This in turn would mean the evolution of a sound structure of financial institutions and development of their operational links with government policy, especially financial policy. With respect to this, it is encouraging that efforts are underway, through the Financial System Strategy (FSS) 2020 programme, to ensure that the capital market exists with appropriate securitization and price discovery mechanisms, which could be used to exploit the potential of mortgage finance.

FSS 2020 is a blueprint for engineering Nigeria's evolution into Africa's major international financial centre and for developing the financial sector into a growth catalyst that will enable Nigeria's transformation into one of the 20 largest economies in the world by the year 2020. The capital market is one of the key sectors undergoing further reforms under the FSS 2020 programme.

The aspiration of the FSS 2020 for the mortgage sector is to create a conducive regulatory environment for housing finance in which the private and public sectors are equally active, so that by the year 2020, Nigeria would have developed a mortgage market that is safe and profitable – a market that would have provided access to housing finance to over 30% of Nigerians in all social classes in urban centres to own their own houses. With such schemes initiated by the government, the result of individual projects such as this will receive better reception and the policy recommendations made here will get good leverage for implementation

To enhance housing finance, mortgage lending needs to be promoted. To achieve this, the current risks stemming from the institutional and legal environment need to be removed or at least mitigated. Also, it is necessary to develop a new mortgage sector policy orientation with market incentives and solutions. This would help to promote mortgages as a form of credit security, making foreclosure procedures less time-consuming and more effective. A revision of current legislation on evictions and procedures regarding the land and real property registration needs to be done as well.

On the issue of the dearth of long-term funds to be effectively dealt with, there is a need for macroeconomic stability, a stable banking sector, working legislation, a clear definition

of government involvement and a free market. Also, in order to feel the impact of housing finance on the whole economy, emphasis on the legal, institutional and macroeconomic framework is the decisive factor; if a functioning and reliable framework and conditions for an efficient mortgage market are in place, financing techniques will emerge since borrowers and lenders are able to take informed decisions on the risks of long-term obligations. Furthermore, the implementation of the policy recommendations made presupposes efficient institutional arrangements. Removing the current administrative and legal bottlenecks will go a long way to address the problems in the management of the available sources of funds, while effort is being made to explore other viable sources.

One of the recommendations made in this thesis is the establishment of a secondary mortgage market; however, a secondary mortgage market will not work as long as the primary mortgage market is not able to produce a sufficient volume of high-quality mortgage loans that meet the requirements of institutional investors. Mortgage banks therefore need to build their capacity to develop the primary mortgage market to such an extent that the opportunities a secondary market provides will be fully exploited.

It is hoped that if the recommendations made in this thesis are effectively implemented, access to housing finance in Nigeria would grow from the present level of 0.5% of the GDP to 30% over the next 10 years. Also, capital market products for the financing of the mortgage sector including mortgage-backed securities should grow from the present 0% to 20% of Capital Market size over the next 10 years.

## 1.7 Limitations of the study and areas for further research.

The findings of this thesis and its contribution to knowledge and practice have some limitations, which are explained in this section. Also, some suggestions to mitigate these limitations are proffered as possible areas for further research.

**Unavailability of data:** Lack of recent and comprehensive data on some mortgage banks and the FMBN posed some challenges especially in Project one. This affected the number of mortgage banks included in the sample. To some extent, availability of data also influenced the choice of quantitative analysis used in Project one. For instance, at the inception of Project one, regression analysis was proposed in addition to efficiency estimations using DEA and SCF. However, the idea was eventually dropped because there were insufficient data on FMBN and some other mortgage banks.

In relation to the debilitating impact of the external environment on the sector, further research is necessary with regard to how the external environment can be recreated to boost efficiency. Specifically, in-depth research is imperative to examine how existing official bureaucracy and industry regulations can be reviewed and/or how new policies and laws can be enacted to enhance efficiency in the sector.

Opportunities for further research also exist in the area of investigating mortgage systems in developed countries with the aim of adapting and/or adopting the processes that contributed to their efficiency, in the Nigerian context. Such studies will help to shed light on specific steps that will boost the efficiency of the mortgage system in Nigeria. This was partly done in Project three; however, there is still much to be learned from other emerging economies and even developed countries that have well developed housing finance systems and have achieved great feats in housing provision.

There is also a prospect for further research into the area of certification of mortgage loan originators/officers, and its attendant effect on increased efficiency, in order to confirm or refute the hypothesis that structured training and certification programmes will help in improving the efficiency of the loan origination process.

Further research into how capacity building could help improve the efficiency of the Nigerian mortgage system will also prove useful because, among other reasons, lack of adequate manpower is a cause of internal inefficiencies, as the study has shown. The reality is that there is a shortage of skilled manpower that can take the mortgage industry to the desired level of efficiency. Capacity has not been built over the years because the mortgage sector did not really exist and the conditions were not favourable for long-term lending, as it would have led to asset-liability mismatch. The industry needs to build capacity in all aspects of operations of mortgage banking and the mortgage market.

**Subjectivity:** In the second phase of this research exercise, the methodology adopted required a considerable amount of interaction between the researcher and the respondents who provided the data for analysis from which conclusions were drawn and based. This interaction could possibly have influenced the perception of the respondents because the researcher is also a key player in the industry. Even though necessary precautions to eliminate interviewer bias were taken, it is impossible to completely rule out the effect of bias and the researcher's subjectivity in the final analysis of the data.

**Evolving/emerging issues:** Some important issues evolved in the mortgage banking industry and the mortgage sector as a whole during the course of this research work. While some existing issues such as the recapitalization exercise took new turns and dimensions, other issues such as the mandate to create 500,000 housing units in the nation by the end of 2016, which had not been in existence hitherto, emerged. These evolving and emerging issues might have some implication on the currency of statistics presented in the thesis. For instance, reference to the possible number of mortgage banks that would emerge after recapitalization was made in Project one on the premise that the recapitalization exercise would be completed by April 2013. The exercise has now been extended till December 2013. It is highly probable that the conclusions made in Project one will not reflect the true state of affairs when the recapitalization exercise is finally concluded.

**Scope:** This project is focused on mortgage finance, so in investigating policies in other emerging economies, it only took cognizance of financial components of housing finance policies and strategies. It also only took into account broader housing policy considerations where they directly relate to mortgage finance. For instance, it only discussed fundamental aspects of a comprehensive housing policy such as urban development rules, access to land for development, slum upgrading tools, non-finance subsidies, etc., as they relate to mortgage finance.

In recognition of the different forms of mortgage finance, such as developer mortgage finance, residential mortgage finance, rental mortgage finance, and housing micro-finance, this thesis only focuses on mortgage finance for home acquisition. Also, it is not restricted to a particular income level or socio-economic group, but attempts to proffer policy recommendations that cut across the different categories of residential mortgage finance seekers. With respect to housing finance and considering the proportion of Nigerians that live below the poverty line who may not be able to afford mortgages, the issues of housing micro-finance and social housing could be investigated to determine how that avenue could be used to provide housing finance for low-income earners.

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## **CHAPTER TWO: PROJECT 1 REPORT**

### **Efficiency of the Mortgage Banking Sector in Nigeria: A Quantitative Measurement.**

## Abstract

The aim of this project is to investigate the current level of efficiency of the mortgage banking sector in Nigeria by measuring the efficiencies of selected firms from the industry for the period five-year of 2006-2010. Prior to the estimation of efficiency, the project gives a background of the housing and mortgage sector in Nigeria, highlighting the rationale for the choice of topic, and discussing the role of efficiency in attracting long-term finance to mortgage banking sectors.

An overview of the performance of the sector was first assessed with a range of financial ratios and then the efficiency was measured with parametric and non-parametric techniques (DEA and SCF). The analysis focused on comparing the selected firms based on their technical efficiencies, first on the firm level, and then on the industry level.

The overview of the sector using a range of financial ratios reveals that, based on size, banks with less than ₦5 billion average total assets are significantly different in performance levels from those with over ₦5 billion average total assets. Furthermore, results also show that the ownership of these banks significantly affects their performance – banks with private ownership perform better on average than those owned by the government and those owned by religious organizations, while there seems not to be any significant difference in the performance of commercial bank-owned and privately owned mortgage banks.

The efficiency estimation reveals that the average technical efficiency level of the selected firms is considerably low compared with what was obtained in other African countries as reported by Poshakwale and Qian (2011) in their study of the efficiency and competitiveness of Egyptian banks. The inefficiency observed is mostly attributed to managerial ineptitude, although some scale adjustment could also result in improved efficiency. Also, the results suggest that the sector experienced a minimal productivity loss during the period under review. The results, especially the DEA, show a high variability in the data suggesting a widely differing level of performance of individual firms within the Nigerian mortgage banking sector.

The results further suggest that banks with average total assets in excess of ₦5 billion are more technically efficient than those with total assets less than ₦5 billion but the latter banks seem to be more scale efficient than those with average total assets greater than ₦5 billion.

## 2.1 Introduction

The availability of adequate housing is one of the main challenges of developing societies; that is why programmes and projects that will increase the housing stock and improve the quality of houses have become increasingly important.

The housing sector plays a more critical role in a country's welfare than is usually recognized, as it directly affects not only the well-being of the citizenry, but also the performance of other sectors of the economy (Sanusi, 2003). An effective and buoyant housing sector is an indication of a strong programme of national investment; it serves as the platform for, and the first step to, future economic growth and social development (Ajanlekoko, 2001).

The housing sector is linked to the welfare of a country, which further affects the performance of other sectors of the economy. Previous studies (Adebambo, Oduwaye and Oduwaye 2012, Chiquier and Lea 2009, Pius 2012) show that the huge capital required to purchase a house is usually beyond the capacity of low-income earners, whether in developed or developing countries. The resultant effect of this calls for a role for government to play in terms of policies and in ensuring that housing is affordable for low-income earners. Many fundamental issues need to be addressed for any country to have an efficient housing finance system. Some of these include access to capital, effective monetary policies, risk assessment tools, risk sharing, low transaction costs, property rights and economic growth. These are seen as prerequisites to exploring diverse housing finance options such as mortgage finance, fully guaranteed loans, payroll-based systems, micro-finance methods, rentals, public/private partnerships, and securitization. Many of these are largely present in the developed economies but absent in developing countries.

The crucial role of the real estate sector is underscored by Bernanke and Gertler, (2001), who argued that crashes in property markets have tended to have more severe consequences than crashes in equities and other markets. They found, from historical data, an 8% dip in GDP following a crisis in the property market as against a 4% dip with a crisis in equities and other markets.

Governments of most advanced economies have made home ownership the focus of their housing development, and provided deliberate incentives for home ownership. These include government sponsored entities, specialized funds or guarantee schemes for home ownership, tax allowances, etc. These were also complemented with policies that made it easy for real estate assets to be converted into financial assets, thus becoming another trigger of commerce and other economic activities.

Housing facilitates urban development and promotes socio-economic well-being, especially when geared towards the attainment of home ownership on a mortgage basis. Housing is a vital instrument for personal and national economic development, as most countries displaying high economic indices also have correspondingly high home ownership rates. The provision of mass housing is one of the surest means for the creation of jobs, eradication of poverty, reduction of corruption and ensuring security. In a

study conducted by the Presidential Committee on Job Creation in Nigeria (2007), it was estimated that the mortgage and housing value chain encompasses a minimum of 50 separate job functions and thus, having a well developed mortgage and housing sector will lead to the creation, deepening and sustenance of numerous jobs in any economy. It would also lead to the creation of jobs for professionals, skilled and unskilled employees such as architects, builders, estate surveyors & valuers, civil, structural & construction engineers, quantity surveyors, artisans, e.g. bricklayers, carpenters, block manufacturers, etc., and also jobs in the areas of construction financing for the creation of markets/shopping complexes, educational institutions/hostel developments, industrial parks, housing estates for workers, etc. Secondary Mortgage Market jobs, such as Liquidity Facility companies would be created, and subsequently, Mortgage Bonds would be introduced which will lead to the deepening of the capital market and an increase in the number of jobs in the Securities & Exchange Commission and the Stock Exchange in order to effectively regulate capital market activities for the Secondary Mortgage Market. Capital market operators would also witness an increase in jobs to effectively trade in this asset class, and there would also be an increase in supportive market jobs for real estate developers/companies, building materials manufacturers and distributors, infrastructural companies, and research institutions specializing in research relating to buildings, and roads would witness an increase in jobs, alongside agriculture/agro-allied industries for wood, ceramic, tiles, etc. There would also be an increase in demand for consumer items such as furniture, electronic items, cookers, air conditioners, bed linen, rugs/carpets etc., leading to even more job creation.

There are many constraints limiting the provision of adequate and affordable housing in Nigeria. Some of these constraints were identified by Ogu and Ogbuozeobe (2001), to include poor access to housing finance, obstacles to land acquisition, high cost of building materials, lack of planning regulations and codes, problems of residential infrastructure, etc.

Poor access to finance has been widely identified as the major impediment to having affordable housing in Nigeria. Indeed, the problem of access to finance is recognized as one of the major constraints for housing finance in any economy.

This study will conduct a research into Nigeria's mortgage sector to analyze the efficiency of housing finance within the system. In addition, it will also investigate the effect of ownership structure and size on the efficiency of mortgage banks in Nigeria. The study will further investigate the effect of government policy on the Nigeria mortgage banking sector and benchmark the performance and efficiency of mortgage financing in Nigeria against other emerging and developed countries in terms of funding, government intervention and institutional arrangements. It will also identify areas of improvement for Primary Mortgage Banks, in terms of the structure of finance offered, proffer solutions to the problem of housing finance, and identify long-term financing options available for the mortgage sector in Nigeria.

## 2.1.1 Nigeria's housing and mortgage statistics

Nigeria's population as at 2009 was 154 million (United Nations, 2010), and with an annual population growth rate of 3.8% (average 2005 to 2010 growth rate), it is projected to be 216.53 million in 2020; the housing deficit is likely to worsen to 16.2 million in 2015 and 19 million in 2020, which implies that a vibrant mortgage sector is required for the attainment of the housing aspiration of the populace.

Housing deficit in Nigeria is defined as the number of housing units required to allow for decent accommodation of the population with an average of six people to a dwelling unit. Dividing Nigeria's population by six provides the figure for the desirable housing stock for Nigeria, and the housing deficit is then determined by subtracting the actual housing stock available from the desired/ideal housing stock.

The housing stock in Nigeria and its growth is still far behind expectations especially when viewed against comparable countries. The major metrics include total value of ₦1.06 trillion (\$7 billion) as at the end of 2008, housing stock of 10.7 million units in 2007 (with only 5% in the mortgage sector), which improved to 11.4 million units in 2010, implying a shortfall estimated between 12 and 16 million units in 2007 and 14.9 million units in 2010, and it will require ₦52 trillion (\$348 billion) to bridge the housing deficit based on an estimated average cost of ₦3.5 million (\$23,333) per housing unit (at an exchange rate of ₦150 per US\$ as at June 2010). The housing stock in this instance is measured by taking a census of only the available housing units, without counting the tenement houses as several dwelling units. The tenement houses represented about 70% of the housing stock in Nigeria in 1991 when broken down into family dwellings/rooms but unfortunately, there are no recent data available that break down housing stock into dwelling units (tenement rooms). A tenement house in the Nigerian context is a house that is somewhat similar to a block of flats but is not as structured as a flat, and tenants usually share amenities such as bathrooms, toilets and kitchens. It is structured in such a way that most dwelling units in the building just have a bedroom and sitting room without conveniences, and each house may have about 12 of these dwelling units on average, with each unit having an average of six occupants. The conveniences are then situated at the back of the building and are shared by all families occupying the entire house. Typically, each house has between two and four kitchens, bathrooms and toilets, and the 12 families that reside in the building share these. This is usually a low-income house type that is built by landlords for investment purposes.

Home ownership in Nigeria was 10% in 2007 and 15% in 2009, while mortgage loans have remained below 0.5% of GDP from 2005 till 2009 (Adedipe, 2010). Houses are mostly purchased in Nigeria through 100% payment and are not usually registered or properly titled due to the very high cost of registration (22.2% of property value, World Bank 2009). Consequently, most of the houses in Nigeria remain as dead assets (the capital is stuck in the asset), as once purchased, they cannot be used to raise funds from a bank, or be traded in the secondary mortgage market or capital markets, or refinanced to release funds to the owners for other uses.

In 2010, it was reported that 85% of the urban population in Nigeria live in rented accommodation, spending more than 40% of their income on rent (Kokularupan, 2010). Of these houses, 90% are self-built and this is mainly due to lack of mortgage financing. Informal housing is most prevalent as more than 80% of the population live in settlements that are unplanned, with poor living conditions. In the rural areas, people live mostly in mud buildings with thatched roofs. Houses in these settlements are built incrementally and completion of buildings can take as long as 10 years, (EFInA, 2010).

Self-built in this instance refers to buildings funded fully by the owner without mortgage loans, and constructed either through the use of daily direct labour masons or by employing a contractor for the job. They are usually characterized by separate and distinct building plans that set them apart from other houses around them. However, this definition of self-built houses differs from its use in other countries, as these self-built houses are not necessarily owner-occupied but also include houses built by landlords for rental income. It is not unusual to find a landlord having about five different self-built houses in different locations, all rented out for rental income.

Houses in rural areas are made with very cheap materials and often do not last long. The houses are actually built using a skeletal frame made of bamboo, palm fronds, wood, or raffia, and then mud (unbaked and not compacted) is splashed on both sides of the skeletal frame to make it appear solid, and create some interior cooling. The roofs are usually thatched (made with straws, palm fronds, a combination of both, or lower grades of wood) and susceptible to the elements. The houses also usually do not come with conveniences attached to them but these are built as a separate unit at the back of the houses for all the residents to share. These houses typically have a life span of about 50 years, with several renovations carried out along the way. The difference between this method and the modern day use of mud bricks is that the modern day bricks are pre-cast, compacted and baked to allow for durability, and then set to form houses, using cement to bind them together.

Mortgages exist because housing provision requires huge capital outlay, which is often beyond the capacity of the medium/low-income groups (Okafor, 2006).

### **2.1.2 Overview of the Nigerian mortgage banking sector**

The evolution of the mortgage finance industry in Nigeria revolves around the Federal Mortgage Bank of Nigeria (FMBN), which inherited the assets and liabilities of the defunct Nigerian Building Society (FMBN, 2006). The FMBN was established in 1977 as a retail mortgage bank with the intent of providing long-term credit facilities to Mortgage Banks in the country, providing long-term loans to individuals and real estate property developers for building houses, providing funding for research in mortgage financing, as well as providing a channel for long-term savings.

The funding vehicle for its wholesale mortgage lending is the National Housing Trust Fund (NHTF). Despite the availability of the NHTF mortgage loans and other vehicles for mortgage financing, the performance of mortgage financing in Nigeria has been far from impressive.

The mortgage sector in Nigeria has remained under-developed with total mortgage debts being below 0.5% of the country's GDP, as against the situation in developed countries of the world where mortgage debts represent a minimum of 40% of their GDPs.

The aggregate loans to total assets of the mortgage sector in Nigeria falls far below the best practice standard of at least 70%, (as stipulated by the Central Bank of Nigeria (CBN)). Mortgage to loanable funds for the five years ending 2009 averaged a dismal 14.51%, while the total mortgage market loans is put at a mere ₦127.5 billion (US\$850 million), (World Bank 2009).

The Nigerian Vision 20:2020 (the National Vision of Nigeria to be among the top 20 economies of the world by the year 2020), as it relates to housing and mortgage provision, envisages increasing the stock of accessible and affordable housing by 20% in 2015, and by 50% in 2020.

Unless Nigeria's population growth rate slows down from the current 3.2% per annum to keep Nigeria's population under 200 million rather than the projected 216.53 million in 2020, the housing deficit is likely to worsen to 16.2 million units in 2015 and 19 million units in 2020. Housing provision in Nigeria must be more aggressive than projected, and without a vibrant mortgage sector, the hope for attainment of this housing aspiration will be elusive.

Analysis of the Primary Mortgage Banks' (PMBs') operations indicates that loans to customers amounted to ₦5.99 billion (\$399 million) in the period of 1992 to 2001, and the number of operators rose to a peak of 280 in 1995 before declining to 98 by 2009. The decline was as a result of the CBN's mandatory recapitalization for mortgage banks from ₦20 million (US\$13,333.33) to ₦100 million (US\$667,000) in 2002. As noted by the CBN in its 2008 annual report (page 60), the aggregate balance sheet of the PMBs expanded from ₦202.8 billion to ₦329.8 billion.

Table 2.1: Data on mortgage banking sector in Nigeria for 2010

<b>No. of Active Primary Mortgage Institutions (PMIs)</b>	- 77
<b>Total Number of PMIs</b>	- 101
<b>Cumulative Shareholders' Funds of PMIs</b>	- ₦55.0bn
<b>Aggregate Assets of PMIs</b>	- ₦301.0bn
<b>Aggregate Deposits of PMIs</b>	- ₦109.0bn
<b>Aggregate Loans &amp; Advances of PMIs</b>	- ₦105bn
<b>Capital Adequacy Ratio (CAR) for the Sector</b>	- 10% (49 PMIs satisfied the requirement)
<b>Liquidity Ratio (LR) for the Sector</b>	- 20% (45 PMIs satisfied the requirement)
<b>Mortgage: Total Assets Ratio (MT : AR)</b>	- ≥50% (4 PMIs satisfied the requirement)
<b>Total Mortgage: Loan Assets Ratio</b>	- ≥60% (16 PMIs satisfied the requirement)
<b>Capital Funds: Net Credit Ratio</b>	
<b>i.e. Net Credit/ Capital</b>	- 1:10 (52 PMIs satisfied the requirement)
<b>Non-Performing Loans Ratio</b>	- ≤30% (28 PMIs satisfied the requirement)

Source: CBN Paper, Feb 2011

For reasons of the dearth of long-term funds (most investors/depositors in the sector usually tenure their funds for a maximum of 90 days), and several policy constraints (lack of foreclosure clause in the mortgage laws, governors' consent law that requires the governor of each state to sign every house purchase or mortgage transaction document before it becomes enforceable, etc.), the Nigerian mortgage market has witnessed limited growth. As noted by the CBN in its 2008 annual report (page 60), a paucity of long-term funds exposes practically all financial institutions in Nigeria to the risk of a book mismatch/funding gap (a situation where short-term funds are used for long-term transactions).

A comparison made of Nigeria against selected countries' home ownership rates and the percentage of GDP that mortgage loans represent, placed Nigeria very far from these selected countries (see Table 2.1). Housing sector performance in these countries remained fairly high, whereas the Nigerian metrics have changed negatively with population growth and a slowdown in new housing developments for the low-income earners.

Table 2.2: International comparison of home ownership and mortgage loan

Country	Home Ownership	Mortgage loans (% of GDP)
<b>US</b>	72.0% (2007), 67.4% (2009)	69.4% (2005); 73.0% (2009); 86.0% (2010)
<b>UK</b>	78.0% (2007), 69.8% (2009)	80.0% (2005); 86.0% (2009); 72.0% (2010)
<b>China</b>	60.0% (2007)	0.2% (1997); 10.9% (2009)
<b>South Korea</b>	54.0% (2007), 66.9% (2010)	80.0% (2003); 96.0% (2008)
<b>Singapore</b>	92.0% (2007), 89.0% (2009)	61.0% (2005); 68.0% (2010)
<b>Hong Kong</b>	70.0% (2009)	50.0% (2005); 60.0% (2010)
<b>Malaysia</b>	65% (2010)	33.0% (2005); 35.0% (2010)
<b>Nigeria</b>	<b>10.0% (2007), 15.0% (2009)</b>	<b>0.5% (2005), 0.5% (2009)</b>

*Sources: Housing and Statistics Authorities, and Central Banks of the Countries*

In selecting the countries in table 2.2 for comparison against Nigeria in terms of home ownership rate and percentage of mortgage debt to GDP, I have selected the USA and UK based on their being the two most efficient and developed mortgage and housing markets in the world, and the remaining five countries have been selected from Asia because they have developing/recently developed mortgage and housing markets, and have also had their market developments recently, i.e. between the last 10 to 24 years.

Developing/emerging economies generally have far smaller housing finance systems as a percentage of their GDPs than developed countries. Among the 38 emerging economies in a selected sample by Warnock and Warnock (2007), housing finance averaged 10% of GDP, with the largest housing finance systems being between 20 and 30% of GDP (Malaysia, Taiwan, Korea, South Africa, Estonia, etc.). In contrast, housing finance in the 24 developed countries in their selected sample averaged 55% of GDP, with almost all housing finance systems exceeding 40% of GDP.

Table 2.3: Peculiarities of selected developed mortgage systems

Country	Remark
US	Most aggressive home ownership scheme – thousands of PMIs, large variety of mortgage instruments and various government policies to support home ownership.
UK	Increasing tendency towards mortgage financing for buy-to-let.
China	Home ownership rate is very high in the urban areas (as high as 80% in Beijing and Shanghai), but mortgages are very expensive. There is the fear that a burst of the housing speculative bubble might hurt the national economy, and various policy initiatives were introduced to curb demand.
South Korea	Four decades of extensive house building to boost home ownership, but supply is not matched by demand as a result of poor housing finance.
Singapore	Developed Mortgage Market with typical contract sets of 30 to 35 years, maximum loan to value of 80%, and mostly variable interest rate contracts.
Hong Kong	Developed Mortgage Market but with typical contract set of 15 years, and maximum loan to value of 70%.
Malaysia	Mostly variable rate contracts with a maximum of 30 years contract set and 80% loan to value.

### 2.1.3 Rationale for project

According to a report by Igbinoba, (2011), Nigeria's housing deficit presents an enormous potential for housing and housing finance investors. The country requires ₦49 trillion (US\$326 billion) to meet its housing demand. However, the outstanding credit to the economy as at December 2008 by financial institutions was put at \$20 billion. It is as a result of this that this research work seeks to investigate how Nigeria can attract and offer long-term mortgage finance by understanding market efficiency in Nigeria.

Evaluating the efficiency of firms within an industry or sector provides important information that can help to improve managerial performance by identifying the best and worst practices associated with high and low measured efficiency levels respectively. The information provided in this study will thus prove to be essential for benchmarking the relative performance(s) of individual firms in the mortgage banking sector and for assessing their varying degrees of success.

Findings from the study of technical efficiency have far-reaching policy implications especially for developing economies because, in addition to assigning numerical efficiency values to individual firms, they also help to identify areas of input overuse and/or output underproduction, and these results can readily be related to academic research interest or used as a basis for assessing existing government policies or informing appropriate ones.

As efficient banking systems tend to contribute extensively to higher economic growth in any country, studies of this nature are very important for policy makers, industry leaders and others who are reliant on the banking sector. Thus, this study will fill a demand gap. Besides, the current study is also important because there is a dearth of empirical research that addresses the technical and scale efficiency issues of Nigerian mortgage banks. Hence, this project will help to extend the mortgage banking efficiency literature, which is substantially skewed towards the banks in developed countries.

#### **2.1.4 Objectives of the project**

The broad objective of this project is to carry out a quantitative assessment of the efficiency of firms in the Nigerian mortgage banking sector. In order to achieve this, the following specific objectives are defined.

- To investigate the efficiency of the selected firms with intent to identify best practice mortgage banks within the sector.
- To examine efficiency differences among firms based on ownership structure and size.
- To investigate the trend of efficiency in the mortgage banking sector.
- To compare the results from the parametric, non-parametric and classical methods of efficiency and performance measurement.
- To offer policy recommendations based on the findings.

#### **2.1.5 Organization of the project**

In addition to this first section, which serves as an introduction and provides the background to the subject matter, this project is divided into four sections. Section two outlines the theoretical positioning of the paper, and explains the theoretical principles on which the paper is based through a review of related literature. It presents the summary and results of other researches that have investigated the issue of efficiency in the banking industry generally, as well as a few that specifically investigated the mortgage banking sector, in addition to researches that investigated efficiency issues with different estimation techniques with the emphasis on banks and other industries. The methodology section describes the methods used in analyzing the efficiency of the selected firms. It gives an overview of the whole analysis process, highlighting key steps in sample selection, variable selection, data measurement, and data analysis. The fourth section presents the findings from the different estimation techniques employed, discussing their relevance at the firm level and the industry level. The final part summarizes the project drawing appropriate conclusions and making recommendations based on the findings.

## **2.2 Literature review**

The previous section gave an introduction to this project. It provided an overview of the Nigerian mortgage banking sector and provided statistics on how it compares with selected economies. It also established the dearth of long-term funding in the Nigerian mortgage sector as a major cause for the under-development of the sector and how this has created a serious deficit in the quantity, as well as quality, of housing units available in the country. This project is aimed at investigating the efficiency of mortgage banks in Nigeria, to understand how their improved performance could enhance access to long-term funds which will help to improve the performance of the sector and consequently help to alleviate the housing deficit issue through the provision of mortgage loans to low-income earners who are those most affected by the housing deficit.

This section will review previous research that investigated the efficiency of banking sectors in both developed and developing economies to see the effects of different firm characteristics, such as bank size and ownership structures, on efficiency. It will also review findings of studies that have attempted to measure efficiency with different estimation techniques.

### **2.2.1 Efficiency in banking and mortgage markets**

One of the early studies of efficiency in mortgage markets was the work done by Diamond and Lea (1992). They compared the efficiency of housing finance arrangements across five developed countries: the USA, Denmark, France, Germany and the UK. Their analysis focused on the efficiency with which different mortgage markets deliver mortgage credit to homebuyers. They argued that an efficient system of housing finance will be able to penetrate new markets and they provided a good framework through which efficiency can be measured. According to them, efficiency of home mortgage instruments can be measured by using the intermediation efficiency of the mortgage system, which they defined to include institutional, transactional, subsidy and risk allocation arrangements with the lowest total public and private costs of providing housing credit.

The methodology used was to determine the cost to society of providing housing finance, and was measured by adding the interest rate paid by borrowers to the origination fees, and cost to society of any subsidies granted. They then compared this with the minimum possible cost, which they defined for developed countries as the cost of issuing sovereign debt by the government.

The results showed that although the countries studied take different approaches to housing finance, the basic operating costs of intermediating funds were similar, and they shared many aspects of financial technology. However, the results did not indicate which system is best, nor take cognisance of the effects of various regulatory restrictions and subsidies on social benefits, which may include improvement of a system's economic efficiency and the stability of the system. Thus, intermediation efficiency is a narrow policy

criterion that incorporates only private benefits and overlooks other goals of public policies.

In their sequel work, Diamond and Lea (1993), posited that a perfectly efficient market is one in which no entrant could make extraordinary returns, despite having full access to all available subsidies, information and technology, and enjoying full exemption from restrictions/regulations.

The work of Lea (1994), focused on the UK and USA housing finance systems as the two most efficient in the world. He revealed that deregulation of the financial systems and increased competition between financial institutions led to a significant increase in the efficiency with which the UK and USA mortgage markets deliver credit to homebuyers. These also led to a decline in the relative cost of mortgage credit and an improvement in funds availability, while contract sets available to consumers expanded. He also noted that efficiency in the USA mortgage finance system is due to the government's extensive support in providing default risk insurance.

Even though the UK and USA are the two most open and competitive economies, and in spite of their high levels of efficiency, Lea's work revealed that these two countries have also experienced instability in the past decade due to high rates of individual borrower and lending institution default, with the UK system generating widespread individual failure while the USA system generated widespread institutional failure.

In another study conducted by Marks (2000), where he measured convergence in European Mortgage Systems before and after the Economic and Monetary Union, using Convergence typology (a qualitative methodology), he established that there is a significant difference between the Diamond and Lea (1992) work, and other previous studies. He argued that the latter work adopted hypothetical benchmarking rather than using actual cost of funds to lender in determining interest rate, as hypothetical benchmarking only provides a basis for comparison between countries. He further stated that previous studies noted that efficiency in a broader context might be hard to measure due to difficulty in measuring economic efficiency.

Marks (2000) study also revealed that the introduction of a single currency should encourage convergence between European mortgage systems. The euro was anticipated to remove information problems relating to pricing, and integrate savings markets. However, the privileged access to cheap funds enjoyed by some institutions stands as a barrier to convergence in savings and mortgage markets. His findings support previous studies that indicated that Single Market approach, centred on the harmonization of minimum prudential standards between credit institutions, is an inadequate tool for achieving convergence in mortgage finance systems. Even if financial aspects of mortgage finance systems converged, many non-financial barriers would still exist.

The convergence criteria, however, have the limitation of concentrating on nominal indicators such as interest rate and inflation, and neglecting real indicators such as output and employment. They also neglect asset values, and house prices in particular.

Proxenos (2002) argued that home ownership rate is not a reflection of the quality of housing finance systems, as is widely accepted. He stated that while the general pattern would suggest so, it is equally misleading because countries such as Mexico and India have home ownership rates of over 80%, but lower quality and availability of housing finance systems than countries with comparable home ownership rates. He further argued that the quality of housing finance systems is more accurately compared in terms of the extent to which they minimize the cost of housing, improve access to funds, enable consumers to predict payment amounts, and allow borrowers to refinance easily.

But Tiwari and Moriizumi (2003), using a time series analysis, examined the efficiency of the Japanese mortgage system. According to them, focusing on a single country provided a better insight into the housing finance system because boundary conditions for all mortgage instruments within any country are similar. They also postulated that the outcome of an efficient mortgage finance system can be viewed in terms of an increase in the home ownership rate or quality of housing, and made a case for focusing on efficiency in housing finance markets, stating that it is a major concern for many emerging/developing countries. They cited Fama (1970), stating that according to the theory of efficient capital markets, if markets are efficient, funds will flow to those activities with highest after-tax, risk-adjusted returns, until the yields in all markets are equalised.

Thus, the theoretical framework for the proposed research will be based on the intermediation efficiency of Diamond and Lea (1992), and also the work of Tiwari and Moriizumi (2003), which focused on the efficiency with which different mortgage markets deliver mortgage credit to home buyers.

## 2.2.2 Efficiency of mortgage loan origination

Some of the impediments to the development of an efficient housing finance system include the lack of access to capital, ineffective monetary policies, ineffective risk assessment tools, lack of risk sharing mechanisms, high transaction costs, and poor property rights. However, the inefficiency of the loan origination process is seen as one of the major impediments to the development of the mortgage banking sector in Nigeria and the emergence of a vibrant secondary mortgage market. The sector generated less than 100,000 transactions between 1960 and 2009, (Adedipe, 2010)

Figure 2.1: Funds and mortgage notes flow

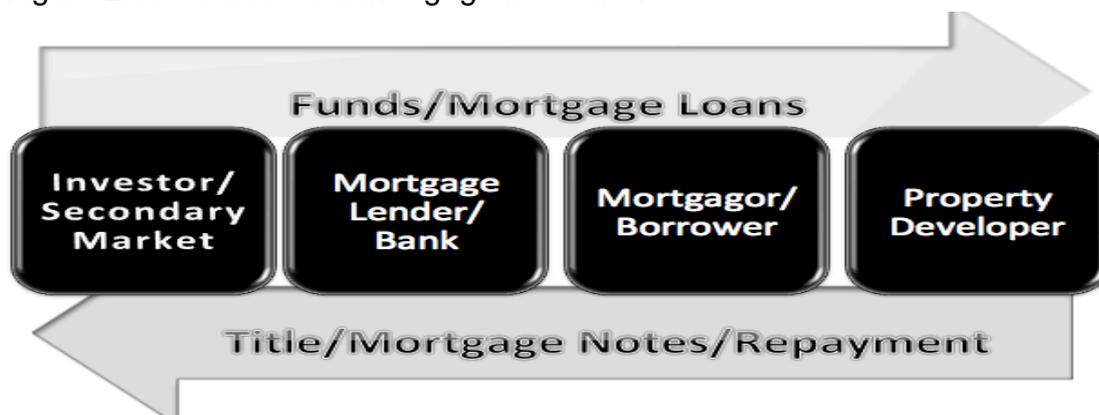
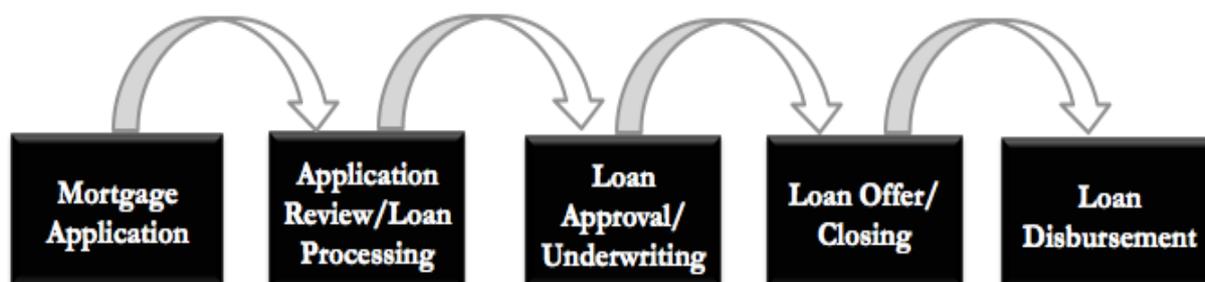


Figure 2.1 shows the flow of funds for housing provision and mortgage creation. The bottleneck is usually at the point of loan origination, which has been known to take up to two years in some cases in Nigeria, as against a maximum of one week that is ideal. When the loans are not being processed, funds cannot flow through, and property developers who have not sold their existing properties would then not have the funds to develop new properties.

The loan origination process and its activities are as shown in Figure 2.2.

Figure 2.2: Mortgage loan origination process



The Mortgage Loan Origination Process as shown in Figure 2.2 consists of stages that commence with a prospective loan customer making an application for a mortgage loan, and goes on to include all processes involved in the loan application review and loan processing using the loan underwriting standards, the loan approval and underwriting (or decline as the case may be), the loan offer stating the conditions of the loan and the conditions precedent to disbursement, the closing if and when the customers meet the conditions stated, and finally ends at the point where the loan is disbursed for the purchase of the property.

Efficiency of the loan origination process should be about the quantity of loans originated, but with an acceptable level of quality of the loans generated, and a minimal delinquency ratio. This would be further enabled through the use of effective technology and adequate Uniform Underwriting Standards. Although the mortgage banking sector in Nigeria is in its growth phase and the mortgage market is also still growing, attention should be paid to the quality of loans originated as well, as lessons should be learnt from the origination of subprime mortgages in the USA.

Lea (1994) noted that efficiency in the USA mortgage finance system is the result of government's extensive support in providing default risk insurance. This indicates that government involvement in the delivery of an affordable and efficient housing finance market cannot be overemphasized.

Due to the important place that the mortgage loan origination process occupies in the efficiency of mortgage banks, an in-depth research and discussion of its implication to efficiency will be done in subsequent projects.

In the following sections, the author will review the literature on the potential effect of certain firm characteristics, specifically size and ownership, on mortgage bank efficiency in order to have an understanding of what obtains generally in the banking industry, and to have a benchmark for the results.

### **2.2.3 Effect of size on efficiency**

The relationship between firm size and efficiency has been given thorough attention in the literature; however, there is no clear-cut relationship between them mostly because efficiency is usually measured in different contexts. The relationship between the different efficiency concepts, such as cost, resource allocation, technical or managerial expertise, and size, varies considerably. Generally though, irrespective of the nature or stage of economic development of the markets under consideration, most researchers suggest that larger firms are usually more technically efficient than smaller ones because larger firms often have better market penetration and so can exploit economies of scale in addition to the fact that they have more funds to employ highly qualified human resources. However, they are usually less cost efficient than smaller firms.

Isik and Hassan (2002) investigated the efficiency of Turkish banks and came to the conclusion that there is a strongly negative correlation between cost efficiency and the size of Turkish banks because the efficiency of the banks decreased in an inverse proportion to the size of the banks. They suggested that this trend is probably due to the strong competition among the small banks, which has led to increased market discipline. Reda and Isik (2006) also examined the efficiency of Egyptian banks between 1991 and 2003 using a non-parametric frontier method, and came to the conclusion that smaller banks are less technically efficient than larger ones. Ncube (2009) also reported a similar outcome with South African banks in his investigation of the South African banking sector between 2000 and 2005. His results showed that cost efficiency decreased with increasing bank size.

### **2.2.4 Effect of ownership on efficiency**

Figueira, Nellis and Parker (2006) investigated the effects of ownership on the efficiency of Banks in Africa by examining whether privately owned banks outperform state-owned banks, and whether foreign ownership enhances bank performance. The methodology used was based on a range of performance ratios and parametric and non-parametric estimations. The study concluded that on average in Africa, privately owned banks do not outperform state-owned banks, but where privately owned banks involved foreign ownership, that seemed to have a positive effect on bank performance. From the sample size of 46 countries of the 52 countries in Africa, 340 banks were analyzed, which is very representative of Africa's banking industry. A combination of three performance measures (Financial and Economic ratios, Data Envelopment Analysis, and Stochastic Cost Frontier) was used in their study and the result was triangulated in order to further ensure reliability. They also employed a switching regression model to test for the effects of environmental factors on performance. Although the methodology and performance measures were

explained in depth, the results showed a high variance in the data, which signifies that the results should be read with caution.

In another study undertaken by Figueira, Nellis and Parker (2009), they also investigated the effects of state and private ownership, and foreign and domestic ownership on the performance of banks across Latin America. The outcome of the study was that by 2001, there was little difference between state-owned and privately owned banks, and between foreign- and domestic-owned banks. The report also highlighted that country differences outweighed ownership differences in determining the performance of banks in Latin America.

Apart from firm characteristics, my experience as a practitioner in the sector is that certain environmental factors, particularly policy and regulations, influence the performance of the Nigerian mortgage banking sector. I will also review previous researches to understand the effect of the present regulatory system on mortgage banks' efficiency in Nigeria.

### **2.2.5 Regulatory structure and mortgage bank efficiency**

Regulation and supervision of banks remains an integral part of the mechanism for ensuring sound banking practice and enhancing efficiency. The regulatory and supervisory authorities play a significant role in the financial system of any economy through the promulgation of policies aimed at providing an enabling environment for the operations of firms within the Banking industry, in addition to ensuring the prudent management of banks' assets and liabilities, the institution of efficient internal control systems to prevent financial malpractices, as well as ensuring stability, and engendering public confidence in the system.

Duncan (2004), World Bank and IFC (2005) stated that to ensure an efficient housing finance system is established, some fundamental regulatory issues need to be addressed. These include property rights, monetary policy, economic growth, risk assessment tools, access to capital, risk sharing, and transaction cost. Coovadia (2004) added that by putting these fundamentals in place, different housing finance methods could be explored including mortgage finance, fully guaranteed loans, payroll-based systems, micro-finance methods, rentals, public/private partnerships, and securitization.

Some regulatory policies in operation in Nigeria seem to be counterproductive and detrimental to the growth, development and efficiency of the mortgage banking sector. A report by the MBAN in 2009 enumerated some unfavourable policies that are seriously affecting the growth of the sector. A major one is the Land Use Act (1978).

The Land Use Act was promulgated as the Land Use Decree in 1978 and incorporated into the Nigerian Constitution in 1979 and has since been retained in the Nigerian Constitution. The general principles of the Act state that: "subject to the provisions of this decree, all land comprised in the territory of each state in the federation are hereby vested

in the Military Governor of the State and such land shall be held in trust and administered for the use and common benefit of all Nigerians.” (Nigeria Land Use Act 1978: Part 1 A49).

The Land Use Act addresses four main issues arising from the former land tenure system in Nigeria:

- The problem of lack of uniformity in the laws governing land-use and ownership
- The issue of uncontrolled speculation in urban land
- The question of access to land rights by Nigerians on an equal legal basis
- The issue of fragmentation of rural lands arising from either the application of traditional principles of inheritance and/or population growth and the consequent pressure on land.

The Land Use Act approaches these issues through three related strategies:

- The vesting of proprietary rights in land in the State
- The granting of beneficiary rights by the government to individuals, and
- The use of an administrative system rather than market forces in the allocation of rights in land

The noble intentions of the Act notwithstanding, the provisions of the Land Use Act have negatively impacted on the Nigerian mortgage lending environment (MBAN, 2009), through the absence of clear property rights, the requirement to obtain Governor’s consent for each transaction on land, inefficient land management systems, and the high cost of property transactions.

The World Bank scores Nigeria poorly on property rights and land registration arrangements, ranking Nigeria 173 out of 178 countries in the property registration procedure assessment; registration of a landed property in Nigeria requires 14 procedures, and costs about one fifth of the property value. Under the present conditions, land and landed property in Nigeria remains a dead asset.

The negative impact of a lack of clear property rights, as implied in the Land Use Act, on mortgage banking efficiency has been expatiated on in the literature. Rao (2003) highlighted the characteristics of strong property rights to include exclusivity, transferability, divisibility, well-defined boundaries of rights, and enforceability. Akinwunmi (2009) posits that when property rights are not clearly defined, there will be high mortgage transaction costs because the risk associated with an asset such as housing or real estate increases, which often results in allocative inefficiency. This translates into the fact that strong property rights result in lower risk, which allows for increased efficiency.

To enhance the efficiency of the mortgage banking sector in Nigeria, it is important and necessary that the government amends and reviews the Land Use Act in line with the recommendations made by the MBAN (2009). This review will facilitate improvement in the performance of the sector to enhance a long-term flow of funds to the mortgage sector.

This amendment can act as a platform to help drive efficiency, which can in turn lead to the development of effective primary and secondary mortgage market products, which will consequently attract long-term funds.

### **2.2.6 Theoretical positioning**

The concept of efficiency has been given different definitions in the literature. Mester (2003) defined efficiency in terms of the parameters defined to assess how productive a firm is with the use of quantity of inputs, choice of proportions of input and the scale of operations employed in the transformation of input to output in any production process. Farrell (1957) also defined efficiency as how much a firm or industry can increase its output without necessarily absorbing new resources. Berger and Humphrey (1997) defined efficiency as the measures a firm or industry employs to minimize cost and maximize profit or production, considering its size. A unifying theme among these definitions is that efficiency generally relates to how well a firm, economy or any decision-making entity allocates and optimizes scarce resources to meet the needs of consumers.

Farrell (1957), one of the pioneers in efficiency estimation studies, distinguished three types of efficiency: technical, price or allocative, and economic, which is the combination of the first two. Technical efficiency (TE) is the ability of a firm to obtain maximum output from a given set of inputs, whereas allocative efficiency is the ability of a firm to use the inputs in the right proportions, given their respective prices (Battese and Coelli, 1995; Coelli et al., 2005). This project considers only technical efficiency.

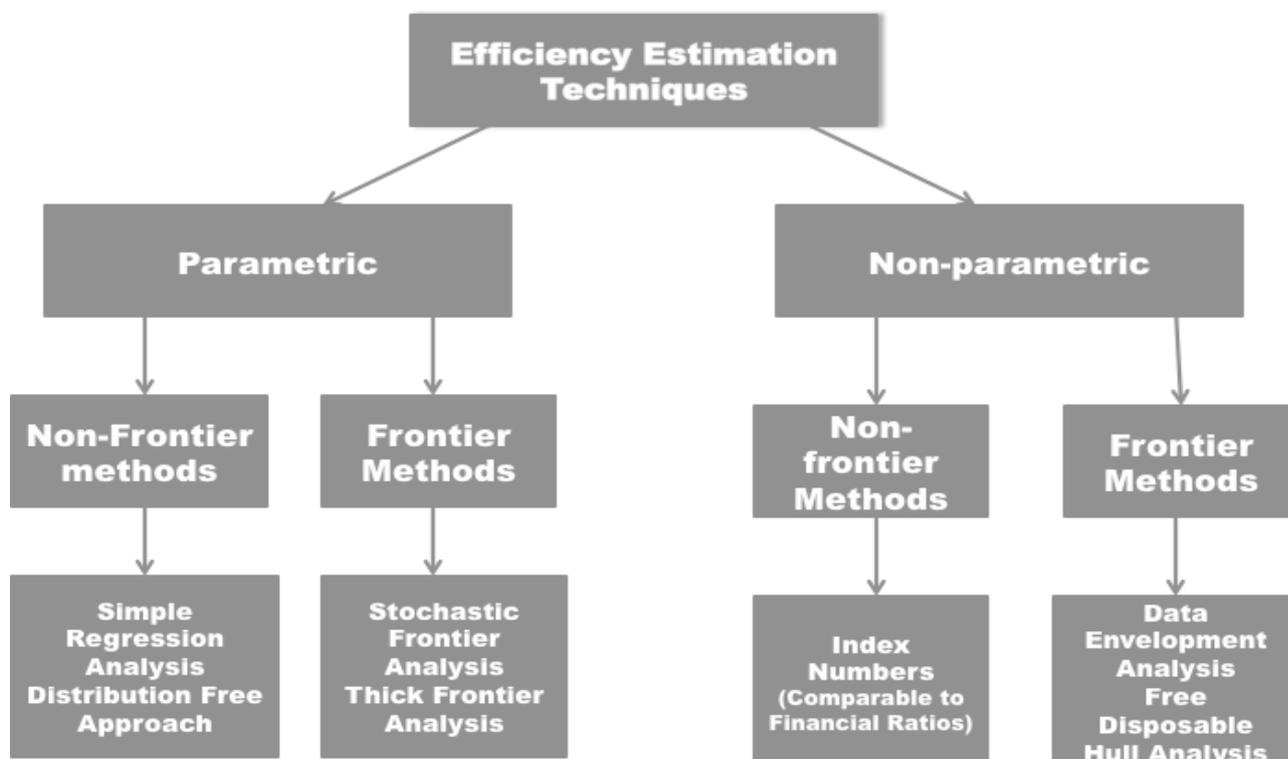
According to Farrell (1957) and Coelli et al. (2005), technical efficiency is defined in relation to a given set of firms, with respect to a particular set of factors measured in a specific way, and any change in these specifications will affect the efficiency measure obtained. Technical efficiency is also referred to as managerial efficiency (Reda and Isik (2006), and it is comprised of two mutually exclusive and exhaustive components: pure technical efficiency and scale efficiency. Pure technical efficiency is managerial efficiency estimated without any consideration of the sizes of firms involved. When the scale (size) issues are factored out, technical efficiency and pure technical efficiency scores are the same, as the difference between them refers to scale inefficiency. Thus, pure technical efficiency refers to the proportional reduction in input usage that can be obtained if a bank operates on the efficient frontier. Scale inefficiency is also considered to be a form of managerial inefficiency because it reflects the choice of an inefficient operational size by management, and thus, total managerial inefficiency includes both pure technical inefficiency and scale inefficiency.

## 2.2.7 Efficiency estimation techniques

There are three approaches to estimating performance and efficiency across firms: the classical financial ratio (accounting) approach, the parametric approach (or, more precisely, the statistical approach), and the non-parametric approach (Hossan and Habib, 2010; Kosmidou and Zopounidis, 2008; Mortimer, 2002; Sarafidis, 2002; Wozniowska, 2008). The main difference between these approaches is that the parametric approaches specify a particular functional form for the production or cost function it seeks to estimate, while the non-parametric and accounting approaches do not. In fact, the degree of limitation on the production or cost function due to the parameter of the technique is considered to be responsible for the different advantages and disadvantages that each approach has.

The parametric approach relies on econometric techniques and includes Simple Regression Analysis, Stochastic Frontier Analysis (SFA), Thick Frontier Analysis (TFA), Distribution Free Approach (DFA), (Berger, 1993), and Free Disposable Hull Analysis (FDH), (Afonso, Schuknecht and Tanzi, 2003; Mester, 2003). The non-parametric approaches use mathematical programming techniques, and the main non-parametric frontier analysis technique, known as Data Envelopment Analysis (DEA), can be seen as an extension of the simple technique of index numbers (Coelli et al., 2005). The estimation of efficiency with financial ratios is comparable to index number techniques (Sarafidis, 2002).

Figure 2.3: Taxonomy of efficiency estimation techniques.



## 2.2.8 Financial ratios

The financial ratio is a widely used tool for performance measurement and efficiency analysis. It is defined as the systematic use of ratios to interpret the financial statements so that the strengths and weaknesses of a firm as well as its historical performance and current financial condition can be determined. The term 'ratio' refers to the numeric or quantitative relationship between two accounting variables.

The classical financial ratio technique has always been regarded as a critical tool for analysis and decision-making, (Daley and Matthews, 2009; Sobodu and Akiode, 1998). It has also been used as a technique for measuring bank efficiency in empirical analysis (Hossan and Habib, 2010; Kosmidou and Zopounidis, 2008; Said and Tumin, 2011). Although ratios report mostly on past performances, they can also be predictive, and provide lead indications of potential problem areas. Ratio analysis is primarily used to compare a company's financial figures over a period of time, a method sometimes called trend analysis. Through trend analysis, trends, good and bad can be identified and business practices adjusted accordingly. It is also possible to see how your ratios stack up against those of other businesses, both within and outside your industry.

However, the use of financial ratios to measure firms' performance is criticized for the following reasons:

- They are subject to the limitations of accounting methods. Different accounting choices may result in significantly different ratio values for the same variable.
- They are usually calculated from year-end values provided in the financial statement. However, year-end values may not be representative since certain account balances may change at the end of the accounting period because of seasonal factors. Such changes may distort the values of the ratios.
- Again, while ratios are useful and give some indication of the level and changes in performance over time, they represent a final outcome and do not allow for identification of the sources of inefficiency, and areas where improvements are necessary.
- As measures of performance, ratios are not particularly accurate. For one thing, some of the values (for instance, asset value) provided in the financial statement are (for various reasons) not entirely reflective of the financial situation of a firm.

Within the banking industry, cost efficiency is often measured by using a cost to income ratio (Isik and Hassan, 2002). The current international benchmark for this ratio is 0.6 (Falkena et al., 2004), indicating that banks with a higher value are inefficient. For profitability, the measurements that are used include return on assets (ROA), return on equity (ROE), capital asset ratio, liquidity ratios, and ratios measuring credit risk (Maudos et al., 2002; Yeh, 1996).

Whilst these ratios are widely used to measure performance and efficiency, they have certain limitations. As highlighted by Falkena et al. (2004), "whilst the cost to income ratio may prove a rule of thumb by which to measure efficiency, it does not allow for analysis of

market dominance and the ability of a dominant firm to grow its income as expenses climb”.

Yeh (1996) highlighted the disadvantages of financial ratios as being firstly that they are only meaningful when used with a suitable benchmark, which may be difficult to establish. Secondly, each performance measure is calculated using only a subset of data available to a firm. The problem with partial measures is that a bank may perform well using one measure but badly when using another. There is therefore a need for a more flexible way of expressing a bank’s financial position (Yeh, 1996). This would be a measure that incorporates the bank’s entire input and output data that is available, and the econometric approach attempts to do this.

### 2.2.9 Data envelopment analysis

DEA is often used as a quantitative technique to measure the relative efficiency (or productivity) of organizations in the same industry. It is typically the preferred measure of relative efficiency for complex organizations in complex environments because it readily lends itself to the analysis of multiple output organizations, especially where binding constraints affect the behaviour of the organizations in question. DEA combines all the input and output information on the firm into a single measure of productive efficiency that lies between zero (i.e. a completely inefficient firm) and unity (i.e. a completely efficient firm). DEA is thus an application of linear programming that can be used to measure the relative efficiency of organizations with the same goals and objectives.

Let us assume we have K decision-making units (DMUs) using N inputs to produce M outputs. Inputs are denoted by  $x_{jk}$  ( $j = 1, \dots, N$ ) and the outputs are represented by  $y_{ik}$  ( $i = 1, \dots, M$ ) for each DMU. The efficiency of the DMUs can be measured, according to (Farrell, 1957 and Coelli et al., 2005) as:

$$TE_k = \frac{\sum_{i=1}^m u_i y_{ik}}{\sum_{j=1}^n v_j x_{jk}}$$

Where:

$y_{ik}$  = the quantity of the  $i$ th output produced by the  $k$ th DMU,

$x_{jk}$  = the quantity of the  $j$ th input used by the  $k$ th DMU

$u_i$  = the vector of output weights

$v_j$  = the vector of the input weights

The DMU maximizes the efficiency ratio,  $TE_k$ , subject to:

$$\sum_{i=1}^m u_i y_{ik} / \sum_{j=1}^n v_j x_{jk} \leq 1$$

Where

$$u_i \text{ and } v_j \geq 0$$

This constraint implies that efficiency measures of a bank cannot exceed one and that the input and output weights are positive. The weights are selected in such a way that the firm maximizes its own efficiency.

Two main approaches, (input-orientated or output-orientated) based on whether the measure adopts an input conserving or output expanding strategy, are used to select optimal weights (Banker and Thrall, 1992; Coelli, 1996; Coelli et al., 2005; Quayyum and Ahmed, 2007).

To select minimal weights, the input-orientated approach, specified by the following linear programming (Coelli et al., 2005) is used:

Min  $TE_k$ ,

Subject to:

$$\sum_{i=1}^m u_i y_{ik} - y_{iF} + w \geq 0$$

$$u_i x_{jk} - \sum_{j=1}^n u_j x_{jk} \geq 0 \quad \forall \text{ firm } k$$

$$u_i \text{ and } v_j \geq 0$$

To obtain optimal weights, the output-orientated approach, specified by the following linear programme, is used.

Max  $TE_k$ ,

Subject to:

$$\sum_{i=1}^m u_i y_{ik} - x_{jF} + w \leq 0$$

$$v_j x_{jk} - \sum_{j=1}^n u_j x_{jk} \geq 0 \quad \forall \text{ firm } K$$

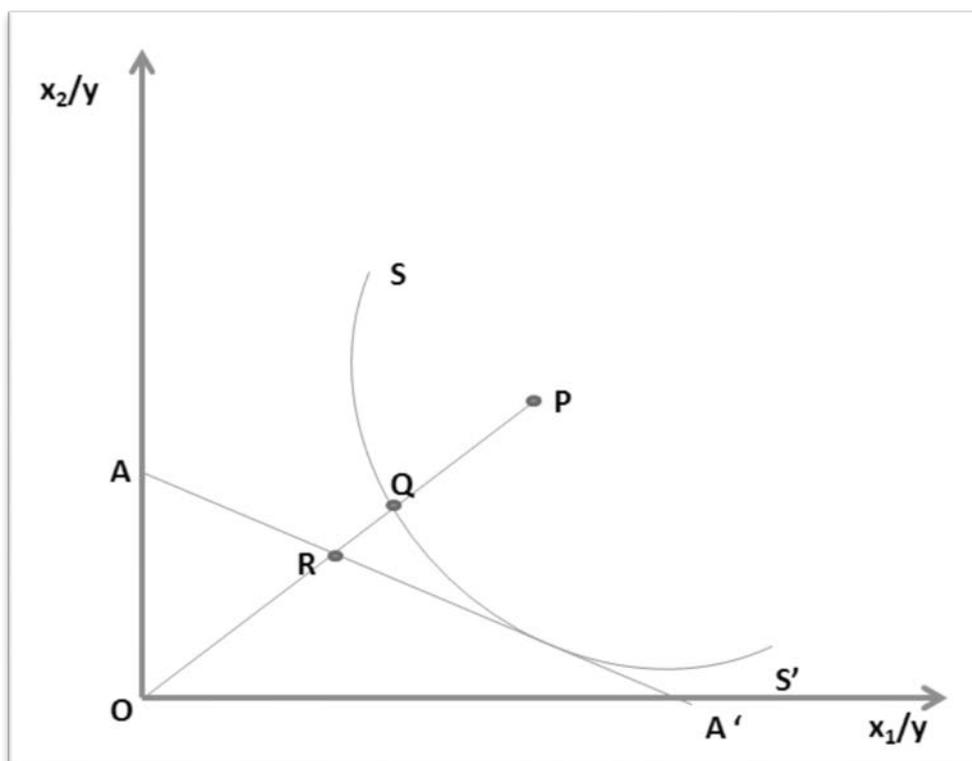
$$u_i \text{ and } v_j \geq 0$$

The two linear programming models specified above are the basis for the Constant Returns to Scale (CRS) and Variable Returns to Scale (VRS) technology in DEA. If the ' $w$ ' component in the linear programming models above is equal to zero, the CRS technology is defined, but where it takes any other value apart from zero, the VRS is defined.

### Input-orientated approach

The input-orientated TE approach is concerned with how much contraction in inputs is possible in order to produce a given level of output. Mathematically, TE is the ratio of the minimum feasible inputs to actual inputs required to produce the actual level of outputs. Input-orientated efficiency measures are illustrated graphically in Figure 2.4, where a hypothetical case of two inputs,  $X_1$  and  $X_2$ , is being used to produce a single output  $Y$ , under the assumption of constant returns to scale.

Figure 2.4: Input orientated technical and allocative efficiencies



Source: A Guide to DEAP, Version 2.1: A Data Envelopment Analysis (Computer) Program

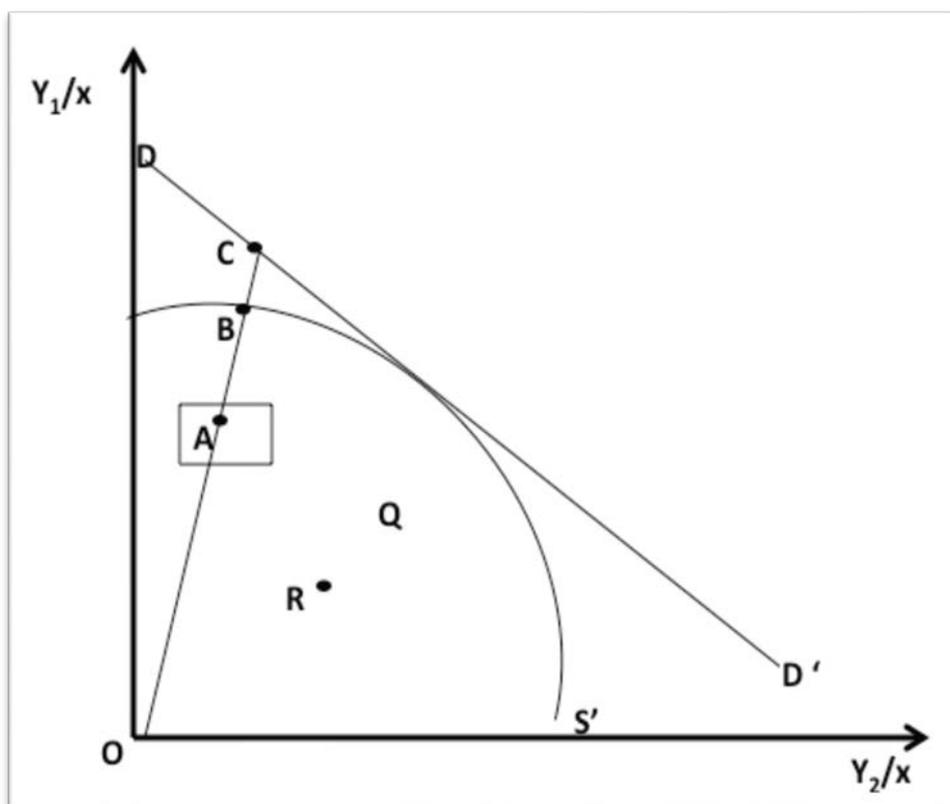
Assume curve  $SS'$  represents an efficiency frontier of a fully efficient firm. If a firm is using quantities of inputs defined by Point  $P$  to produce a unit of output, then the TE of that firm is represented by the distance  $QP$ , given by the ratio  $OQ/OP$ , which is also equal to one minus  $QP/OP$ . This ratio indicates the proportional reduction in inputs to maintain the same quantity of output (lies along the frontier). If  $AA'$  represents the input price ratio, then allocative efficiency is given by the ratio  $OR/OQ$ . The ratio represents the potential

reduction in cost if production were at Point Q, which is allocatively and technically efficient. Economic efficiency is obtained by multiplying the technical and allocative efficiency, or the ratio  $OR/OP$ .

### Output-orientated approach

The output-orientated approach to efficiency measurement is concerned with expanding the outputs, for a given level of inputs and production technology. The graphical definitions of efficiency components, based on an output-orientated approach, are illustrated in Figure 2.5.

Figure 2.5: Output-orientated Technical and Allocative Efficiencies



Source: A Guide to DEAP, Version 2.1: A Data Envelopment Analysis (Computer) Program

Assume production involves two outputs  $Y_1$  and  $Y_2$ , and a single input  $X$ . Take a point (A), which is operating below the production frontier. The distance AB represents output-orientated technical inefficiency, which is the amount by which output could be expanded without adding extra input (Battese, 1992). Output-orientated TE is given by  $OA/OB$ , which indicates the deviation from the frontier.  $DD'$  depicts the iso-revenue line, which is the different combination of quantities of outputs for a given amount of revenue. Then, for Point A, distance BC represents allocative inefficiency, which is the amount by which output could be increased if the firm at A was on the frontier at Point D. Thus, the output-orientated allocative efficiency equals  $OB/OC$ . Output-orientated economic efficiency (also called revenue efficiency) is measured in terms of deviation from the iso-revenue line,

which is obtained by multiplying technical and allocative efficiency or the ratio of **OA** to **OC**.

There is no clear theoretical distinction between the two efficiency measures. However, selection of a particular efficiency estimation approach depends on the nature of inputs and outputs. Output-orientated measures of efficiency are appropriate if a firm has limited control over inputs. On the other hand, input-orientated measures of efficiency are suitable when the firm has limited control over output (Coelli et al., 2005).

Coelli et al. (2005) further argue that the input-oriented approach of efficiency is not applicable if input prices are not available. They also argue that the output-orientated approach may not be appropriate if the aggregating weights are either unavailable or inappropriate. Aggregating weights are used to change multiple outputs into a single output. For example, price can be used as a weight to aggregate outputs.

Although the existing nature of inputs and outputs determines the choice between the two efficiency measures, an empirical study of financial reforms and bank efficiency carried out by Quayyum and Ahmed (2007), has reported that there are no serious differences on the efficiency results due to the different approaches. The correlation coefficient between efficiency estimated using the two approaches is positive and significant. However the returns to scale of a company could introduce slight differences in the efficiency result.

### **2.2.10 Stochastic frontier analysis**

Stochastic Frontier Analysis (SFA) uses available data on a firm level to estimate the cost or production function frontier against which other firms within the sample are compared. The difference in the efficiency level of other firms and the efficient firm(s) is used as a measure of inefficiency of those other firms.

The stochastic frontier model can be written as follows:

$$c_i = f(y_i\beta) + w_i$$

and

$$w_i = v_i + u_i$$

Where:

$f(y_i\beta)$  = the cost/production frontier

$w_i$  = the total observed residual

$v_i$  = the statistical noise (or error in measurement)

$u_i$  = the inefficiency term.

Since statistical noise can go in either direction,  $v_i$  has a mean value at zero, while  $u_i$  takes only non-negative values.

Estimation of the stochastic frontier model is usually implemented in two steps. In the first step, a particular functional form for the relationship between cost and outputs and a functional form for the probability distribution of the efficiency term are assumed. To obtain estimates for the frontier, we estimate the slope parameters ( $\beta$ ). For firms that lie above the frontier, the gap between each observation and the frontier is only partially attributed to inefficiency. The remainder of the gap is viewed as an error in the measurement of the performance of each firm. For observations that lie below the frontier, the noise residual ( $v$ ) is larger than the gap between the observation and the frontier in order to allow for some inefficiency. This implies that normally none of the firms will appear to be 100% efficient.

In the second step, the actual cost is subtracted from the predicted cost (i.e.  $c_i - f(y_i\beta)$ ) and the remaining residual ( $w$ ) decomposed into a data error component ( $v$ ) and an inefficiency component ( $u$ ) for each firm.

SFA recognizes the presence of errors and aims in principle to separate these error components from the measures of inefficiency. In practice, this effort is not always successful as, typically, the estimated inefficiency component represents a small fraction of the overall residual variation. This practical nuance may cause many problems in the analysis. For example, it can make SFA vulnerable to outliers, i.e. to observations that lie well above or below the main cluster of points. The presence of outliers (i.e. the presence of a large residual variation) in the sample can cause the stochastic frontier model to perceive that there is too much noise in the data and therefore may find little or no inefficiency in the sample, even in cases where there is some. As a result, all companies may appear to be almost 100% efficient. This way, the main attraction of SFA, i.e. decomposing the residual into noise and inefficiency, turns out to be its major disadvantage.

The SFA assumes that inefficiency follows an asymmetric half-normal distribution, while random fluctuations follow a symmetric normal distribution. The efficiency results depend critically on the skewness of the data – any inefficiency components that are more or less symmetrically distributed will tend to be measured as random error and any random error components that are more or less asymmetrically distributed will tend to be measured as inefficiency.

The SFA results also depend on the arbitrary assumption that the efficiencies are orthogonal to the cost function exogenous variables, including those used to compute scale efficiency. According to the conventional scale economies literature, if efficient firms tend to compete well and become large, the SFA may falsely attribute efficiency to scale efficiency. The major reason for this is that the coefficients on the output regressors pick up the correlation with the efficiency factors, which are in the composite error term.

SFA has the advantage, compared to non-parametric techniques such as DEA (discussed earlier), that it can provide some statistical inference as to the functional form of the frontier and the significance of individual explanatory factors upon the shape of the frontier.

Finally, SFA is also subject to theoretical objections. In particular, the stochastic frontier model is an attempt to describe the true world within a sample of comparators by recognizing the presence of both statistical errors and inefficiency in the data. To cope with this, it makes an assumption as to the functional form of the inefficiency effect. The most commonly used distributions are the half-normal and the exponential distribution. These distributions implicitly assume that there are large numbers of relatively efficient firms and only a few firms in the industry are relatively inefficient. In this way the shape of the frontier is almost equally affected by all data observations.

In practice, however, most of the firms might be relatively inefficient. In this case, both distributions would be inappropriate, as they would attribute equal importance to efficient and inefficient companies in shaping the frontier. This has led to the development of more general, but also more complicated, distributions such as the truncated-normal and the gamma distributions, for which the algebraic analysis is more complex but still practicable.

The literature on financial institution efficiency is comparatively recent but nevertheless growing apace. In a comprehensive review of 130 studies on bank efficiency across 21 countries, Berger and Humphrey (1997) showed that 116 scholarly papers on the use of different efficiency estimation techniques were published between 1992 and 1996 alone. Nonetheless, despite the volume of research in this area, there is still no consensus on the best method for measuring efficiency in financial institutions due to the multifaceted dimension of the operations of financial institutions, the dynamic exogenous factors that affect the industry and the varying regulatory policies that are imposed in different countries.

### **2.2.11 Variable selection for efficiency estimation**

For an accurate estimation of efficiency, the selection of appropriate input and output variables is important (Coelli et al., 2005). There are three approaches to defining variables in financial institutions efficiency estimation, (Mester, 2003; Quayyum and Ahmed, 2007; Wozniowska, 2008):

- Production Approach
- Intermediation Approach
- Asset Approach

#### **Production Approach**

This approach is also called the value added or operations approach. This views financial institutions as producers of deposit and loan accounts using human and physical resources. As such, it defines output in terms of the number/type/value of loans or deposits, accounts or transactions a firm has and it defines inputs in terms of the number of employees and capital expenditures on fixed assets. Total costs include all operating costs incurred in the production of outputs. The principal criticism of the production approach is its exclusion of interest costs since these are a major expense for any bank.

## **Intermediation approach**

The intermediation approach views financial institutions as intermediators that transform the funds collected from depositors into loans lent to borrowers. This approach enables the financial institution to be perceived as a manufacturing unit that converts deposits (inputs) into loans (output). Operating costs and interest costs are usually the major inputs, whereas interest on loans (interest income), total loans, total deposits, and non-interest income form the principal outputs. According to Ncube (2009), this approach seems more appropriate when the sample contains large financial institutions that fund a larger portion of their assets from non-deposit sources. Berger and Humphrey (1997) suggest that this approach is better for estimating industry level efficiency while the production approach is suited for estimating firm level efficiency. Another point raised in favour of this approach is its adaptability of variables to fit as input or output, based on the underlying assumption of the approach. Categories of deposits, loans, financial investments, and financial borrowings may be assigned to either inputs or outputs by discretion, on the basis of *a priori* reasoning alone.

## **Asset approach**

The asset approach recognizes the primary role of financial institutions as intermediaries in the creation of loans. In essence, this stream of thought is a variant of the intermediation approach, but instead defines outputs as the stock of loan and investment assets rather than interest and non-interest income. Arguments for and against the intermediation approach hold true for the asset approach also.

For this project, the input variables were selected on the intermediation premises and four models were developed from these variables for the analysis of data. The first model uses loan value as the output measure. The second model uses interest rate margin as the output measure; interest rate margin is the difference between the interest a bank pays on deposits and the interest it charges on loans. The third model uses origination fee as the output measure and the fourth model combines all three output variables.

### **2.2.12 Empirical studies on efficiency measures**

Mortgage banks are operating in an increasingly competitive environment (Isik and Hassan, 2002; Mester, 1996), and the long-term viability of their existence depends to a large extent on how efficiently they are being run. In fact, some earlier studies (Berger and Mester, 1997; Hunter and Timme, 1995) demonstrated that, particularly in the banking sector, efficiency is more important than scale and scope issues.

Consequently, firms have been trying to adapt and adjust themselves to improve their productive efficiencies in this changing and highly competitive environment (Harker and Zenios, 2000). Whilst the issue of efficiency has always been relevant, global trends such as increasing competition for financial services, deregulation, technological innovations, and banking consolidation have brought more attention to providing products and services more efficiently.

### **2.2.13 Efficiency studies in developed economies**

The bulk of empirical efficiency studies undertaken on developed countries focus on the effect of consolidation, size, ownership and corporate governance on efficiency, although studies that investigated corporate governance are not as common as those that investigated the other three factors.

Berger and Mester (1997) estimated the efficiency of about 6000 banks in the United States over a period of six years (1990-1995) with a focus on the effect of size, organizational form and corporate governance on efficiency. Their results reveal that banks that have been involved in at least one merger within the period considered appear to be more efficient than those that have not. They also found out that with regard to organizational form, banks in holding companies have higher efficiency than independent banks. With regard to bank size, the result of their analysis suggests that as banks grow larger, their cost efficiency tends to increase while technical efficiency tends to decrease. Another interesting result of their study is that the choice of efficiency estimation technique usually makes very little difference on the average industry efficiency or the efficiency rank of individual firms.

### **2.2.14 Comparative efficiency studies**

Bank efficiency studies are fairly abundant in the literature but only a few investigate the mortgage banking sector, and those who apply two or more techniques to an identical data set are few and far between. Studies that compare parametric and non-parametric techniques are Ferrier and Lovell (1990), Sheldon (1994), Resti (1997), Bauer et al. (1998), Casu, Girardone and Molyneux (2002), Weill (2004) and Becalli et al. (2006). Sobodu and Akiode (1998) and Wozniowska (2008), compared financial ratios performance and efficiency measurement technique with non-parametric techniques. Quayyum and Ahmed (2007) compared the two technologies (CRS and VRS) of the DEA technique. Below is a brief examination of some of the evidence provided by these comparisons.

An early study that compares alternative frontier techniques is that of Ferrier and Lovell (1990). They analyzed the cost structure of 575 US banks for the year 1984 using both the SFA and DEA methodologies. They find higher efficiency scores with DEA compared to SFA, namely 80% and 74%, respectively. They conclude that DEA is sufficiently flexible to envelop the data more closely than the translog cost frontier. However, efficiency scores were not significantly correlated, thus indicating that other factors not controlled for may drive the derived wedge between the two measures.

Sheldon (1994) provides the European evidence. He analyzed the cost efficiency of Swiss banks with SFA and DEA in the period from 1987 to 1991. While his results from DEA indicate that the average degree of cost efficiency is about 56%, SFA yields only 3.9% mean efficiency. This substantial deviation from the usually obtained magnitudes of around 80% obtained for US and European studies casts some doubt as to an appropriate specification of the cost function (Amel et al., 2004). Likewise, he reports insignificant

rank-order correlation of 1%, indicating that no relationship exists between the two groups of efficiency scores.

Resti (1997) analyzed the cost efficiency of 270 Italian banks over the period 1988-1992. He compares the parametric and non-parametric efficiency scores and finds that econometric and linear programming results do not differ substantially. Moreover, contrary to Ferrier and Lovell (1990) and Sheldon (1994), he reports higher efficiency scores between 81% and 92% for SFA as opposed to DEA scores between 60% and 78%. Rank correlation between SFA and DEA is statistically significant at the 1% level and ranges from 44% to 58%. The rank ordering of firm specific inefficiency is strongly correlated over time, although it is more persistent with DEA than with SFA.

The Bauer et al. (1998) study is one of the most significant, given the application of four approaches, i.e. SFA, DEA, Thick Frontier Analysis (TFA) and Distribution Free Analysis (DFA) on a data set of 683 US banks over the period 1977-1988. They suggest six consistency conditions to analyze the robustness of frontier efficiency measures. They compare the efficiency distributions, the rank order correlation of the efficiency distributions, the correspondence of best-practice and worst-practice banks across techniques, the stability of measured efficiency over time, the consistency of efficiency with market competitive conditions, and the consistency with standard non-frontier performance measures. For each approach they calculate a measure of single year efficiency and a measure of total years' efficiency based on one set of banks over the entire time period. Mean efficiency of parametric techniques averages 83% while mean efficiency for the non-parametric approaches is only around 30%. Non-parametric and parametric techniques give only very weak consistency ranking with each other: rank-order correlation is 10%. All the methods are stable over time, although DEA generally shows slightly better stability than the parametric methods. On the other hand, the parametric efficiency scores are generally consistent with the standard performance measures, while DEA efficiency scores are much less so. In summation, Bauer et al. (1998) concluded that there is no single correct approach to specify an efficient frontier. Instead, both measures seem to react, in varying degrees, to the particularities of the data. Thus, reporting methodological crosschecks are important to ensure that policy makers are aware of the different information contained in efficiency measures derived from using alternative methods.

Sobodu and Akiode (1998), in an attempt to investigate the effect of gradual deregulation on the efficiency of banks in the Nigerian banking industry, employed both the financial ratio and the non-parametric data envelopment estimation technique to measure the efficiency of banks before and after the Structural Adjustment Program (SAP). They compared the financial ratio measure of performance and efficiency with the DEA technical efficiency using Spearman's rank correlation. The results reveal a negative correlation between the two measures, as well as the fact that DEA technical efficiency scores showed a higher average efficiency than the financial ratios. They concluded that the financial ratio measure of performance and efficiency is too simplistic and lacks sufficient robustness to capture the complex and dynamic relationship that characterizes input and output variables in the banking industry.

## **2. 2.15      Impact of efficiency on mortgage markets**

Tiwari and Moriizumi (2003) stated that if markets are efficient, funds will flow to those activities with highest after-tax, risk-adjusted returns. Lea (1994) revealed that the significant increase in the efficiency with which UK and USA mortgage markets deliver credit to homebuyers, has led to a decline in the relative cost of mortgage credit and an improvement in funds availability.

With the emergence of a secondary mortgage market and its attendant long-term funding sources, including FDIs, pool of contributory trust funds (specialized housing/shelter funds), pension funds, bank deposits and government intervention funds, as well as its long-term funding products such as securitization, mortgage-backed securities (MBSs), bonds, real estate investment trusts (REITs), liquidity facilities, etc., the efficiency of the mortgage loan origination process needs to be improved in order to keep up with the pace of development and capital inflow into the mortgage sector, and not to create a bottleneck in the provision of the housing and funds flow process.

## 2.3. Methodology

### 2.3.1 Overview

Previous sections of this project have established the problem this project is set to investigate, i.e. estimation of the efficiency of Nigerian mortgage banks to find out how improved performance of firms within the sector could enhance access to long-term funds for the development of the sector and improved provision of housing loans to the category of people who need it. Previous projects that investigated efficiency in the banking sector were reviewed to provide a theoretical basis for this research. This section will outline the process of efficiency estimation.

This project is aimed at investigating both the technical and cost efficiency of banks in the Nigerian mortgage banking sector. To achieve this objective, the efficiency of selected banks in the sector will be estimated using two empirical techniques; DEA and SFA. However, prior to the efficiency estimation, a range of financial ratios will be used to assess the performance of the sector, to provide a general overview of the performance of banks in the sector.

The estimation techniques employed in this project are Data Envelopment Analysis (DEA), and Stochastic Frontier Analysis (SFA), using a Stochastic Cost Frontier (SCF). DEA is a non-parametric approach to efficiency estimation while SFA is a parametric one. Parametric and non-parametric approaches differ in the sense that the former make certain assumptions regarding the frontier they construct and the existence of random errors, while the latter do not rely on any underlying assumptions.

DEA involves using linear programming methods to find an optimal input and output value for the firms in the sample, based on the actual input and output values provided. The optimal values form the envelopment surface or frontier. Firms that lie on this surface or frontier are deemed as efficient and are assigned an efficiency score of one. Firms that are below the surface or frontier are considered inefficient and are assigned efficiency scores less than one in proportion to their distance from the frontier. In DEA, the frontier is constructed such that no firm can be above the frontier for technical efficiency estimation and no firm can be below the frontier for cost efficiency estimation. DEA can be used to estimate either technical or scale efficiency, which are efficiencies in production, cost and allocative efficiency, as well as total productivity change within an industry in a given period.

DEA has proved to be a popular technique for performance analysis in general, and in the banking sector in particular. In this regard, the banking sector has a series of characteristics that make it particularly suitable for study through DEA: its multiple-input and multiple-output nature, the non-linearity of its input-output relationships, the non-physical nature of some resources and products, and the impossibility of drawing on market price mechanisms for some of them.

SFA on the other hand uses statistical methods to construct a frontier. It assumes two functional forms: one for the relationship between either cost or production and outputs,

and a second one for the probability distribution of the error term. Where the functional form is between cost and output, the frontier is termed Stochastic Cost Frontier (SCF) and where it is between production and output, it is a production frontier. The cost frontier estimates cost efficiency while the production frontier estimates technical efficiency. This study uses SCF. The frontier is constructed based on the slope parameters of the functional form for the relationship between either cost or production and outputs. In SFA, firms can be either above or below the frontier. All deviations from the frontier are attributed partially to inefficiency and partially to measurement error (noise). For firms above the frontier, deviations attributed to inefficiency are higher than measurement error and for firms below the frontier, measurement error is assumed to be higher than inefficiency.

Both DEA and SFA have their unique strengths and weaknesses as efficiency estimation techniques. The main advantage of DEA is that it does not rely on any underlying assumption or functional form and it can handle multiple inputs. However, its main disadvantage is that it does not recognize the existence of random errors; it assumes that all deviation from the frontier is a result of inefficiency of the firms. Apart from this, its frontier is sensitive to outliers and extraneous variables. A major advantage of SFA is that it allows for random error in the estimation of efficiency; however, it cannot accommodate multiple inputs, and the assumptions of functional forms and probability distributions makes its application tedious.

Yearly efficiency estimates will be obtained with the two estimation techniques identified. At the firm level, the results of each technique will be discussed with emphasis on the efficiencies of individual firms, the relationship (if any) that exists between the different estimation techniques, and the variable combinations that gave the most meaningful results, which reflect the present state of the sector. Year-by-year (cross-sectional) results of each technique will be discussed separately, a pooled (panel) analysis of the data will also be done and a summary of the analysis highlighting the best practice firms and overall performance will be presented.

The efficiency estimates will be discussed based on two parameters – size and ownership. Splitting the discussion into these two parameters relates directly to the second objective of this paper as stated in section 1.4.

A t-test will be used to determine if there exists any statistically significant difference(s) in the efficiency scores throughout the period. The trend of efficiency within the sector will also be investigated at the industry level.

### 2.3.2 Key steps

The key steps undertaken in this study, and that will be discussed in detail in subsequent pages, include:

- Sample Selection
- Variable selection/Model Specification
- Efficiency Estimation: This is done in three phases:
  - ❖ An overview of the performance of the sector was done with selected Financial Ratios
  - ❖ Estimating efficiency with the DEA technique
  - ❖ Estimating efficiency with the SFA technique
- Investigating the trend of efficiency
- Discussion of results at the firm level and industry level

### 2.3.3 Sample selection and data collection

The sample data used for this analysis are extracted from the financial statements of 27 out of the 86 existing mortgage banks in Nigeria. The sample size is largely informed by the availability of data on the financials of mortgage banks within the period this research covers. Only the banks whose financials were published consistently between 2006 and 2010 were selected for inclusion to ensure consistent data and a uniform sample. However, the 27 firms reviewed in this study represent almost 90% of the mortgage banking sector in Nigeria based on size.

Financial information of the 27 banks that comprised the sample for this project was carefully extracted from the financials of the banks. Data were extracted on the following: Staff Costs, Overheads, Fixed Asset Costs, Depreciation, Rent and Rates, Administrative Expenses, Other Operating Costs, Total Assets, Loan Value, Interest Rate Margin and Origination Fees. (See Appendix 1 - Initial data extracted from Financials of Banks). The descriptive statistics of the extracted data are summarized in Table 2.4.

Table 2.4 Descriptive statistics of sample data

Variables	Mean	Standard Deviation	Skewness	Kurtosis	Minimum	Maximum
Loan Value (N'000,000)	2,888.78	7,323.54	3.79	14.27	9.10	39,081.82
Turn Around Rate (%)	0.54	0.52	2.85	10.95	0.07	3.56
Interest Rate (%)	0.19	0.06	0.59	0.08	0.07	0.38
Staff Costs (N'000,000)	170.06	394.63	4.02	16.63	3.14	2,359.98
Overheads (N'000,000)	425.21	905.32	3.50	11.98	9.89	5,093.40
Fixed Asset Costs (N'000,000)	307.03	649.21	3.13	10.05	2.93	3,869.57
Depreciation (N'000,000)	37.05	84.55	3.90	14.98	0.19	477.64
Rent and Rates (N'000,000)	4.61	5.74	2.59	7.43	0.11	32.34
Administrative Expenses (N'000,000)	365.49	799.09	3.63	12.90	8.44	4,458.18
Other Operating Costs (N'000,000)	179.18	755.64	5.69	35.95	-	6,082.54
Cost of Funds (N'000,000)	336.21	916.09	4.06	17.23	0.01	5,689.08
MDC (N'000,000)	235.53	811.85	4.87	22.89	-	4,864.69
Total Assets (N'000,000)	7,550.62	17,190.85	3.28	9.80	45.97	85,055.41

The sample was divided into two mutually exclusive groups based on the average total asset of the firms within the period considered. Banks with an average total asset of more than ₦5 billion are categorized as large banks and those with an average total asset of less than ₦5 billion are categorized as small banks. (See Appendix 2 – List of Banks and their characteristics). This categorization does not agree with global standards where banks with balance sheet sizes of over \$1 billion are categorized as large and those with less than that are categorized as small. However, I have used this grouping because no mortgage bank in Nigeria currently fits into the large category by international standards. This implies that most of the mortgage banks in Nigeria would generally be classified internationally as small. So in an attempt to still capture the variation in sizes of the banks and to investigate the effect of this variation on their efficiency, I have opted to use the following criterion to reflect the peculiarity of the Nigerian mortgage banking sector: the banks classified as ‘small’ form two-thirds (67%) of the sample, while the ‘large’ banks constitute a third (33%) of the sample.

The sample was further categorized into four groups on the basis of ownership. Usually, more than one entity has ownership in a bank, but for the purpose of this categorization, ownership is given to the entity that has the majority shareholding. Four types of ownership were identified. The first category represents banks with state ownership, which is termed government-owned. Another category represents mortgage banks owned by bigger commercial banks. The third category which is termed privately owned mortgage banks is comprised of those banks owned by individuals or private companies, while the last category represents mortgage banks set up by some large churches to meet the housing needs of their members and as an avenue to reach out to non-members of their congregation. (See Appendix 2 – List of Banks and their characteristics). The government, commercial banks and churches own 55.5% (about 18.5% each) of the sample, comprised of five banks each. The largest category of banks in the sample, comprised of 12 banks (and constituting 44.5% of the sample), have private ownership.

### **2.3.4 Variable selection/model specification**

The variables used in the financial ratios, DEA and SFA are summarized below.

#### **2.3.4.1 Financial ratios**

Nine different ratios were examined in this study. Table 2.5 gives a detailed description of the ratios. In calculating these ratios, both average values and end of year figures were used. The choice of value is based on availability of data and where both average and end of year values are available, and the most appropriate value appears unlikely or inconsistent, further enquiries and investigations were made to the particular banks in question for further clarification, and to determine which value is most appropriate to use.

Table 2.5: Description of financial ratios

<b>Financial Ratios</b>	<b>Description</b>
Earning Growth Rate (EGR)	Earning growth rate is the rate of growth of earning from investment. It compares increase in earnings per share to current earnings per share. The greater the value, the more profitable the company.
Return on Investment (ROI)	This is a performance ratio used to evaluate the profitability of an investment. It deals with funds invested in a company and the returns realized on such funds based on the net profit of the company.
Return on Equity (ROE)	This provides a measure of the return on owner's capital. The higher the value, the more profitable the bank.
Net profit Margin (NPM)	It measures how much each unit of money earned by a company is translated into profit. It is an indicator of how efficient a company is and how well it controls its costs. The higher the value of this ratio, the more effective a company is in converting its revenue into profit.
Asset Turnover (AT)	This ratio is a measure of how well a firm is putting its assets to work. Low assets turnover indicates that a firm has too many unproductive assets or that the level of output has yet to reach optimal value compared to the invested assets.
Current Ratio (CR)	This ratio indicates the extent to which current assets, if liquidated would cover current liabilities. It is calculated by dividing current assets by current liabilities. The higher the current ratio, the greater the liquidity.
Total Gearing	Total gearing shows, as a percentage, the proportion of capital available within the company in relation to that owed to sources outside the company. High gearing shows an over reliance on borrowings for a significant proportion of the company's capital requirements.
Loan to Equity Ratio (L/ER)	This is a measure of the extent to which a firm's capital is provided by equity (owners' funds) or loans. A high loan to equity ratio is an indication that a company is being financed by creditors rather than by internal positive cash flow.
Earnings per Share (EPS)	Earnings per share is a ratio obtained by dividing a company's profit by its number of common outstanding shares. EPS is the amount of reported income, on a per-share basis, that a firm has available to pay dividends to common stockholders or to reinvest in itself. It is an indicator of a company's profitability.

### 2.3.4.2 Data envelopment analysis

#### Variable selection

Variables that represent important input and output processes of loan origination and disbursement in the mortgage sector were identified, and the appropriate/relevant ones for this exercise selected. The variables identified are number of staff, staff costs, overheads, fixed assets cost, depreciation, rent and rates, number of branches, administrative expenses, other operating costs, costs of funds, mortgage department costs, total assets, shareholders' funds, loan value, loan types, number of customers, turn around rate (loan approval duration), interest rate margin, and origination fees. The variables were further categorized as input or output. Number of staff, staff costs, overheads, fixed assets cost, depreciation, rent and rates, number of branches, administrative expenses, other operating costs, costs of funds, mortgage department costs, total assets and

shareholders' funds were classified as input variables, while loan value, loan types, number of customers, turn around rate (loan approval duration), interest rate margin, and origination fees were classified as output variables.

One of the main difficulties in the use of DEA to estimate efficiency, particularly in the banking industry, is the selection of appropriate variables. The DEA efficiency measure is extremely sensitive to the choice of input and output variables. This is because the technique depends on comparing a firm's cost/profit/other outcome of interest, with those of a best-performing firm within the sample. So the inclusion of non-related or irrelevant variables in the frontier specification could lead one to mislabel a firm as efficient when in reality, it is not.

To address this peculiarity, ten variables believed to constitute important inputs in the process of mortgage loan origination and three variables believed to provide good measures of mortgage bank output were identified and their values for the five-year period (2006-2010), under consideration were extracted from the financials of selected banks. The variables were further grouped into three, based on the perceived relationship between them. The grouping is itemized below:

**Group 1 (Staff Costs):** Staff Costs

**Group 2 (Capital):** Total Assets, Fixed Assets Cost, Overheads, Depreciation, Rent and Rates. The values of the individual variables in this group were added together to form a new variable named Capital.

**Group 3 (Running Costs):** Administrative Expenses, Other Operating Costs, Cost of Funds, Mortgage Department Costs. The values of individual variables in this group were added together to form a new variable named Running Costs.

Staff Costs and the two new variables – Capital and Running Costs – are used as the three input variables for the analysis. Loan Volume, Interest Rate Margin and Origination fees are used as the three output variables. (See Appendix 3 – Data with Aggregated Variables).

### **Model specification**

A model is defined for each of the output variables – Loan Volume, Interest Rate and Origination fees – paired with the three input variables to investigate their individual effect on efficiency of the firms. A fourth model which combined all the three output variables with the input variables is also defined. The analysis was first done year-by-year for each model with both the CRS and VRS technologies, and then a composite analysis spanning the whole five-year period using the Malmquist technology was also carried out. This arrangement gives a total of four variable sets to be analyzed for each time period, giving a total of 20 cross-sectional analyses and four longitudinal analyses. DEAP Software version 2.1 developed by Tim Coelli was used for the analysis.

### 2.3.4.3 Stochastic frontier analysis

#### Variable selection

For the SCF, a different set of variables from those defined for the DEA analysis was used because the intention here is to estimate a cost frontier. An aggregate variable (Total Costs) comprised of operating costs (not including staff costs) and cost of funds is used as the dependent variable. Other variables in the model are staff costs, which is used as a measure of input price, fixed asset cost, cost of funds and loan value.

#### Model Specification

The model employed for the SCF is the standard translog functional form (Casu et al., 2002; Figueira et al., 2006). The cost equation to be estimated is given as:

$$TC = \alpha + \sum_{i=1}^3 \beta_i \ln(w_i) + \frac{1}{2} \sum_{i=1}^3 \sum_{j=1}^3 \beta_{ij} \ln(w_i) \ln(w_j) + \sum_{n=1}^1 \gamma_n \ln(y_n) + \frac{1}{2} \sum_{n=1}^1 \ln(y_i) + \sum_{i=1}^3 \sum_{n=1}^1 \rho_{in} \ln(w_i) \cdot \ln(y_n) + \ln v + \ln u$$

The variables used in this model are Total Cost ( $TC$ ), Staff Cost ( $w_1$ ), Fixed Asset Cost ( $w_2$ ), Cost of Funds ( $w_3$ ) and loan value ( $y$ ).

Table 2.6: Summary of model specifications

Technique	Model	Dependent Variable	Independent Variable
Stochastic Frontier Analysis (SFA)		Total Cost	Staff Costs, Fixed Asset Costs, Cost of Funds and Loan Value
		<b>Output</b>	<b>Input</b>
Data Envelopment Analysis (DEA)	Model 1	Loan Value	Staff Costs, Capital and Running Costs
	Model 2	Interest Rate Margin	Staff Costs, Capital and Running Costs
	Model 3	Origination Fees	Staff Costs, Capital and Running Costs
	Model 4	Loan Value, Interest Rate Margin, Origination Fee	Staff Costs, Capital and Running Costs

## 2.4 Results and discussion

### 2.4.1 Financial ratios

Table 2.7 Mean values of financial ratios

Financial Ratio	2006	2007	2008	2009	2010	Mean	CV
Earning Growth Rate	0.42	0.81	0.66	0.14	0.27	0.46	58.70
Return on Investment	-0.05	-0.01	0.01	-0.06	-0.02	-0.03	(66.67)
Return on Equity	0.1	0.58	-0.03	1.06	-0.2	0.3	170.00
Net Profit Margin	-0.29	-0.19	0.05	-0.75	-0.16	-0.27	(111.11)
Asset to Earning Rate	9	8.67	7.84	9.58	9.32	8.88	7.43
Asset Turnover	1.05	0.7	-0.11	1.58	-1.1	0.42	247.62
Current Ratio	1.56	1.62	2.14	1.91	2.27	1.9	16.32
Total Gearing	1.4	0.96	1.01	1.49	-1.43	0.69	173.91
Loan to Equity Ratio	2.32	1.58	-9.59	1.97	3.86	0.03	18,166.67
Earnings Per Share	8.6	-3.34	10.88	7.15	-0.84	4.49	138.53

The mean values of the financial ratios for the selected firms between 2006 and 2010 are presented in Table 2.7. As an indicator of the general performance of the sector, the mean value of the different ratios is discussed individually. In addition, the sample is divided into categories based on size and ownership, as outlined in section 3.3, and the performance of the different categories based on each ratio will be compared.

**Net profit margin** has a mean value of -0.27, which suggests that the profitability of Nigerian mortgage banks is very low. This is an indication of gross inefficiency in the sector.

**Asset to earning rate** has a mean value of 8.88 with an extremely low coefficient of variation. This implies that there is a significantly low variability of individual values of this ratio across the sample.

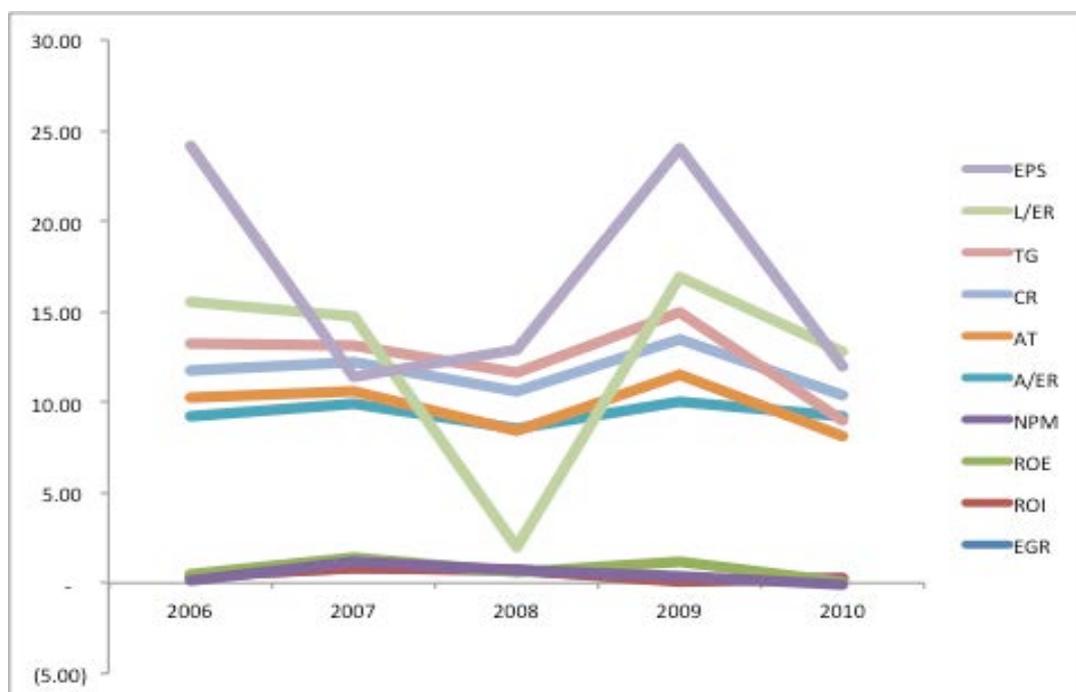
**Asset turnover** also exhibits a relatively high degree of variability with a mean value of 0.42 and coefficient of variation of 247.62. The relatively low value of this ratio is an indication that mortgage banks in the Nigerian banking industry have many unproductive assets or that their level of output is far below the optimal value compared to the invested assets. This is also an indication of inefficiency in the sector.

**Loan to equity ratio (L/ER):** This ratio has a mean value of 0.03 and an unbelievable coefficient of variation. Its low mean value suggests that Nigerian mortgage banks are financed more by equity. Its very high coefficient of variation could, however, impair the representativeness and reliability of the mean value.

Analysis of **Total gearing** reveals an over reliance of Nigerian mortgage banks on borrowings for a significant proportion of their capital requirement. On average, only about 31% of their capital is equity. However, an examination of loan to equity ratio, which is similar to total gearing, shows a contrasting result; the loan to equity ratio is extremely low which suggests, contrary to total gearing, that mortgage banks in Nigeria are financed by equity rather than debt. I would accept the prognosis of total gearing as being more

reliable than that of L/ER since its coefficient of variation reflects less variability and thus more reliability of its mean value.

Figure 2.6: Trend of financial ratios



Investigation of the trend of selected financial ratios within the period studied reveals that the profitability ratios - Return on Investment, Return on Equity and Net profit margin exhibit a similar trend.

Asset Turnover, Total Gearing and Current Ratio also display a similar trend, while Loan to equity ratio and Earnings per share exhibit dissimilar patterns to the others with a sharp fluctuation in 2008.

Table 2.8: Result of T-test differences in firms based on size

Year	2006			2007			2008			2009			2010		
	Large	Small	T-Stat.	Large	Small	T-Stat.	Large	Small	T-Stat.	Large	Small	T-Stat.	Large	Small	T-Stat.
Earning Growth Rate	(0.27)	0.59	0.44*	2.00	0.54	0.01*	0.414	0.69	0.54*	0.42	0.04	0.13*	(0.07)	0.41	0.20*
Return on Investment	0.01	(0.06)	0.64	0.02	(0.02)	0.54*	0.018	0.01	0.87	(0.03)	(0.07)	0.52*	0.01	(0.04)	0.36*
Return on Equity	(0.11)	0.14	0.27*	0.93	0.50	0.47	-0.481	0.09	0.06*	0.01	1.43	0.66	(0.10)	(0.24)	0.62
Net Profit Margin	0.08	(0.35)	0.53	0.15	(0.27)	0.44	0.152	0.03	0.53*	(0.21)	(0.94)	0.34*	0.04	(0.24)	0.46*
Asset to Earning Rate	12.78	8.34	0.12*	8.44	8.73	0.91	8.831	7.86	0.47*	8.39	9.99	0.59	10.15	8.98	0.63
Asset Turnover	2.69	0.77	0.15*	0.57	0.73	0.9	-4.761	0.97	0.04*	0.57	1.93	0.55	0.38	(1.72)	0.56
Current Ratio	1.46	1.58	0.8	1.38	1.68	0.62	1.405	2.29	0.38*	2.04	1.86	0.76	2.50	2.17	0.7
Total Gearing	0.98	1.51	0.82	0.24	1.21	0.61	0.266	1.23	0.57	0.40	1.99	0.51*	0.30	(2.45)	0.45*
Loan to Equity Ratio	(23.00)	6.72	0.18*	16.15	(1.73)	0.04	-57.785	1.57	0.05*	10.11	(0.88)	0.72	7.59	2.28	0.01*
Earnings Per Share	22.98	4.77	0.05*	9.12	(7.79)	0.47	16.252	9.09	0.34*	3.85	8.93	0.54	(0.59)	(1.00)	0.97

\* Ratio significantly different at  $\alpha = 5\%$

The t-test was used to examine if there exists any significant difference in the selected financial ratios of the two groups. Results reveal that at the 5% significance level, banks in the two groups show characteristic differences in Earnings growth rate, Return on investment, Return on equity, Net profit margin, Asset to earning rate, Current ratio, and Earnings per share.

Analysis of the ROE ratio reveals that privately owned mortgage banks are the most efficient and government-owned mortgage banks are the least efficient. For all the four categories of banks defined by ownership, the net profit margin values are generally low and further analysis show that church-owned mortgage banks are the most efficient and commercial bank-owned mortgage institutions comes next while government-owned mortgage banks are the least efficient in converting their revenue to profit.

The variation in financial ratios based on ownership was investigated using ANOVA and the results reveal that at the 5% level of significance, there exists a statistically significant difference in the mean values of the financial ratios of the different categories. Further tests (Duncan Multiple Range Test) reveal that the difference is more in favour of privately owned banks.

#### **2.4.2 Efficiency estimation with DEA**

The technical efficiency scores indicate the firms that are deemed to be efficient (those given a score of 1) and those that are deemed to be less efficient relative to those that are efficient (those with scores of less than 1). The lower the score, the less efficient the firm rates relative to the most efficient. It is important to note that the scores are relative, i.e. those given a score of 1 are efficient relative to the rest of the firms in the sample, but might not necessarily be operating efficiently by some absolute standard or standards elsewhere. DEA analysis was done with both the CRS and VRS technology; however, since CRS does not take size into account, the results discussed in the section are based on the VRS efficiency scores.

The sample under study is divided into mutually exclusive groups based on ownership and size. An average total asset within the five-year period was used as a proxy for size. Banks with average total assets less than ₦5 billion are classified as small banks while those with average total assets in excess of ₦5 billion are regarded as large banks. The banks classified as 'small' form two-thirds (67%) of the sample, while the 'large' banks constitute a third (33%) of the sample.

Four types of ownership structure were identified in the sample. Mortgage banks owned by the government represent the first group and they are labelled 'government-owned'. Those owned by commercial banks, labelled 'bank-owned' form the second group. The third group is comprised of mortgage banks owned by individuals or private companies other than the government or commercial banks. These are tagged 'privately owned' and the last group is made up of mortgage banks owned by religious organizations (specifically churches). This group is labelled 'church-owned'. In defining the ownership of banks in the sample, cognizance is made of the fact that some of these banks have joint ownership.

However, for ease of classification and for mutual exclusivity, the banks were classified based on the entity that claims the largest share of ownership. Privately owned mortgage banks constitute 44% of the sample while the other three categories constitute about 18.5% each.

Summary statistics for the inputs and outputs is presented in Table 4.3, using both monetary variables and non-monetary variables. DEA is able to integrate dissimilar multiple inputs and outputs to make simultaneous comparisons that would otherwise not be possible. In Table 4.3, are reported the average of each input-output variable used to measure efficiency and the standard deviation for each year.

Table 2.9: Summary statistics of input and output variables

	Mean	Standard Deviation	Minimum	Maximum
<b>Outputs</b>				
Loan value (N'000)	2888.78	7323.54	9.1	39081.82
Origination fee (%)	6.99	12.36	0.01	94.21
Interest rate margin (%)	13.35	13.53	0.57	98.92
<b>Input</b>				
Staff costs (N' 000)	170.362	393.32	3.14	2359.98
Capital (N'000)	776.67	1521.8	23.72	7644.17
Running costs	1141.42	2856.02	18.01	17691.01

Figure 2.7: Trend in mean value of DEA output variables

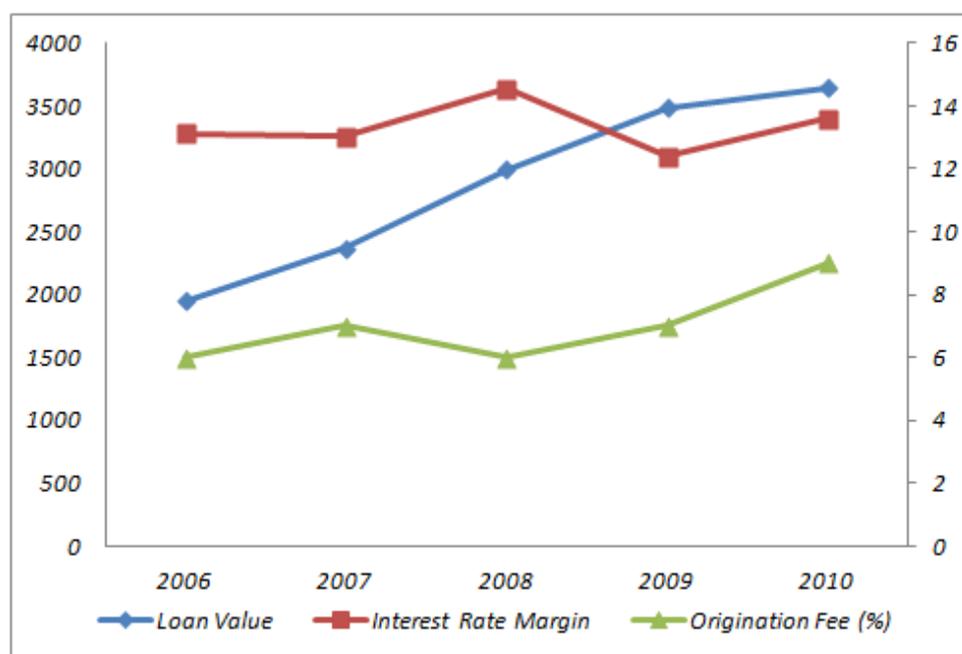
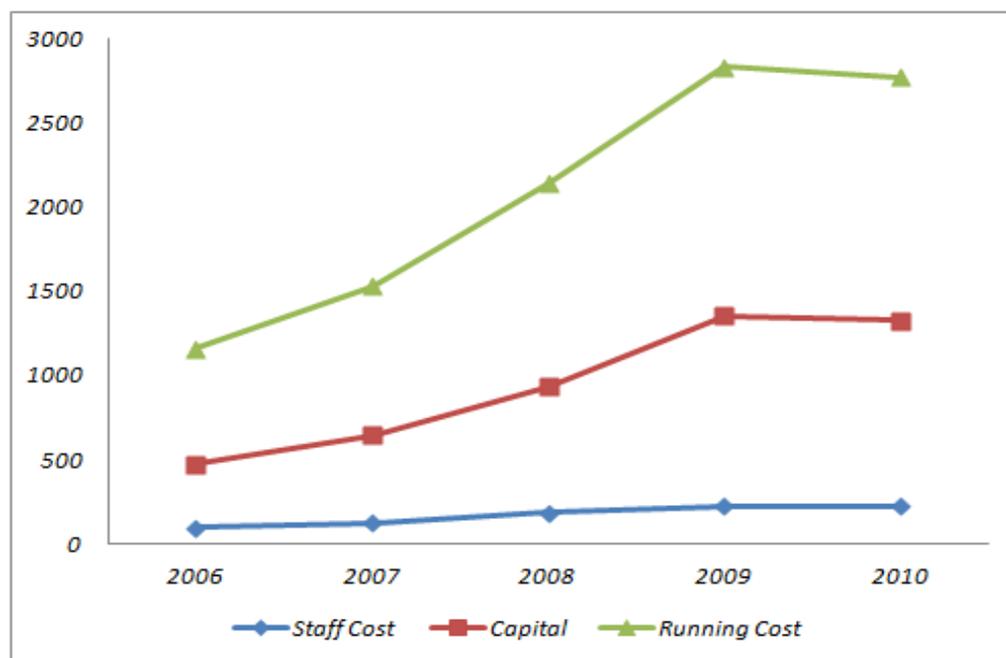


Figure 2.8: Trend in mean values of DEA input variables



Figures 2.7 and 2.8 show that all the input variables displayed an upward trend from 2006 to 2009 and then stagnated between 2009 and 2010. This stagnation could be an aftermath of the global financial crisis which started in the United States in 2008, and whose ripple effect reached Nigeria within that period and compelled most banks to cut down their inputs drastically.

### Efficiency results by output variables

The results of the DEA efficiency, based on the different output variables used, are discussed in this section.

#### Model 1

Model 1 used loan value as the only output variable, the average technical efficiency and scale efficiency over the study period based on the yearly frontier are 0.49 and 0.63, respectively. This suggests that average technical and scale inefficiency (i.e. average dispersions of banks from the best-practice banks) are 0.51 and 0.37 respectively and that mortgage banks in the sample can produce, on average, the same volume or amount of loans they are currently producing, with about 51% fewer input resources. This indicates that the selected firms are performing way below expectation and are wasting a lot of input. Also, scale efficiency is appreciably higher than technical efficiency. This suggests that inefficiency is mostly due to managerial ineptitude.

Technical efficiency and scale efficiency exhibit increasing trends between 2006 and 2009. The coefficient of variation of efficiency scores within the period is appreciably high. This suggests a high variability or dispersion in efficiency scores of individual firms that constitute the sample. The average scale efficiency score is 0.63. This suggests that with about 37% reduction of input, an average firm in the sample can achieve optimal scale.

Due to the relatively high coefficient of variation, however, this average value (37%) could vary considerably from firm to firm. Firms 11, 13 and 21 emerge as best practice firms because they consistently had unity technical and scale efficiency scores throughout the period. The summary of these results is presented in Table 2.10.

Table 2.10: Overall efficiency measures with loan value as output variable

<b>Model 1</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>
<b>Technical Efficiency</b>					
Mean	0.32	0.48	0.61	0.5	0.56
Minimum	0.01	0.16	0.15	0.14	0.14
Std Dev	0.26	0.26	0.27	0.30	0.30
Coefficient of Variation	81.25	54.17	44.26	60.00	53.57
Best Practice Firms	23, 25	1, 11, 25	1, 8, 11, 25	1, 11, 13, 25	1, 11, 21, 25, 26
<b>Scale Efficiency</b>					
Mean	0.39	0.66	0.69	0.74	0.69
Minimum	0.02	0.26	0.19	0.31	0.15
Std Dev	0.26	0.25	0.24	0.22	0.27
Coefficient of Variation	66.67	37.88	34.78	29.73	39.13
Best Practice Firms	25	11	11	11, 13	11, 21

## Model 2

Model 2 used interest rate margin as the output variable. Average efficiency indices of 0.33 and 0.53 were obtained for variable returns to scale and scale efficiencies respectively. This shows that an average inefficient bank in the sample is only making about 33% profit from interest compared to a fully efficient firm. However, only 35% of the sample made optimal interest profit throughout the period considered. This implies that 65% of the firms investigated are wasting 67% of input resources in the course of generating their present level of profit from interest. However, the coefficient of variation for interest rate margin is exceptionally high, so one should expect a considerable deviation of individual firms from the average.

The efficiency measures (technical efficiency and scale efficiency) did not show any particular trend during the five-year period investigated. Their indices were mostly fluctuating. The average scale efficiency index of 0.53 suggests that an average firm can achieve optimal size by making about a 47% scale adjustment. Between 2006 and 2009, over 90% of the investigated firms exhibited increasing returns to scale inefficiency; however, this drastically reduced to 44% in 2010. This sudden change could be the result of the combined ripple effects of the global economic crisis, which hit the mortgage banking sector hard in 2009, and the internal recapitalization moves initiated by the Central Bank of Nigeria (CBN) to ensure that a mortgage bank has ₦5 billion minimum capital. This result is summarized in Table 2.11.

Table 2.11: Overall efficiency measures with interest rate margin as output variable

<b>Model 2</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>
<b>Technical Efficiency</b>					
Mean	0.32	0.31	0.40	0.32	0.30
Minimum	0.01	0.01	0.01	0.01	0.01
Std Dev	0.26	0.29	0.35	0.33	0.31
Coefficient of Variation	81.25	93.55	87.50	103.13	103.33
Best Practice Firms	23, 25	7, 10, 25	8, 10, 13, 25	3, 25, 27	12, 25
<b>Scale Efficiency</b>					
Mean	0.39	0.55	0.38	0.64	0.68
Minimum	0.02	0.05	0.04	0.10	0.15
Std Dev	0.26	0.31	0.26	0.27	0.28
Coefficient of Variation	67.01	56.36	68.42	42.19	41.18
Best Practice Firms	25.00	7.00	10, 25	3.00	12, 25

### Model 3

Model 3 assessed the efficiency of the selected banks with origination fee as the measure of output. Average efficiency scores from the two measures of efficiency (technical and scale efficiency) are 0.37 and 0.48 respectively. This result shows that compared to the best practice firms in the sample, an average firm is only making about 37% profit on originating mortgage loans. This implies that within the period of study, there is about a 63% inefficiency in the industry, which can be attributed to managerial ineptitude and operations of the firms on an inappropriate scale. So, inefficient firms can reduce their inputs considerably and still make the same amount of profit on origination fees.

Similarly to the other models explored, the coefficient of variation is rather high with this model too. This exceptionally high dispersion in individual efficiency scores of the firms that constitute the sample is an indication that there are huge differences in the amount of fees charged on originating mortgage loans by the different banks.

The efficiency measures show a slightly declining trend through the study period with slight fluctuations between 2007 and 2008. The average scale efficiency score is 0.48. In 2006, only about 17% of the scale inefficient firms needed to cut down on their input, while the remaining 83% only needed to reapportion their input to experience larger profits on origination fees. This trend was reversed from 2007 to 2010 as the results reveal that over 95% of the firms would need to reduce their inputs considerably without this reduction affecting their profit on loan origination. The summary is presented in Table 2.12

Table 2.12: Overall efficiency measures with origination fee as output variable

<b>Model 3</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>
<b>Technical Efficiency</b>					
Mean	0.48	0.38	0.45	0.28	0.26
Minimum	0.01	0.01	0.01	0.01	0.01
Std Dev	0.36	0.31	0.36	0.33	0.31
<b>Coefficient of Variation</b>	<b>75.00</b>	<b>81.58</b>	<b>80.00</b>	<b>117.86</b>	<b>119.23</b>
Best Practice Firms	3, 4, 12 17, 19, 21, 25	3, 19, 25	8, 12, 19, 25	3, 12, 19, 25	3, 19, 25
<b>Scale Efficiency</b>					
Mean	0.56	0.52	0.49	0.53	0.28
Minimum	0.00	0.00	0.00	0.00	0.00
Std Dev	0.32	0.34	0.34	0.32	0.29
<b>Coefficient of Variation</b>	<b>57.14</b>	<b>65.38</b>	<b>69.39</b>	<b>60.38</b>	<b>103.57</b>
Best Practice Firms	3, 17, 19	3, 19	12, 19	3, 12, 19	3, 19

#### Model 4

Finally, the three output variables were combined into a single model. Average efficiency scores are 0.68 and 0.86 for technical efficiency and scale efficiency respectively. The average efficiency index from this model is appreciably higher than all the other three models. The coefficient of variation is also considerably lower than the others. Apart from the first year, i.e. 2006, most of the firms had increasing returns to scale issues. This suggests that a cut in input variables will benefit the firms concerned. The summary of this result is presented in Table 2.13

Table 2.13: Overall efficiency measures with combined output variable

<b>Model 4</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>
<b>Technical Efficiency</b>					
Mean	0.71	0.65	0.71	0.64	0.56
Minimum	0.28	0.18	0.16	0.16	0.14
Std Dev	0.26	0.27	0.27	0.27	0.30
<b>Coefficient of Variation</b>	<b>36.62</b>	<b>41.54</b>	<b>38.03</b>	<b>42.19</b>	<b>53.57</b>
Best Practice Firms	1, 4, 8, 10, 11, 13, 19, 23, 25	1, 3, 7, 10, 11, 19, 25	1, 10, 11, 12, 13, 19, 22, 25	1, 3, 11, 12, 13, 18, 19, 25, 27	1, 11, 21, 25, 26
<b>Scale Efficiency</b>					
Mean	0.85	0.85	0.85	0.90	0.69
Minimum	0.40	0.34	0.32	0.32	0.15
Std Dev	0.17	0.18	0.21	0.31	0.27
<b>Coefficient of Variation</b>	<b>20.00</b>	<b>21.18</b>	<b>24.71</b>	<b>34.44</b>	<b>39.13</b>
Best Practice Firms	1, 8, 11, 13, 25	3, 7, 10, 11, 19	9, 10, 11, 12, 13, 19, 25, 27	3, 11, 12, 13, 19, 27	11, 21

## Efficiency results by size

Investigation of managerial efficiency among the sub-groups of banks is critical for regulators, current owners, and potential investors. Although these groups operate in the same environment, they may exhibit variations in operational performance due to differences in their managerial skills and practices, location, the amount of government support they enjoy, and the size of their assets. The discussion of results of banks with respect to their size is given here.

### Model 1

With loan value as the output variable, an analysis of efficiency by size reveals that in each year, the technical efficiency scores of both the small and large banks fluctuate, so there are no clear-cut differences in their efficiency scores. However, the small sized banks appear to be more scale efficient than the large banks. Average scale inefficiency indices of small and large banks between 2006 and 2010 are 0.67 and 0.55 respectively, and this difference is statistically significant at 5% level. This reflects that large banks could achieve a considerable increase in the volume of loans they originate if they adjust their size of operations. The summary of this result is presented in Table 2.14

Table 2.14: Efficiency estimates by size with loan value as output

<b>Model 1</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>
<b>Technical Efficiency</b>					
Whole Sample	0.32	0.48	0.61	0.50	0.56
Small	<b>0.10</b>	<b>0.42</b>	<b>0.50</b>	<b>0.54</b>	<b>0.53</b>
Large	0.31	0.42	0.57	0.37	0.46
<b>T-Stat</b>	<b>0.93</b>				
<b>Scale Efficiency</b>					
Whole Sample	0.39	0.66	0.69	0.74	0.69
Small	0.25	0.79	0.75	0.78	0.78
Large	<b>0.29</b>	<b>0.54</b>	<b>0.60</b>	<b>0.66</b>	<b>0.66</b>
<b>T-Stat</b>	<b>0.37**</b>				

Significance: \*\* (5%)

### Model 2

With interest rate margin as the measure of output, large banks seemed to be more technically efficient than the small ones with an average technical efficiency of 0.33 as against 0.05 for small banks. It was also observed that scale efficiency dominates pure technical efficiency. This suggests that for both groups, the inefficiency observed is largely due to management practices and possibly other exogenous factors such as environmental and market factors. Again, small banks can increase their profit from interest considerably (by about 95%) by adjusting their size. Table 2.15 summarizes the results. With respect to scale, differences observed in efficiencies between the two categories of banks is not statistically significant so it cannot be concluded that either of the two categories of mortgage bank is actually more scale efficient than the other.

Table 2.15: Efficiency estimates by size with interest rate margin as output

<b>Model 2</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>
<b>Technical Efficiency</b>					
Whole Sample	0.32	0.31	0.40	0.32	0.30
Small	<b>0.10</b>	<b>0.05</b>	<b>0.02</b>	<b>0.03</b>	<b>0.04</b>
Large	0.31	0.35	0.34	0.33	0.32
<b>T Stat</b>	<b>0.09**</b>				
<b>Scale Efficiency</b>					
Whole Sample	<b>0.39</b>	<b>0.55</b>	<b>0.38</b>	<b>0.64</b>	<b>0.68</b>
Small	0.25	0.44	0.43	0.41	0.72
Large	<b>0.27</b>	<b>0.44</b>	<b>0.57</b>	<b>0.64</b>	<b>0.56</b>
<b>T Stat</b>	<b>0.66</b>				

Significance: \*\* (5%)

### Model 3

This model uses origination fees as the output variable. The technical efficiency scores are extremely small compared to the efficiency estimates from the other two models. This could be an indication that origination fees may be an unsuitable measure of output. It could also be a reflection of extreme disparity in the origination fees charged by individual firms in the sample. Similarly to what obtained with the other two output variables considered, large banks have higher managerial efficiency scores than the small banks, while the small banks are significantly more scale efficient than the large banks. A summary is given in table 2.16

Table 2.16: Efficiency estimates by size with origination fee as output

<b>Model 3</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>
<b>Technical Efficiency</b>					
Whole Sample	0.48	0.38	0.45	0.28	0.26
Small	<b>0.16</b>	<b>0.07</b>	<b>0.06</b>	<b>0.03</b>	<b>0.03</b>
Large	0.44	0.4	0.51	0.25	0.23
<b>T Stat</b>	<b>1.08***</b>				
<b>Scale Efficiency</b>					
Whole Sample	<b>0.56</b>	<b>0.52</b>	<b>0.49</b>	<b>0.53</b>	<b>0.28</b>
Small	0.59	0.46	0.14	0.25	0.1
Large	<b>0.19</b>	<b>0.17</b>	<b>0.21</b>	<b>0.25</b>	<b>0.12</b>
<b>T Stat</b>	<b>0.25**</b>				

Significance: \*\* (5%), \*\*\* (10%)

## Model 4

This model combines the three output variables. The result reveals that large banks are about 17% more technically efficient than small banks but there seems not to be any difference in their size efficiencies. Scale efficiency dominates technical efficiency throughout the study period, which suggests that the inefficiency observed in the sample is mostly due to poor management and other exogenous factors. A summary of this result is presented in Table 2.17.

Table 2.17: Efficiency estimates by size with combined output

Model 4	2006	2007	2008	2009	2010
<b>Technical Efficiency</b>					
Whole Sample	0.71	0.65	0.71	0.64	0.69
Small	0.56	0.46	0.55	0.57	0.54
Large	0.72	0.67	0.70	0.57	0.61
T Stat	0.01**				
<b>Scale Efficiency</b>					
Whole Sample	0.85	0.85	0.85	0.90	0.93
Small	0.91	0.79	0.74	0.79	0.79
Large	0.79	0.85	0.86	0.93	0.87
T Stat	0.16**				

Significance: \*\* (5%)

## Returns to scale

Scale inefficiency appears to affect the overall managerial inefficiency of the sampled banks, particularly the large banks. It is worthwhile examining how these banks can improve on scale efficiency by investigating their returns to scale. The law of diminishing returns indicates what happens to output when a bank changes only one input, say labour or capital, and holds all other input constant, whereas, returns to scale (RTS) explains what happens to a bank's output if it changes all inputs proportionately. Thus, we define RTS as the increases in output that result from increasing all inputs by the same percentage.

There are three possible cases of returns to scale:

**Increasing returns to scale (IRS):** This occurs when increase in inputs by a certain proportion produces a more than proportionate increase in outputs.

**Constant returns to scale (CRS):** This occurs when a proportionate increase in inputs increases outputs by the same proportion.

**Decreasing returns to scale (DRS):** This happens when an increase in inputs leads to a less than proportionate increase in outputs.

Table 2.18 displays the returns to scale of the sampled banks classified by size based on the combined output model. Most of the banks operate at an incorrect scale, and the majority of these banks can improve their scale efficiency considerably by increasing input to achieve optimal scale; on average, 31.11% of small banks and 60% of large banks should do this to improve their scale efficiency. On the other hand, about half of the small banks and 15.56% of the large banks respectively exhibited DRS, so they do not need to increase input, rather, they should reapportion their present level of input.

Table 2.18: Returns to scale results (%) by bank size

<b>Model 4</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>
<b>Whole Sample</b>					
Constant Returns to Scale (CRS)	18.52	18.52	29.63	22.22	25.93
Increasing Returns to Scale (IRS)	55.56	62.96	44.44	51.85	37.04
Decreasing Returns to Scale (DRS)	25.93	18.52	25.93	25.93	37.04
<b>Total (%)</b>	100.00	100.00	100.00	100.00	100.00
<b>Small Banks</b>					
Constant Returns to Scale (CRS)	22.22	11.11	22.22	11.11	33.33
Increasing Returns to Scale (IRS)	55.56	44.44	11.11	22.22	22.22
Decreasing Returns to Scale (DRS)	22.22	44.44	66.67	66.67	44.44
<b>Total</b>	100.00	100.00	100.00	100.00	100.00
<b>Large Banks</b>					
Constant Returns to Scale (CRS)	16.67	22.22	33.33	27.78	22.22
Increasing Returns to Scale (IRS)	55.56	72.22	61.11	66.67	44.44
Decreasing Returns to Scale (DRS)	27.78	5.56	5.56	5.56	33.33
<b>Total</b>	100.00	100.00	100.00	100.00	100.00

## Productivity change

The average annual values for Total Factor Productivity Index (TFPCH), Technological Change (TECHCH), Technical Efficiency Change (TECH), Pure Technical Efficiency Change (PECH) and Scale Efficiency Change (SECH) for the period studied based on the sizes of banks in the sample are reported in Table 2.18. The Malmquist Index is constructed with reference to year 2006 technology.

The results of the analysis of all the banks in the sample show that there was about 8.8% overall deterioration in productivity during the period covered in this study. There was about 21.5%, 12.3% and 20% productivity loss in 2007, 2008 and 2009 respectively. The industry experienced about 30% productivity growth in 2010. However, this spontaneous growth could not cover up for the consecutive productivity losses experienced in the previous years, so the growth experienced in 2010 did not cause a significant productivity boost for the whole period.

The average annual rate of change of technical efficiency is -6.4%. Looking at changes through the years, it is noted that managerial efficiency's largest decline of 26% was in 2007 and its largest increase of about 14% was in 2010. Scale efficiency of the banks on the other hand, deteriorated on average by 1.8% per year. Again, the deterioration in

overall technical efficiency, despite the marginal growth experienced in the industry, could be the result of the loss of productivity through both technical and scale inefficiency.

Comparing the two groups of banks (large and small) during the study period, large banks experienced a 2% productivity growth while the small banks experienced a 22% loss of productivity. Also, the small banks experienced a loss of scale efficiency of about 9% while the large banks experienced a scale growth of about 2%. By all accounts, apart from pure technical efficiency, the large banks seemed to experience increased growth rate, unlike the small banks.

Table 2.19: Malmquist indices by bank size

	Technical Efficiency Change TECH	Technological Change TECHCH	Pure Technical Efficiency Change PECH	Scale Efficiency Change SECH	Total Factor productivity Change TPFCH
<b>All Banks</b>					
2007	0.75	1.05	0.74	1.01	0.79
2008	1.18	0.75	1.18	1.00	0.88
2009	1.01	0.79	0.98	1.03	0.80
2010	1.02	1.24	1.14	0.90	1.26
<b>Mean</b>	0.98	0.94	0.99	0.98	0.91
<b>Small Banks</b>					
2007	0.69	1.18	0.80	0.87	0.82
2008	1.11	0.72	1.14	0.97	0.80
2009	0.94	1.10	1.12	0.84	1.03
2010	0.96	0.94	1.01	0.95	0.89
<b>Mean</b>	0.91	0.97	1.01	0.91	0.88
<b>Large Banks</b>					
2007	0.84	1.01	0.74	1.14	0.85
2008	1.29	0.77	1.27	1.02	1.00
2009	1.06	1.31	1.14	0.93	1.39
2010	0.98	0.94	0.95	1.00	0.92
<b>Mean</b>	1.03	0.99	1.00	1.02	1.02
<b>T Statistic</b>	0.63	0.86	0.75	0.13	0.73

### Efficiency results by ownership

The results of efficiency scores of the banks based on ownership are discussed in this section.

#### Model 1

An investigation of managerial efficiency among the different sub-groups of banks based on ownership, and considering loan value as the output measure was conducted. This revealed that although these groups operate within the same market and are exposed to the same environmental factors, their operational performances differ. This is due to the differences in managerial practices and the level of leverage they enjoy from the

government. The average efficiency indices for these banks are 0.42, 0.36, 0.52 and 0.29 for banks with government, commercial bank, private and church ownerships respectively. Privately owned mortgage banks and those owned by the government seemed to take the lead. Mortgage banks owned by churches recorded the least efficiency, and those owned by the government come in-between.

The result further shows that the inefficiencies observed in mortgage banks owned by religious organizations and commercial banks are mostly due to their management practice rather than their size of operations. Whereas for government-owned and privately owned mortgage banks, their inefficiencies are attributed to both managerial lapses and operations on an inappropriate scale. Within the sampled banks, privately owned mortgage banks exhibited the best managerial practices while church-owned banks are the most scale efficient. Table 2.19 summarizes the result.

Table 2.20: Efficiency estimates by ownership with loan value as output variable

<b>Model 1</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>Average</b>
<b>Technical Efficiency</b>						
Government	0.34	0.52	0.52	0.33	0.38	0.42
<b>Bank</b>	<b>0.13</b>	<b>0.34</b>	<b>0.44</b>	<b>0.41</b>	<b>0.47</b>	<b>0.36</b>
Private	0.21	0.49	0.69	0.57	0.65	0.52
Church	0.23	0.29	0.37	0.25	0.29	0.29
<b>Scale Efficiency</b>						
<b>Government</b>	<b>0.4</b>	<b>0.55</b>	<b>0.47</b>	<b>0.57</b>	<b>0.49</b>	<b>0.50</b>
Bank	0.27	0.63	0.71	0.80	0.78	0.64
<b>Private</b>	<b>0.21</b>	<b>0.61</b>	<b>0.68</b>	<b>0.69</b>	<b>0.57</b>	<b>0.55</b>
Church	0.35	0.68	0.69	0.82	0.74	0.66

## Model 2

This model measures the efficiency of banks with interest rate margin as the output variable. The result shows that on average, mortgage banks owned by the government have the highest efficiency, followed by mortgage banks owned by churches. Private mortgage banks come next and mortgage banks owned by commercial banks are the least efficient.

When the scale of operations of these banks was considered, the values of pure efficiency indices for these banks increased, although the rank of their efficiencies did not change; government and church-owned banks still topped the list with privately owned mortgage banks in-between, and mortgage banks owned by commercial banks trailing them. In relation to size of operations, government and church-owned banks still maintained their ranks as the most efficient; however, mortgage banks owned by commercial banks outperformed those with private ownership. This result is summarized in table 2.20.

Table 2.21: Efficiency estimates by ownership with interest rate margin as output variable

<b>Model 2</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>Average</b>
<b>Technical Efficiency</b>						
Government	0.34	0.50	0.59	0.48	0.34	0.45
Bank	0.13	0.06	0.5	0.04	0.06	0.16
Private	0.21	0.19	0.58	0.17	0.17	0.26
Church	0.23	0.19	0.65	0.16	0.17	0.28
<b>Scale Efficiency</b>						
Government	0.4	0.42	0.96	0.82	0.56	0.63
Bank	0.27	0.46	0.75	0.56	0.74	0.56
Private	0.21	0.4	0.69	0.47	0.54	0.46
Church	0.35	0.52	0.98	0.55	0.71	0.62

### Model 3

The efficiency of banks with different ownership was also investigated with origination fees as the measure of output. Efficiency indices with origination fees seemed generally low. However, mortgage banks owned by churches seemed to be the most efficient in this regard. Decomposing the overall efficiency into its components reveals that for all the groups, the observed inefficiencies are as a result of both poor management practices and operations on an inappropriate scale. Table 2.21 summarizes the results.

Table 2.22: Efficiency estimates by ownership with origination fee as output variable

<b>Model 3</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>Average</b>
<b>Technical Efficiency</b>						
Government	0.38	0.34	0.48	0.29	0.23	0.34
Bank	0.18	0.09	0.07	0.04	0.04	0.08
Private	0.29	0.25	0.29	0.14	0.13	0.22
Church	0.58	0.38	0.32	0.15	0.14	0.31
<b>Scale Efficiency</b>						
Government	0.12	0.10	0.32	0.55	0.21	0.26
Bank	0.47	0.42	0.15	0.53	0.08	0.33
Private	0.20	0.18	0.17	0.16	0.09	0.16
Church	0.85	0.81	0.20	0.19	0.19	0.45

### Model 4

Considering the three output variables in a single model, the result shows that mortgage banks with private ownership have an efficiency index of 0.60, those owned by the government come next with an index of 0.57. Mortgage banks owned by churches have an index of 0.45 and the group owned by commercial banks come last with an index of 0.38.

Further analysis revealed that for all the four categories of banks, the inefficiencies observed are mostly due to operations on an inappropriate scale and mortgage banks owned by churches seem to be the most scale efficient.

Table 2.23: Efficiency estimates by ownership with combined output variable

<b>Model 4</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>Average</b>
<b>Technical Efficiency</b>						
Government	0.71	0.78	0.69	0.61	0.52	0.66
<b>Bank</b>	<b>0.53</b>	<b>0.39</b>	<b>0.49</b>	<b>0.46</b>	<b>0.56</b>	<b>0.49</b>
Private	0.69	0.63	0.82	0.69	0.74	0.71
Church	0.68	0.58	0.44	0.41	0.41	0.50
<b>Scale Efficiency</b>						
Government	0.81	0.86	0.81	0.95	0.88	0.86
Bank	0.79	0.72	0.75	0.80	0.74	0.76
<b>Private</b>	<b>0.89</b>	<b>0.82</b>	<b>0.79</b>	<b>0.85</b>	<b>0.82</b>	<b>0.83</b>
Church	0.73	0.94	0.96	0.97	0.96	0.91

### **Productivity change by ownership**

The Malmquist indices for the productivity of sampled mortgage banks based on their ownership are constructed with reference to year 2006 technology. All the four categories of banks (government, commercial, private, church) experienced productivity deterioration of 18%, 16%, 3% and 11% respectively. Further analysis of the statistics revealed that the average annual rate of change of technical efficiency (constant returns to scale technology) over the study period is -9%, -8%, 2% and -8% for government-owned, bank-owned, privately owned and church-owned mortgage banks respectively. These findings imply that only privately owned mortgage banks experienced a technical efficiency boost within the period. Decomposing the technical efficiency into its components further shows that only mortgage banks with private ownership experienced a 2% change in managerial efficiency, all the other groups experienced efficiency loss of about 5% during the period.

Table 2.24: Malmquist indices of bank efficiency by ownership

	Technical Efficiency Change TECH	Technological Change TECHCH	Pure Technical Efficiency Change PECH	Scale Efficiency Change SECH	Total Factor productivity Change TPFCH
<b>Government</b>					
2007	0.92	0.92	0.91	1.01	0.85
2008	0.86	0.78	0.86	1.00	0.68
2009	1.10	0.71	1.09	1.01	0.78
2010	0.78	1.28	0.92	0.85	1.01
Mean	0.91	0.90	0.94	0.96	0.82
<b>Commercial Bank</b>					
2007	0.63	1.06	0.63	0.99	0.67
2008	1.35	0.70	1.38	0.98	0.95
2009	1.10	0.71	1.09	1.01	0.78
2010	0.78	1.28	0.92	0.85	1.01
Mean	0.92	0.91	0.97	0.96	0.84
<b>Private</b>					
2007	0.71	1.05	0.72	0.98	0.75
2008	1.37	0.76	1.38	0.99	1.04
2009	0.95	0.86	0.94	1.01	0.82
2010	1.16	1.20	1.19	0.97	1.39
Mean	1.02	0.95	1.03	0.99	0.97
<b>Church</b>					
2007	0.83	1.15	0.74	1.12	0.96
2008	0.96	0.73	0.96	1.01	0.70
2009	1.01	0.70	0.96	1.06	0.71
2010	0.90	1.27	1.05	0.85	1.34
Mean	0.92	0.93	0.92	1.00	0.89

A summary of the technical and scale efficiency scores with the different output variables and their descriptive statistics is presented in table 2.24.

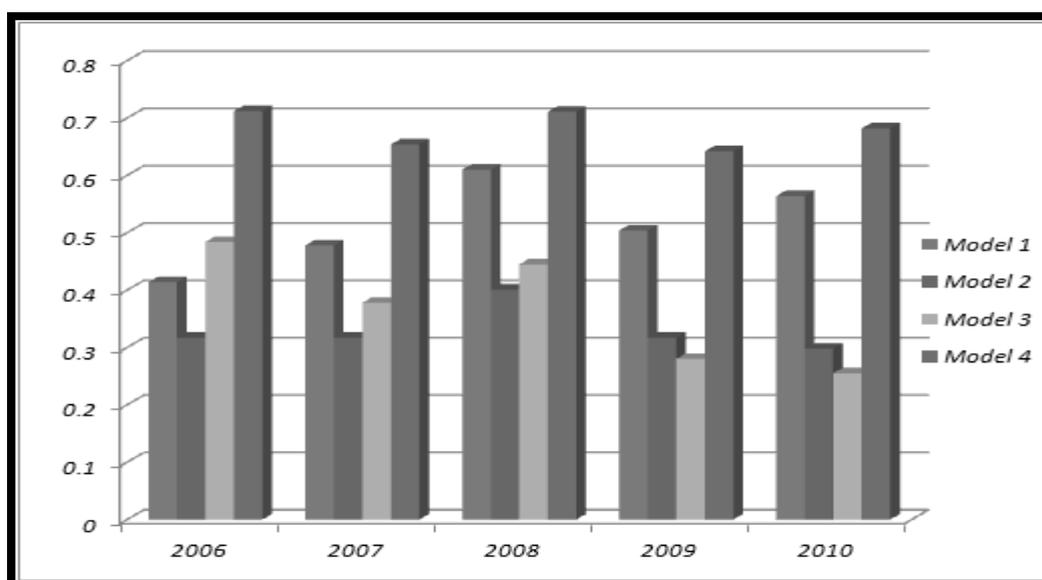
Table 2.25: Summary statistics of efficiency estimates from DEA models

	Model 1		Model 2		Model 3		Model 4	
Year	VRSTE	Scale	VRSTE	Scale	VRSTE	Scale	VRSTE	Scale
2006	0.41	0.39	0.32	0.39	0.48	0.56	0.71	0.85
2007	0.48	0.66	0.32	0.55	0.38	0.52	0.65	0.85
2008	0.61	0.69	0.40	0.38	0.45	0.49	0.71	0.85
2009	0.50	0.74	0.32	0.64	0.28	0.53	0.64	0.89
2010	0.56	0.69	0.30	0.68	0.26	0.28	0.68	0.86
Mean	0.51	0.64	0.33	0.53	0.37	0.47	0.68	0.86
Min	0.41	0.39	0.30	0.38	0.26	0.28	0.64	0.85
Max	0.61	0.74	0.40	0.68	0.48	0.56	0.71	0.89
Std. Dev	0.08	0.14	0.04	0.14	0.10	0.11	0.03	0.02
CV	14.79	22.19	12.28	26.33	27.14	23.51	4.71	2.28

## Model comparison

Findings reveal that model 4 gave the highest efficiency indices, 68% and 86% on average for pure technical efficiency (managerial efficiency) and scale efficiency respectively. Its efficiency scores are also the most consistent with a coefficient of variation index of 4.71 and 2.28 for pure technical efficiency and scale efficiency respectively. Apart from Model 4, Model 1 also gave appreciably high efficiency indices – 51.4% and 63.4% averages for pure technical efficiency and scale efficiency respectively. However, its coefficient of variation is high compared to the other models.

Figure 2.9: Comparison of technical efficiency scores



The comparison of the mean scale efficiency scores of the four models gave a similar result to that of technical efficiency scores, and the same inference is made in both cases.

Figure 2.10: Comparison of scale efficiency scores

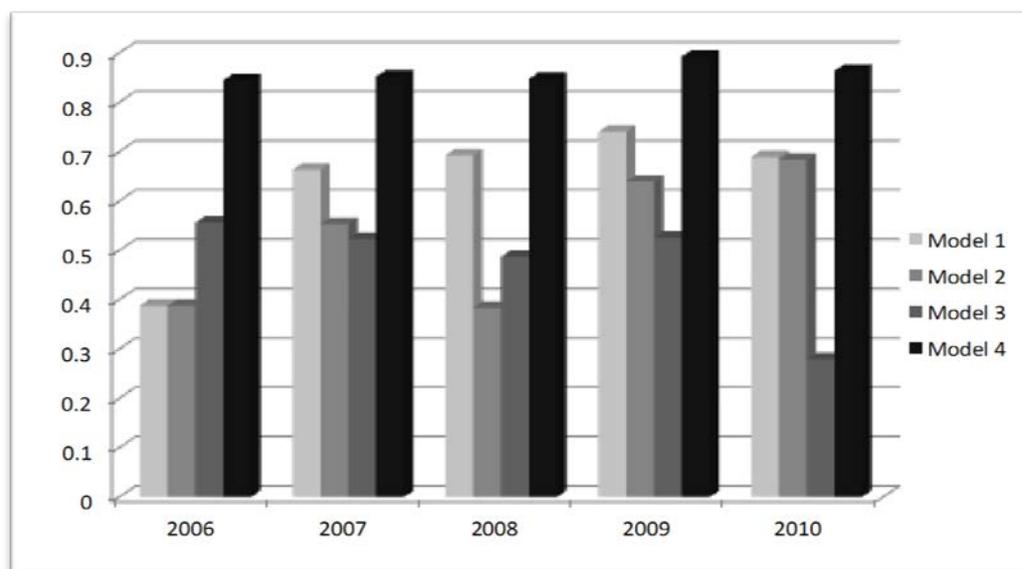
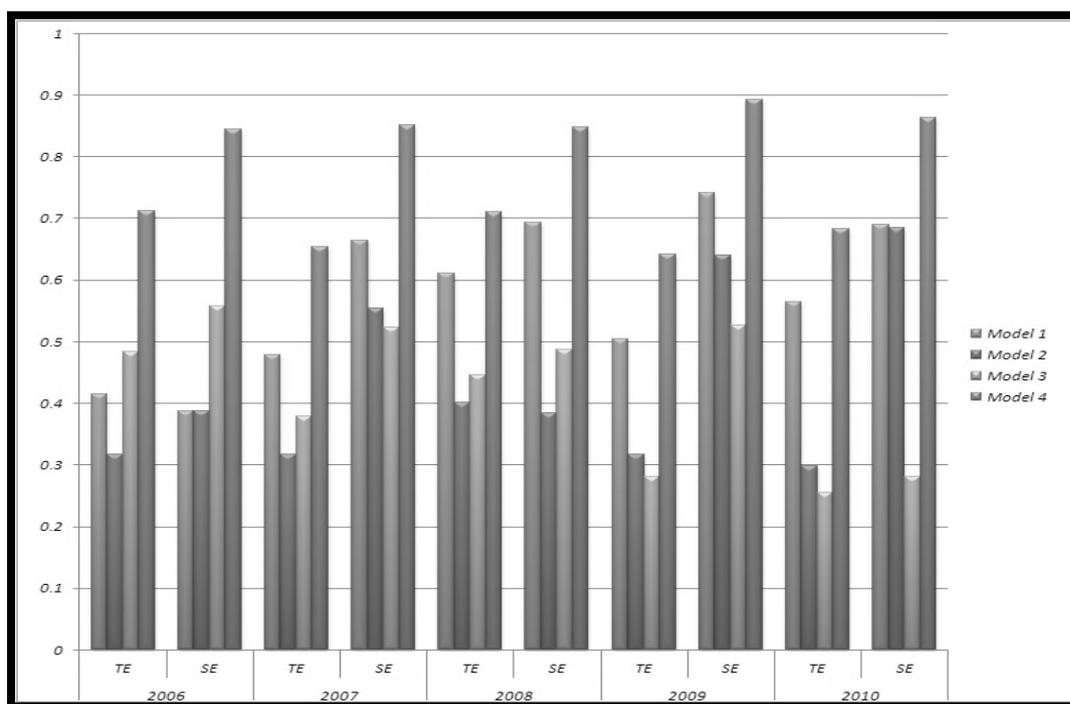
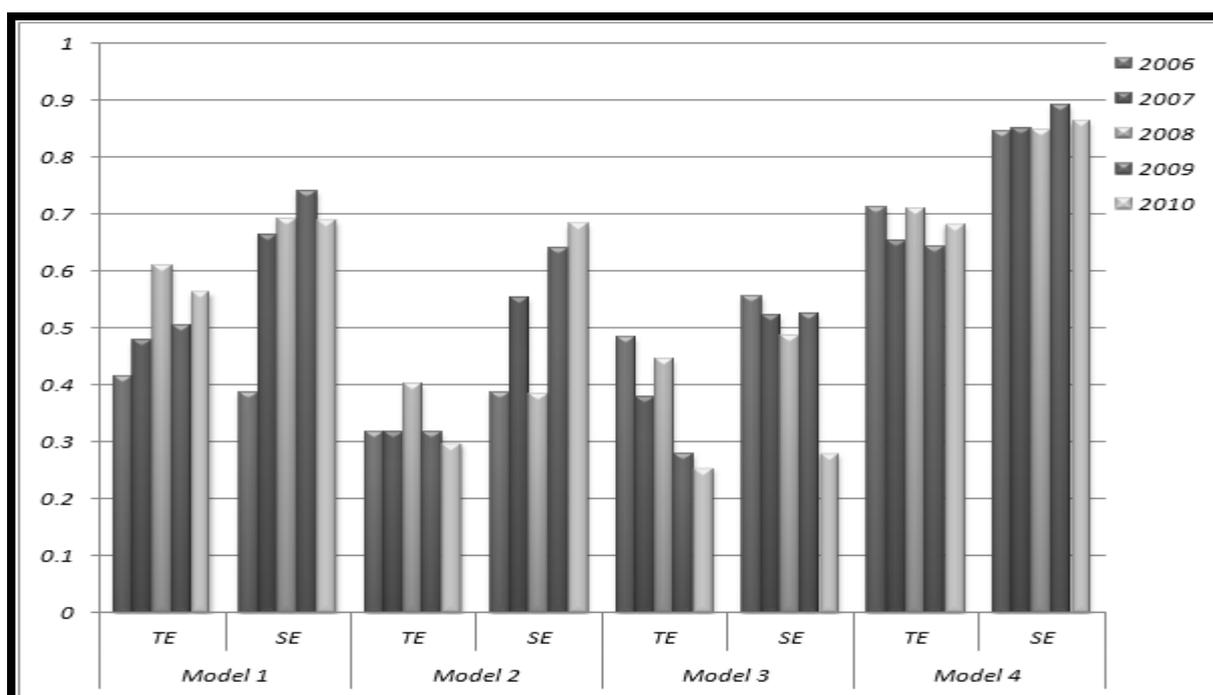


Figure 2.11: Comparison of technical and scale efficiency scores



A comparison of technical and scale efficiencies of the four DEA models across the period reveals that there is more variation in technical efficiency than scale efficiency and the average scale efficiency score is consistently higher than the technical efficiency score. Model 4 gave the highest scale and technical efficiency scores with the lowest variability.

Figure 2.12: Trend analysis of technical and scale efficiencies



The trend of efficiency estimates obtained from the four models across the period is investigated. Model 1 shows an increasing trend in both technical efficiency and scale efficiency with an upsurge in technical efficiency in 2008. Model 2 has a uniform trend also with an upsurge in 2008. Model 3 shows a decreasing trend in technical efficiency while model four exhibits a fluctuating trend. For scale efficiency, Models 1 and 2 exhibit an increasing trend, model 3 a decreasing trend and model 4 a fluctuating but nearly static trend.

### 2.4.3 Efficiency estimates with SCF

#### Cross-sectional analysis

This section discusses the results of the year-by-year (cross section) analysis of cost efficiency. The SCF result suggests that the average cost efficiency rose steadily from about 23% in 2006, to 50% in 2008 and sharply declined in the following years.

Table 2.26: Average cost efficiency

	<b>Average Cost Efficiency</b>	<b>Standard Deviation</b>
All Banks	2.00	0.01
Small	2.08	0.05
Large	2.31	0.01
T Stat	0.52**	

Significance: \*\* (5%)

Table 2.27: SCF efficiency estimate by firm size

	2006		2007		2008		2009		2010	
	Average	SD								
Small	1.83	0.05	2.52	0.09	4.46	0.03	2.75	0.01	1.38	0.01
Large	2.59	0.01	4.14	0.04	5.41	0.05	2.93	0.02	3.23	0.04
T Stat	0.21**		0.22**		0.61		0.79		0.20**	

Significance: \*\* (5%), SD – Standard deviation

Investigation of the differences in efficiency levels of small and large mortgage banks reveal that large banks are consistently more cost efficient than small banks although the difference is not statistically significant in 2008 and 2009. This result is consistent with other banking efficiency studies reviewed.

Table 2.28: SCF efficiency estimate by ownership

	2006		2007		2008		2009		2010	
	AV.	SD								
<b>Government</b>	3.05	0.01	3.91	0.02	5.64	0.04	3.73	0.01	3.72	0.01
<b>Bank</b>	2.76	0.02	4.09	0.03	4.71	0.04	2.66	0.01	1.18	0.01
<b>T Stat</b>										
<b>Private</b>	2.24	0.01	4.21	0.04	5.94	0.05	3.16	0.02	3.47	0.52
<b>Church</b>	1.43	0.00	1.35	0.00	2.89	0.03	1.53	0.00	1.09	0.00

Table 2.29: Yearly result of T-test differences in efficiency based on ownership

Paired Samples	2006		2007		2008		2009		2010	
	Average Efficiency	T Stat	Average Efficiency	T Stat						
Govt/Bank	3.05/2.76	0.80	3.91/4.09	0.93	5.64/4.71	0.73	3.73/2.66	0.20**	3.72/1.18	0.01**
Govt/Private	3.05/2.24	0.28**	3.91/4.21	0.88	5.64/5.94	0.91	3.73/3.16	0.60	3.72/3.47	0.92
Govt/Church	3.05/1.13	0.021*	3.91/1.35	0.09**	5.64/2.89	0.25**	3.73/1.53	0.003**	3.72/1.09	0.01**
Bank/Private	2.76/2.21	0.95	4.09/1.21	0.95	4.71/5.91	0.65	2.66/3.16	0.61	1.18/3.17	0.35**
Bank/Church	2.76/1.43	0.10**	4.09/1.35	0.10**	4.71/2.89	0.40**	2.66/1.53	0.08**	1.18/1.09	0.41**
Private/Church	2.24/1.43	0.12**	4.21/1.35	0.12**	5.94/2.89	0.25**	3.16/1.53	0.13**	3.47/1.09	0.33**

Significance: \* (1%), \*\* (5%)

The result at first glance does not show a clear picture of which categories exhibit higher efficiency than others because the average efficiency scores of the different ownership structures identified fluctuates from year to year. However, the result of the t-test suggests that of the four categories, church-owned mortgage banks are the least efficient. A comparison of the performance of government-owned and commercial bank-owned mortgage banks suggests that mortgage banks owned by the government seemed to be more efficient than those owned by commercial banks; however, this difference is only statistically significant for 2009 and 2010. When the performance of government-owned mortgage banks was compared with that of privately owned mortgage banks for two consecutive years, i.e. 2007 and 2008, privately owned mortgage banks had higher efficiency scores, although this difference is not statistically significant.

The efficiency level of commercial bank-owned mortgage institutions was also compared with that of privately owned mortgage banks. The result reveals that there is no clear-cut difference in their efficiency scores and it is only in one instance, i.e. 2010, that commercial bank-owned mortgage institutions had a significantly higher efficiency score than privately owned mortgage banks. In summary, apart from church-owned mortgage banks that exhibit significantly lower efficiency levels than other mortgage banks with different ownership structures, there seems not to be a clear-cut difference in the cost efficiency of government-owned, commercial bank-owned and privately owned mortgage banks.

### Panel analysis

The yearly data were pooled and the analysis was rerun with the pooled data. The average pooled efficiency scores of the banks by ownership structure and bank size based on the pooled data are presented in tables 2.30 and 2.31.

The result suggests that large banks are significantly more cost efficient than small banks at 5% significance level. This result is consistent with several banking efficiency studies reviewed in this study. The result also suggests that there is more variation in the cost efficiency of small banks than large banks.

Table 2.30: Average pooled-efficiency by size

	<b>Average Cost Efficiency</b>	<b>Standard Deviation</b>
<b>All Banks</b>	<b>2.00</b>	<b>0.01</b>
<b>Small</b>	<b>2.08</b>	<b>0.05</b>
<b>Large</b>	<b>2.31</b>	<b>0.01</b>
<b>T Stat</b>	<b>0.52**</b>	

Significance: \*\* (5%)

Table 2.31: Average pooled-efficiency by ownership

	<b>Average Cost Efficiency</b>	<b>Standard Deviation</b>
<b>Government</b>	<b>2.54</b>	<b>0.00</b>
<b>Banks</b>	<b>2.27</b>	<b>0.06</b>
<b>Private</b>	<b>2.38</b>	<b>0.01</b>
<b>Church</b>	<b>1.53</b>	<b>0.03</b>

Table 2.32: Result of T-test on difference in pooled-efficiency by ownership

<b>Paired Samples</b>	<b>Average Efficiency</b>	<b>T Stat</b>
Govt/Bank	2.54/2.27	0.46**
Govt/Private	2.54/2.38	0.77
Govt/Church	2.54/1.53	0.03**
Bank/Private	2.27/2.38	0.95
Bank/Church	2.27/1.53	0.05**
Private/Church	2.38/1.53	0.11**

Significance: \*\* (5%)

The differences in cost efficiency based on ownership structure were subjected to the t-test to investigate their significance. Similarly to the yearly efficiency estimates, church-owned mortgage banks are significantly less efficient than the other banks. Government-owned banks seem to be more efficient than both privately owned and commercial bank-owned mortgage banks. However, this difference in efficiency is only significant with commercial bank-owned mortgage institutions. Privately owned mortgage banks are more cost efficient than commercial bank-owned mortgage institutions, although the difference is also not statistically significant.

## 2.4.4 Conclusion

The introduction to this project highlighted the housing deficit experienced in Nigeria and its negative effect on the development of the nation. It emphasized that to address this issue, there has to be an aggressive housing provision through a vibrant mortgage sector. However, available statistics reveal that the Nigerian mortgage sector is under-developed with total mortgage debts of less than 0.5% of the country's GDP, as against the situation in developed countries where mortgage debts account for at least 40% of the GDP. The under-development of the Nigerian mortgage sector is attributed to a paucity of long-term finance among other reasons. The work of Diamond and Lea (1992), established that the efficiency of mortgage banking sectors is a key factor to attracting long-term funding to the sector. Deriving from this, this project is an empirical assessment of the efficiency of the Nigerian mortgage banking sector with the aim of identifying the level of inefficiency prevalent in the sector, and proffering solutions to issues identified in order to attract long-term funding to the sector.

Findings suggest that the average efficiency score of the mortgage banks investigated is between 33% and 49%, depending on the measure of output used. This is rather low in comparison to the 70% average reported for Egypt and other African countries (Poshakwale and Qian, 2011). With the three output variables combined, the average efficiency increased considerably. However, the high variability of efficiency scores observed suggests that individual firms may deviate from this average considerably. Also, most of the inefficiencies observed are due to management practices rather than operations on an inappropriate scale. About 80% of the inefficient banks, however, exhibited increasing returns to scale, especially in 2010. Although these banks were, on average, inefficient over the time period, they are now becoming more efficient. For these banks, an adjustment of their scale of operations will make a huge difference to their productivity.

Investigation of efficiency with respect to bank size reveals that large banks consistently show higher technical efficiency than small banks, although this difference is not statistically significant with loan value as the output measure. This result agrees with other efficiency studies. Furthermore, small banks displayed significantly higher scale efficiency than the large banks.

With respect to ownership, efficiency measured with loan value as the output variable revealed that banks with private ownership seemed to have a significantly higher technical efficiency level than banks with other ownership structures, although the difference is not significant for government-owned banks in 2006 and 2007. This is attributable to the fact that during this period, government-owned banks enjoyed certain policies in terms of funding which banks with other forms of ownership structure did not enjoy and this tipped the scale in their favour. Mortgage banks owned by churches are the least efficient. There is no significant difference in the efficiency scores of privately owned and commercial bank-owned firms.

The results further suggest that mortgage banks owned by churches are significantly more scale efficient than banks with other ownership structures. This result agrees with several researches on banking efficiency. Mortgage banks owned by churches are relatively small compared to most of the other banks. Banking efficiency studies often suggest that small-sized banks are generally more scale efficient than large banks. With interest rate margin, the results suggest that government-owned banks are more technically efficient than banks with other ownership structures, although this did not hold in 2008 when church-owned banks momentarily had a significantly higher technical efficiency score, compared to all others. This could mean that the impact of the global financial crisis which hit the Nigerian economy in 2008 was not as hard-felt by church-owned mortgage banks compared to banks with other types of ownership, possibly because church-owned mortgage banks could leverage on additional financial support from the goodwill of both the church and church members, unlike other banks that depend solely on the financial market for sustenance. Additionally, church-owned mortgage banks are the most scale efficient and government-owned banks the least scale efficient. With origination fees, church-owned banks still show a significantly higher scale efficiency than other banks with different ownership structures, and commercial bank-owned mortgage banks are the least efficient.

The results also suggest that there was a marginal productivity decline in the sector during the period considered. Although large banks seemed to experience marginal productivity improvement compared to small banks, this difference is not statistically significant. Investigation of productivity gains based on the different ownership structures also did not indicate any significant improvement in their productivity level throughout the period. This suggests that productivity is more a function of an individual bank's technical efficiency and the overall technological change within the sector, than of bank size and ownership.

A close look at the results also shows that banks 23 and 25 (see appendix for bank listing) emerged as best practice firms in 2006 for both technical and scale efficiency with loan value and interest rate margin as output variables. However, bank 23 dropped from best practice in the preceding years. From 2007 to 2010, banks 1, 11 and 25 consistently emerge as best practice firms. This suggests that banks 1 and 11 experienced improved efficiency in 2007, which they were able to maintain throughout the period considered in the study. The emergence of bank 1 as one of the best practice firms in the industry is not really surprising because it is one of the biggest banks in terms of size and spread. Apart from its strong asset base (almost a hundred billion as at 2010), it has 22 branches in different states of the federation. Banks 11 and 25, however, are small and have their presence in only one state. Bank 25 is privately owned, its majority ownership structure could have played a key role in its exceptional performance. Bank 11 consistently emerged as best practice firm in the sample both for technical efficiency and scale efficiency. It is worth mentioning that this bank falls into the category of small banks and has only one branch. However, its exceptional performance could be as a result of the leverage it receives from being in close proximity to and its affinity with an established government-owned secondary mortgage bank. No definite pattern of best practice was observed with origination fee and combined output.

The results of the cost efficiency using SCF indicate a somewhat lower efficiency score than the DEA, although the standard deviation values are also appreciably lower than what was obtained in the DEA. First, this suggests less variation in the cost incurred by individual firms in the sector. Second, the lower average efficiency scores and lower variability from SCF are also attributable to the fact that the frontier in SCF is bounded by a functional form and not just driven by the sample as in the case of DEA. The results suggest that small banks are significantly more cost efficient than large banks.

In summary, a banking sector's efficiency is usually a function of the efficiency of individual banks within the sector. It is widely accepted that efficiency of the banking sector of a country is a key contributor to the macroeconomic stability of that country and also a precondition for economic growth, and in the case of the mortgage banking sector, it is a crucial condition for the development of the housing sector. This study has provided evidence to suggest that the majority of mortgage banks in Nigeria is inefficient in producing outputs. Also, the mortgage banking sector in Nigeria did not experience any productivity growth during the period investigated. This can be attributed to the fact that the mortgage banks in Nigeria did not take advantage of technological advancements, and had to operate in an environment with unfriendly regulatory policies, coupled with the effects of the global financial crisis that originated from the United States, but whose ripple effect undoubtedly affected other economies, including Nigeria.

The real highlight of this project is the empirical assessment and evaluation of the efficiency of the mortgage banking sector. Being able to put a value on how efficient the sector is has provided an important decision making tool for stakeholders in the industry, such as mortgage bank CEOs, the government and especially investors.

# APPENDICES – PROJECT 1

## Appendix 1 – Initial data extracted from financials of banks

		OUTPUT VARIABLES							INPUT VARIABLE										MDC	IA	SHF
		LV	LT	TAR	IR	OF	NoS	SC	OVHD	FAC	Dep	R&R	AE	OOC	CoF						
2006	1	Aso	27257	2	0.07	0.18	0.02	114	326.785	607.866	260.399	28.046	0.997946	570.255	405.071	690.099	3571.5936	43833	-256.091		
2006	2	Abbey	799	3	0.47	0.12	0.03	93	93.064	224.189	131.546	23.507	0.97729	185.458	21.945503	131.603	103.58475	3397.91	616.991		
2006	3	Accord	173	2	0.56	0.19	0.08	19	8.733696	34.781123	8.105804	4.742786	3.791765	29.448337	2.517235	59.214054	13.43133855	505.0639	109.1402		
2006	4	Ag Homes	294	3	0.85	0.24	0.24	36	44.595	149.16	78.399	13.306	6.827	132.45	16.71	61.349	30.0663	2055.329	569.927		
2006	5	Coop	136	1	0.32	0.17	0.04	42	22.857354	66.84054	22.141436	2.130709	2.588393	64.709831	56.983535	15.582802	20.3412969	560.1885	-120.011		
2006	6	Dala	136	5	0.61	0.18	0.00	23	12.339801	42.973871	59.931803	2.970577	0.207668	35.223675	5.232366	3.186679	3.01377615	709.8547	190.9556		
2006	7	Delta Building	106	4	0.22	0.20	0.02	26	10.180827	46.046427	2.929209	0.870747	1.80054	45.758437	21.945503	9.341406	6.43659975	99.02013	-313.99		
2006	8	EuroBank	85	2	0.19	0.16	0.00	45	5.04347	25.015712	59.921641	5.077714	0.425282	19.668065	1.086287	4.073998	17.14595	278.5201	120.3464		
2006	9	FBN	554	2	0.77	0.12	0.14	20	53.368	127.773	58.007	16.768	8.746	93.485	61.62	164.977	79.6167	5895.482	111.113		
2006	10	FHA	950	2	0.19	0.13	0.01	56	38.514019	102.671567	66.98207	7.850306	0.242792	90.681564	24.279177	3.411857	30.1252749	476.9745	216.4218		
2006	11	First Generation	1029	2	0.14	0.11	0.03	23	21.114311	72.615834	56.972474	6.464081	1.758931	72.615834	23.545472	30.121599	19.677689	2907.442	-63.402		
2006	12	Gateway	9	2	3.56	0.07	0.07	16	13.7	33.107	62.206	5.145	1.3731	27.462	0.091	1.573	0.855	187.166	117.654		
2006	13	Global Trust	835	4	0.11	0.16	0.00	23	9.509	29.701	79.904	10.671	2	17.111	3.159	60.578	66.2928	914.132	167.34		
2006	14	Haggai	636	2	0.40	0.24	0.05	51	69.979012	162.597717	43.33269	11.871403	2.145691	143.046066	11.010382	40.021268	68.646804	1292.829	336.5019		
2006	15	Infinity	535	5	0.44	0.25	0.03	18	24.32773	72.957095	116.905308	5.621777	2.7992	47.596588	9.849571	39.149647	33.43736415	1745.597	586.2218		
2006	16	Intercontinental Savings	600	2	0.26	0.20	0.03	32	30.105	92.443	20.698	11.718	1.344693	64.033	5.125	16.147	84.1779	897.911	160.723		
2006	17	Jubilee	51	4	0.77	0.38	0.10	12	15.271819	37.35226	12.013498	2.876009	2.560086	34.476251	1.002958	8.743215	2.47313805	369.0731	161.9667		
2006	18	Lagoon	1169	2	0.43	0.25	0.08	82	109.30103	193.1348	54.547442	15.475989	8.13288	175.196036	133.704186	207.859945	50.8591506	2293.389	363.8788		
2006	19	MayFresh	70	2	1.94	0.17	0.22	23	24.604911	74.743221	515.099756	16.599828	0.9	57.889395	0.13314561	5.243223	9.32372685	1025.36	806.0822		
2006	20	Refuge	187	2	0.53	0.15	0.07	23	36.656697	85.437229	30.932251	8.705219	2.5	72.509551	1.874235	9.404347	27.7812795	882.4342	112.5917		
2006	21	Safetrust	495	3	0.26	0.15	0.13	15	19.311	91.487	12.016	1.645	5.537	90.636	0.851	21.048	57.4557	700.98	-123.281		
2006	22	Skyefield	177	3	0.39	0.15	0.15	23	36.714012	104.150381	56.566445	10.336982	1.388114	93.813399	7.7796125	14.980976	13.41510195	1171.744	836.2944		
2006	23	Skye	157	3	0.20	0.19	0.01	25	13.29377	43.067714	48.416882	3.96162	1.34446	42.777714	35.5178388	6.094781	8.671899	101.7826	-44.2029		
2006	24	Stallion	781	2	0.11	0.11	0.01	47	30.580855	66.298848	65.316605	4.782291	0.955443	56.702257	1.109999	24.399707	83.71923495	920.6792	76.63302		
2006	25	Trinity	62	1	0.21	0.20	0.01	45	3.14044	10.025516	14.352527	1.018061	1.093	8.439186	0.254366	0.010674	9.30915345	108.1924	70.38927		
2006	26	Union Homes	14656	3	0.65	0.25	0.01	750	1487.996	2730.555	2164.229	435.385	4.073812	2263.229	1054.387	5689.078	127.74525	61838.49	2494.323		
2006	27	Yankari	693	8	0.28	0.19	0.01	52	22.359945	81.9045	17.609001	8.066922	0.856213	71.625156	77.877748	25.256014	47.01057075	1111.56	117.108		
2007	1	Aso	31850	3	0.22	0.19	0.01	309	630.26	2355.345	793.819	118.829	1.083028	2166.056	2209.141	1355.956	4020.24375	67278.14	5038.009		
2007	2	Abbey	1893	3	0.33	0.14	0.03	94	124.927	297.824	433.605	37.921	1.131535	226.307	133.704186	200.649	258.2325	5546.898	1445.202		
2007	3	Accord	186	2	0.66	0.30	0.11	19	10.580578	48.256196	5.967494	3.44531	4.859	43.310886	5.517705	65.43582	11.2091367	843.763	112.2109		
2007	4	Ag Homes	421	3	0.98	0.22	0.22	36	60.043	220.557	146.839	17.475	10.275	177.596	0.01425	86.76	32.39505	3233.305	621.922		
2007	5	Coop	141	1	0.22	0.22	0.01	28	13.463821	33.351195	20.6524	1.508632	3.799137	31.659475	76.605151	15.88264	21.17793495	419.298	-115.12		
2007	6	Dala	222	5	0.53	0.24	0.02	32	29.395527	62.947762	92.980911	10.361202	0.194	46.84072	10.108647	3.564623	3.5741847	594.9634	215.9274		
2007	7	Delta Building	137	4	0.23	0.13	0.01	26	22.082024	49.541104	24.490414	6.205175	1.47374	49.318539	18.6576	8.908061	6.5130255	915.9253	-250.277		
2007	8	EuroBank	122	2	0.21	0.11	0.05	59	16.516528	106.714942	53.445447	6.784874	0.43	99.150211	46.56627	3.980489	17.870595	214.8772	-40.2602		
2007	9	FBN	771	2	1.69	0.13	0.03	33	82.742	295.594	62.073	22.293	10.153	209.134	214.965	685.839	111.477	11571.39	2154.3		
2007	10	FHA	1102	2	0.09	0.13	0.00	56	46.28409	98.640619	63.315525	8.606798	1.466114	87.505711	14.661139	1.202522	33.66383625	609.9318	206.7123		
2007	11	First Generation	2204	5	0.16	0.11	0.04	35	28.057329	65.658445	63.172849	9.675876	3.974821	39.483705	26.17524	107.545981	42.188741	3728.01	111.7227		
2007	12	Gateway	60	2	0.97	0.25	0.11	14	18.062	52.746	59.274	6.64	2.2617	45.234	0.6	3.415	2.83485	525.608	118.999		
2007	13	Global Trust	503	11	0.30	0.17	0.00	35	11.004	38.988	63.343	9.805	4.5	22.258	30.442	36.357	1.96395	723.156	274.846		
2007	14	Haggai	797	2	0.42	0.16	0.04	51	97.318266	217.801096	53.160152	13.894153	2.75617	183.74468	5.801594	41.993288	72.15212355	2005.119	407.6894		
2007	15	Infinity	530	5	0.59	0.23	0.02	26	38.416552	99.238248	411.303857	6.217731	2.199467	67.163958	11.193586	56.701603	25.233716	2284.885	1159.594		
2007	16	Intercontinental Savings	1598	2	0.27	0.23	0.01	109	115.995	257.444	73.132	19.267	1.425005	232.743	90.201	86.328	229.2993	15190.89	181.784		

			OUTPUT VARIABLES						INPUT VARIABLE												
			LV	LT	TAR	IR	OF	NoS	SC	OVHD	FAC	Dep	R&R	AE	OOC	CoF	MDC	TA	SHF		
2007	17	Jubilee	1459	7	0.25	0.35	0.07	71	70.926188	188.45179	58.143275	16.085446	5.914272	166.862892	10.672769	55.941863	21.24811455	3251.279	284.8164		
2007	18	Lagoon	1169	2	0.43	0.25	0.08	82	109.30103	193.1348	54.547442	15.475989	8.13288	175.196036	133.704186	207.859945	50.8591506	2293.389	363.8788		
2007	19	MayFresh	122	2	1.35	0.15	0.69	32	32.939713	84.276622	548.042913	16.610007	0.457474	66.461115	0.15286056	3.38535	16.92989835	1219.599	729.2271		
2007	20	Refuge	150	2	0.90	0.17	0.07	23	42.668	107.763	31.992	11.564		3	93.602	4.539	22.18335	719.146	264.211		
2007	21	Safetrust	1161	3	0.39	0.21	0.09	40	74.747	257.9492	21.089	12.5794	16.0578	219.7298	10.602	336.3552	101.006478	1382.755	253.545		
2007	22	Skyfield	250	3	0.41	0.12	0.12	28	41.200045	120.941065	47.443273	10.021796	1.337737	110.919269	0.726729	21.174216	14.13895635	1212.131	793.5365		
2007	23	Skye	234	3	0.19	0.12	0.05	38	13.035268	38.157173	21.942374	5.488663	1.415586	37.394991	70.539165	6.449916	12.69966135	332.057	115.5337		
2007	24	Stallion	844	2	0.21	0.13	0.08	47	48.026855	99.427031	86.977001	5.138169	1.569179	83.59675	1.180871	26.316579	118.9563978	1372.042	187.2253		
2007	25	Trinity	73	2	0.09	0.07	0.00	23	4.254467	10.77411	13.104399	1.023878		1	9.750232	1.881942	0.025862	10.57102545	110.0945	63.53987	
2007	26	Union Homes	15173	3	0.55	0.19	0.01	638	1474.024	2564.586	1831.449	425.424	3.689636	2049.798	571.893	4287.71	91.593615	69529.86	8559.006		
2007	27	Yankari	801	8	0.28	0.19	0.01	52	36.989916	101.532335	18.361719	6.316756	0.90052	94.31268	257.525361	24.433333	44.28992145	807.2565	-58.6168		
2008	1	Aso	38773	3	0.26	0.24	0.00	308	858.678	3521.792	1272.388	287.557	1.58478	3169.56	3707.306	2076.469	4864.68615	62786.92	5477.533		
2008	2	Abbey	4010	3	0.29	0.11	0.05	92	180.271	604.825	440.873	63.069	2.506435	501.287	214.965	280.397	487.1943	10213.49	5295.274		
2008	3	Accord	507	2	0.29	0.14	0.04	16	14.786798	61.891319	16.555864	5.434718	5.27	54.346601	8.89498	68.01436	8.837556	1135.811	122.3383		
2008	4	Ag Homes	475	3	0.83	0.27	0.00	60	68.418	223.21	145.118	25.629	13.254	217.87	32.007	119.095	31.82505	2875.408	626.124		
2008	5	Coop	125	1	0.32	0.27	0.01	28	15.494325	36.451806	23.017064	1.98761	1.5284	34.464196	16.9768296	15.108917	18.7447422	472.4563	-140.039		
2008	6	Dala	358	5	0.55	0.25	0.02	35	35.092024	99.647843	98.465238	14.203764	0.11	76.226502	37.03584	5.842088	5.79781515	902.0887	266.2203		
2008	7	Delta Building	129	3	1.01	0.16	0.01	30	37.607661	86.402583	19.827724	8.258069	3.587722	85.951789	35.598337	25.094927	5.766432	1098.494	-216.733		
2008	8	EuroBank	278	2	0.16	0.10	0.04	69	20.034755	46.04254	50.595654	5.480094	0.58432	39.203986	2.779377	3.529201	16.83595	439.8059	221.7724		
2008	9	FBN	1262	2	1.73	0.13	0.03	49	170.999	537.186	122.601	39.565	18.308	324.138	194.456	1050.73	176.01045	12765.76	2310.059		
2008	10	FHA	295	2	0.49	0.17	0.02	56	42.564537	129.081849	63.24054	10.097678	2.301062	116.801956	23.010624	1.070756	5.3342382	951.9396	322.7323		
2008	11	First Generation	2074	4	0.21	0.17	0.03	35	32.628794	88.308571	64.516378	12.053396	4.771303	46.43219	41.876381	180.517034	41.143353	4983.644	-16.0538		
2008	12	Gateway	88	2	0.73	0.28	0.17	19	23.447	68.718	56.629	8.572	2.9384	58.768	40.432	8.921	4.9137	667.925	224.685		
2008	13	Global Trust	382	12	0.52	0.11	0.00	35	30.812	68.395	152.207	15.749	4.812	50.646	1.214	15.734	1.96395	756.696	391.558		
2008	14	Haggi	1297	2	0.36	0.16	0.04	66	116.840591	228.695134	138.637643	17.162329	3.352789	223.519291	54.70367	85.755832	134.9932815	2642.335	450.7957		
2008	15	Infinity	611	5	0.77	0.33	0.03	33	68.707594	143.566709	677.85507	4.380018	3.333333	115.209871	23.731187	103.90224	29.49913605	4043.73	1667.066		
2008	16	Intercontinental Savings	3956	2	0.63	0.25	0.00	114	415.831	1008.625	224.729	28.215	2.545483	733.929	259.227	566.777	328.27545	16842.95	7010.429		
2008	17	Jubilee	458	6	1.31	0.36	0.10	94	183.589243	347.279677	66.30416	18.188861	9.287857	290.442629	19.168588	85.146058	16.34637315	3881.709	432.3334		
2008	18	Lagoon	2318	2	0.34	0.22	0.06	92	130.836318	287.319978	44.760759	20.721849	7.76385	250.972865	81.783607	336.774355	50.1466065	3799.662	751.2077		
2008	19	MayFresh	268	2	0.60	0.13	0.41	35	14.901978	76.964073	608.234557	26.988895	1.02564	48.865178	0.11238991	1.522573	27.70248	1489.188	2951.009		
2008	20	Refuge	257	3	0.69	0.19	0.09	35	43.793	133.777	24.577	11.893		3	115.98	7.649	34.71375	2078.506	1081.591		
2008	21	Safetrust	1735	3	0.60	0.21	0.07	43	123.401	328.055	61.555	11.814	19.902	273.328	19.952	284.124	151.46745	3171.164	1159.641		
2008	22	Skyfield	190	3	0.49	0.19	0.19	32	67.856196	135.333733	45.697001	6.094771	6.763332	129.238962	98.312764	20.048994	14.07901125	1167.663	732.4504		
2008	23	Skye	510	3	0.27	0.14	0.07	44	19.502912	63.509667	22.782378	5.291296	2.380253	54.65497	28.225232	14.081569	50.7437436	1482.02	1007.385		
2008	24	Stallion	1432	2	0.18	0.10	0.07	47	79.343534	139.67534	92.468673	12.173224	0.742953	120.599011	11.121062	48.856356	199.728168	1999.27	254.7231		
2008	25	Trinity	230	2	0.12	0.12	0.01	35	4.944224	9.885613	12.447346	0.746053		1	9.13956	35.794034	0.005217	34.2392502	196.9306	45.07915	
2008	26	Union Homes	17944	3	0.50	0.26	0.01	678	2211.729	3683.389	2239.991	278.966	5.509463	3060.813	821.678667	3913.041	138.78948	78425.54	10262.62		
2008	27	Yankari	921	8	0.26	0.11	0.03	52	53.721135	133.72864	19.451605	4.844082	1.20045	128.16241	150.660186	21.337736	44.29448885	1065.275	-139.77		
2009	1	Aso	39082	3	0.28	0.22	0.00	352	1116.502	5093.404	1865.822	408.405	2.229092	4458.183	2820.249	2668.578	4546.221	6287.94	1796.117		
2009	2	Abbey	5624	3	0.27	0.11	0.03	106	215.821	771.461	459.858	71.121	2.907205	581.441	23.731187	307.48	666.8028	10730.91	5404.602		
2009	3	Accord	157	2	1.04	0.23	0.23	15	17.37538	75.071061	34.362427	9.205387	9.446815	64.965574	41.343294	107.952126	1.5526338	671.9687	110.3868		
2009	4	Ag Homes	362	3	1.19	0.27	0.00	51	91.618	298.212	83.257	26.727	15.304	297.471	1.91	200.248	20.1621	2317.757	355.581		
2009	5	Coop	114	1	0.37	0.25	0.01	45	48.499651	115.013734	74.224314	13.597096	3.811333	101.067215	2.953573	23.34768	17.1119718	896.9583	-2.86091		
2009	6	Dala	269	5	0.73	0.21	0.03	35	51.74463	124.994276	91.265818	16.028975	0.326667	103.017948	41.480857	8.143126	5.4349392	983.2274	262.2293		
2009	7	Delta Building	93	3	0.58	0.17	0.14	47	32.732146	169.843065	16.326013	1.827406	5.086974	169.564122	49.532576	23.035749	1.07996865	622.4974	-565.437		
2009	8	EuroBank	417	2	0.14	0.11	0.00	68	33.759077	64.030249	68.277808	6.907643	2.4519	55.507475	7.524662	5.327445	17.4817	504.3291	270.5437		
2009	9	FBN	1632	2	1.00	0.14	0.03	54	145.961	419.612	139.849	40.406	20.185	299.981	3.297	1149.051	221.94675	13103.99	2311.521		
2009	10	FHA	528	2	0.41	0.17	0.02	56	39.496904	199.049339	106.649606	23.024166	2.652059	174.465977	26.520588	14.944286	32.7090846	1276.353	297.7252		

			OUTPUT VARIABLES							INPUT VARIABLE												
			LV	LT	TAR	IR	OF	NoS	SC	OVHD	FAC	Dep	R&R	AE	OOc	CoF	MDC	TA	SHF			
2009	11	First Generation	2716	4	0.20	0.16	0.02	38	47.241094	186.084174	79.06173	21.903938	4.925407	164.180236	95.035204	154.047927	38.64838746	4831.048	34.4958			
2009	12	Gateway	94	2	0.57	0.22	0.22	24	33.496	104.698	175.625	11.339	4.61345	92.269	11.241	1.017	4.7841	652.927	5.016			
2009	13	Global Trust	994	12	0.20	0.13	0.01	38	40.705	95.352	134.996	19.557	4.8	59.816	3.394	26.026	0.5367	1309.717	461.974			
2009	14	Haggai	1761	2	0.40	0.26	0.04	68	167.754367	344.21037	134.63912	26.387678	4.421244	294.749625	52.567161	139.967815	209.4187253	4081.74	544.5514			
2009	15	Infinity	668	5	1.95	0.32	0.04	35	76.301858	211.877557	2167.879267	10.312627	2.777333	170.487088	20	27.280315	32.39508375	4616.468	2955.272			
2009	16	Intercontinental Savings	3728	4	0.32	0.28	0.01	142	451.374	1855.862	779.52	61.995	2.500247	1157.957	83.742	578.517	254.44305	9463.154	4441.064			
2009	17	Jubilee	498	6	1.49	0.33	0.05	98	177.382073	374.720515	86.025406	27.782034	26.46719	317.046366	30.563337	104.843039	16.461	5773.802	796.4523			
2009	18	Lagoon	7380	2	0.16	0.12	0.02	95	271.317	574.009	291.364	27.785	12.129	542.002	20.901	643.742	292.21215	9403.03	653.742			
2009	19	MayFresh	549	2	0.70	0.17	0.53	38	59.428703	152.117725	2467.857395	39.548745	2.932268	107.56898	0.24740865	4.652043	62.7789975	3892.362	2951.009			
2009	20	Refuge	291	3	0.22	0.22	0.02	35	41.594	141.945	17.305	13.988	3.61	126.718	29.021	96.484	31.04505	2474.984	875.871			
2009	21	Safetrust	2181	3	0.54	0.28	0.07	45	121.538	374.228	52.55	20.842	21.323	312.581	31.816	511.433	200.02005	2795.208	1347.984			
2009	22	Skyefield	199	3	0.31	0.10	0.10	38	74.278405	199.903849	40.376746	5.320257	2.862941	194.583592	196.057447	32.502302	4.11501885	830.6447	365.1457			
2009	23	Skye	1082	3	0.42	0.28	0.16	69	158.048	246.148	105.563	10.497	10.261	239.381	36.069	146.673	80.4096	5468.548	1029.096			
2009	24	Stallion	1564	2	0.16	0.11	0.03	47	83.845285	149.571413	74.497459	13.325915	1.15086	132.207822	8.900449	59.551297	203.6553995	2308.646	239.4072			
2009	25	Trinity	77	2	0.10	0.21	0.02	35	5.234836	14.441103	9.825252	0.750094	0.6	13.14078	8.187603	0.225	11.27272005	65.34774	46.21309			
2009	26	Union Homes	21146	2	0.46	0.21	0.02	681	2359.98	4300.598	2753.768	303.514	6.645589	3691.994	2863.291	5013.243	157.86258	85055.41	17215.373			
2009	27	Yankari	998	9	0.28	0.22	0.01	52	47.040175	165.183913	16.512892	5.656214	2.040521	156.557361	168.804268	19.133671	29.2976556	423.1128	-212.566			
2010	1	Aso	38537	3	0.26	0.24	0.01	635	1283.684	4259.198	1770.972	477.638	2.060691	4121.381	6082.536	3051.413	4435.68495	76961.27	3008.452			
2010	2	Abbey	6908	3	0.25	0.13	0.04	119	305.891	931.731	560.26	86.412	3.774045	754.809	385.437	863.8506	11435.28	5518.522				
2010	3	Accord	129	2	0.63	0.24	0.38	10	8.096494	39.493262	28.190632	14.047618	6.099676	34.50807	35.629263	27.042218	1.33442295	563.9753	111.3661			
2010	4	Ag Homes	681	2	0.63	0.14	0.01	57	83.67	246.099	72.43	24.888	10.735	219.879	14.818	117.014	44.21925	2322.817	374.558			
2010	5	Coop	235	1	0.16	0.16	0.00	49	74.852548	152.216444	76.362062	18.306933	3.293779	132.862831	7.478443	35.60166	35.26696455	1053.506	120.6547			
2010	6	Dala	448	5	0.73	0.23	0.03	38	55.533539	167.931427	84.708775	15.581627	1.589444	118.437474	72.478788	8.90218	18.12855675	1468.746	690.3581			
2010	7	Delta Building	84	3	0.53	0.20	0.12	48	45.6437	195.508999	15.166683	8.42767	5.856108	195.203613	84.756679	14.892097	0.34100025	659.0162	562.007			
2010	8	Eurobank	356	2	0.23	0.21	0.00	68	33.622157	59.360091	66.508489	4.653498	2.363717	52.826226	5.734064	5.132337	19.83565	551.3489	275.8788			
2010	9	FBN	1586	2	0.54	0.19	0.06	44	211.279	528.07	133.125	55.427	12.8012	449.451	0.083	364.359	159.73155	15530.82	2279.568			
2010	10	FHA	783	2	0.21	0.18	0.01	55	52.061225	196.589893	116.781098	30.064084	5.78498	165.101011	57.849801	14.038943	55.2924312	1437.556	279.3191			
2010	11	First Generation	3516	4	0.12	0.11	0.02	40	88.129437	167.846655	63.499506	16.815066	6.486706	162.167658	99.004597	89.815104	44.96498247	5620.623	579.012			
2010	12	Gateway	75	2	1.00	0.18	0.18	24	35.262	116.057	163.714	13.334	5.11655	102.331	1.601	2.081	3.64935	573.767	120.99			
2010	13	Global Trust	884	11	0.36	0.26	0.02	40	39.48	99.657	130.151	14.399	4.8	60.228	127.665	41.831	5.016	1432.427	524.653			
2010	14	Haggai	2057	2	0.30	0.20	0.02	83	204.559793	445.99047	161.675682	20.368072	5.532951	368.863384	71.006166	66.412003	270.6666606	3823.727	628.6551			
2010	15	Infinity	1116	5	1.82	0.11	0.02	36	55.005527	130.859033	2204.800224	30.96946	2.777333	85.406469	16.193586	102.104192	108.299615	4604.033	2606.591			
2010	16	Intercontinental Savings	3263	4	0.41	0.12	0.00	110	450.264	775.473	717.293	72.275	3.54712	733.269	55.93	298.406	262.20285	8723.717	4561.763			
2010	17	Jubilee	567	6	1.59	0.16	0.04	83	188.033	450.984	102.801	29.152	14.237	386.457	24.522	211.297	34.92555	6505.901	945.781			
2010	18	Lagoon	4772	2	0.30	0.18	0.02	71	288.426	1008.537	301.907	97.585	32.337	907.399	51.086	861.238	318.05835	3832.548	445.13			
2010	19	MayFresh	382	2	1.15	0.20	0.94	40	76.162667	228.400842	2156.172245	56.801714	3.014502	164.599128	0.37857799	5.601106	56.84774055	3745.406	2828.705			
2010	20	Refuge	638	3	0.47	0.15	0.02	38	37.281	172.573	27.574	13.087	1.98	155.34	9.607	60.373	86.32965	2715.004	2097.379			
2010	21	Safetrust	4066	3	0.36	0.24	0.04	55	95.459	423.623	63.714	26.603	28.406	350.116	0.026	829.964	398.20755	13716.93	1594.547			
2010	22	Skyefield	57	3	2.79	0.20	0.20	40	56.477031	110.032948	55.817435	6.694791	2.518028	103.338157	0.568081	16.077295	1.5285729	1834.541	842.5453			
2010	23	Skye	1454	3	0.30	0.21	0.16	69	113.552	245.593	129.175	16.772	17.909	234.063	26.214	95.6	89.055	4502.169	1096.589			
2010	24	Stallion	2324	2	0.13	0.17	0.02	47	86.633414	163.083887	73.772121	12.039679	1.52	149.537344	67.639651	84.806642	305.1599828	2923.019	260.9414			
2010	25	Trinity	66	2	0.26	0.23	0.02	40	5.342299	12.82418	8.927507	1.047745	0.92325	11.505609	21.946015	0.464806	9.5894628	45.9695	28.13908			
2010	26	Union Homes	22133	2	0.44	0.20	0.01	747	2029.29	3584.693	3869.572	184.925	4.979625	3366.849	1230.00113	2403.803	162.919545	48226.83	5708.91			
2010	27	Yankari	1177	8	0.22	0.17	0.01	35	42.571996	128.83912	20.3957	4.155783	2.481914	124.095721	134.789841	9.109593	26.08035585	607.342	-205.349			

LV – Loan Value, LT – Loan Type, TAR – Turn Around Rate, IRM – Interest Rate Margin, OF – Origination Fee, NoS – Number of Staff, SC – Staff Cost, OVHD – Overhead, FAC – Fixed Asset Cost, Dep – Depreciation, R&R – Rent and Rates, AE – Admin. Expenses, OOC – Other Operating Cost, CoF – Cost of Funds, MDC – Mortgage Department Cost, TA – Total Asset, SHF – Shareholders' Funds.

## Appendix 2 - List of banks and their characteristics

	Name of Bank	Ownership (Majority Holdings)	Size
1	Aso Savings and Loans Plc	Private	Large
2	Abbey Building Society Plc	Private	Large
3	Accord Savings and Loans Limited	Private	Small
4	Ag Homes Savings and Loans Plc	Church	Small
5	Coop Savings and Loans Limited	private	Small
6	Dala Building Society	Government	Small
7	Delta Building Society Company Limited	Government	Small
8	EuroBank Savings and Loans Limited	Private	Small
9	FBN Mortgages Limited	Commercial Bank	Large
10	FHA Homes limited (Savings and Loans)	Government	Small
11	First Generation Homes Savings and Loans Limited	Private	Small
12	Gateway Savings and Loans Limited	Government	Small
13	Global Trust Savings and Loans Limited	Private	Small
14	Haggai Savings and Loans Limited	Church	Small
15	Infinity Trust Savings and Loans	Private	Small
16	Intercontinental Homes Savings and Loans Plc	Commercial Bank	Large
17	Jubilee-Life Savings and Loans Limited (Mortgage Bankers)	Church	Large
18	Lagoon Home Savings and Loans Limited	Private	Large
19	MayFresh Savings and Loans Limited	Church	Small
20	Refuge Home Savings and Loans Limited	Church	Small
21	Safetrust Savings and Loans Limited	Commercial Bank	Large
22	Skyefield Savings and Loans Limited	Private	Small
23	Skye Mortgage Bankers Limited	Commercial Bank	Small
24	Stallion Home Savings and Loans Limited	Private	Small
25	Trinity Savings and Loans limited	Private	Small
26	Union Homes Savings and Loans Plc	Commercial Bank	Large
27	Yankari Savings and Loans Limited	Government	Small

### Appendix 3 - Data with aggregated variables

		Loan Value	Origination Fee	Interest Rate Margin	Staff Cost	Capital	Running Cost
2006	1	27257	0.02	10.06	326.785	897.3089463	5237.0186
2006	2	799	0.03	5.32	93.064	380.16929	442.591253
2006	3	173	0.08	7.07	8.733696	51.421478	104.6109646
2006	4	294	0.24	14.69	44.595	247.692	240.5753
2006	5	136	0.04	3.63	22.857354	93.70107824	157.6174649
2006	6	136	0.00	7.27	12.339801	106.083919	46.65649615
2006	7	106	0.02	13.47	10.180827	51.646923	83.48194575
2006	8	85	0.00	5.65	5.04347	90.440349	41.9743
2006	9	554	0.14	(0.23)	53.368	211.294	399.6997
2006	10	950	0.01	18.83	38.514019	177.7467348	148.4978729
2006	11	1029	0.03	11.77	21.114311	137.81132	145.960594
2006	12	9	0.07	11.55	13.7	101.8311	29.981
2006	13	835	0.00	0.68	9.509	122.276	147.1408
2006	14	636	0.05	17.44	69.979012	219.947501	262.72452
2006	15	535	0.03	2.10	24.32773	198.28338	130.0331702
2006	16	600	0.03	5.82	30.105	126.203693	169.4829
2006	17	51	0.10	1.64	15.271819	54.801853	46.69556205
2006	18	1169	0.08	30.29	109.30103	271.291111	567.6193176
2006	19	70	0.22	32.94	24.604911	607.342805	72.58949046
2006	20	187	0.07	15.58	36.656697	127.574699	111.5694125
2006	21	495	0.13	22.41	19.311	110.685	169.9907
2006	22	177	0.15	20.27	36.714012	172.441922	129.9890895
2006	23	157	0.01	44.54	13.29377	96.790676	93.0622328
2006	24	781	0.01	1.51	30.580855	137.353187	165.931198
2006	25	62	0.01	28.61	3.14044	26.489104	18.01337945
2006	26	14656	0.01	11.89	1487.996	5334.242812	9134.43925
2006	27	693	0.01	9.65	22.359945	108.436636	221.7694888
2007	1	31850	0.01	3.84	630.26	3269.076028	9751.39675
2007	2	1893	0.03	5.75	124.927	770.481535	818.892686
2007	3	186	0.11	13.23	10.580578	62.528	125.4735477
2007	4	421	0.22	35.78	60.043	395.146	296.7653
2007	5	141	0.01	1.95	13.463821	59.311364	145.325201
2007	6	222	0.02	6.89	29.395527	166.483875	64.0881747
2007	7	137	0.01	51.24	22.082024	81.710433	83.3972255
2007	8	122	0.05	1.75	16.516528	167.375263	166.78292
2007	9	771	0.03	3.55	82.742	390.113	1221.415
2007	10	1102	0.00	51.83	46.28409	172.0290559	137.0332083
2007	11	2204	0.04	14.54	28.057329	142.481991	215.393167
2007	12	60	0.11	2.01	18.062	120.9217	52.08385
2007	13	503	0.00	12.94	11.004	116.636	91.02095
2007	14	797	0.04	12.56	97.318266	287.6115712	303.6916856
2007	15	530	0.02	0.57	38.416552	518.959303	160.2928646
2007	16	1598	0.01	7.34	115.995	351.268005	638.5713
2007	17	1459	0.07	1.50	70.926188	268.594783	254.7256386
2007	18	1169	0.08	27.91	109.30103	271.291111	567.6193176
2007	19	122	0.69	13.63	32.939713	649.386966	86.92922391
2007	20	150	0.07	20.35	42.668	154.319	140.76435
2007	21	1161	0.09	6.39	74.747	307.6754	667.693478

		Loan Value	Origination Fee	Interest Rate Margin	Staff Cost	Capital	Running Cost
2007	22	250	0.12	18.68	41.200045	179.743871	146.9591704
2007	23	234	0.05	6.39	13.035268	67.003796	127.0837334
2007	24	844	0.08	2.83	48.026855	193.10638	230.0505978
2007	25	73	0.00	8.18	4.254467	25.902387	22.22906145
2007	26	15173	0.01	15.20	1474.024	4825.148636	7000.994615
2007	27	801	0.01	4.81	36.989916	127.11133	420.5612955
2008	1	38773	0.00	4.42	858.678	5083.32178	13818.02115
2008	2	4010	0.05	7.63	180.271	1111.273435	1483.8433
2008	3	507	0.04	14.11	14.786798	89.151901	140.093497
2008	4	475	0.00	24.52	68.418	407.211	400.79705
2008	5	125	0.01	1.50	15.494325	62.98488	85.2446848
2008	6	358	0.02	9.78	35.092024	212.426845	124.9022452
2008	7	129	0.01	7.80	37.607661	118.076098	152.411485
2008	8	278	0.04	11.14	20.034755	102.67672	62.348514
2008	9	1262	0.03	1.50	170.999	717.66	1745.33445
2008	10	295	0.02	98.92	42.564537	204.7211294	146.2175742
2008	11	2074	0.03	12.58	32.628794	169.649648	309.968958
2008	12	88	0.17	13.10	23.447	136.8574	113.0347
2008	13	382	0.00	29.67	30.812	241.163	69.55795
2008	14	1297	0.04	12.64	116.840591	387.8478954	498.9720745
2008	15	611	0.03	3.51	68.707594	829.13513	272.3424341
2008	16	3956	0.00	6.84	415.831	1264.123583	1888.20845
2008	17	458	0.10	1.50	183.589243	441.060555	411.1036482
2008	18	2318	0.06	19.50	130.836318	360.566436	719.6774877
2008	19	268	0.41	17.64	14.901978	712.323165	78.20262091
2008	20	257	0.09	13.53	43.793	173.247	188.29275
2008	21	1735	0.07	7.04	123.401	420.926	728.87145
2008	22	190	0.19	11.03	67.856196	193.888837	261.6797313
2008	23	510	0.07	10.01	19.502912	93.963594	147.7055146
2008	24	1432	0.07	4.06	79.343534	245.06019	380.304597
2008	25	230	0.01	21.80	4.944224	24.079012	79.1780612
2008	26	17944	0.01	13.32	2211.729	6207.855463	7934.322147
2008	27	921	0.03	13.70	53.721135	159.224777	344.4548219
2009	1	39082	0.00	16.69	1116.502	7369.860092	14493.231
2009	2	5624	0.03	6.93	215.821	1305.347205	1579.454987
2009	3	157	0.23	43.61	17.37538	128.08569	215.8136278
2009	4	362	0.00	24.98	91.618	423.5	519.7911
2009	5	114	0.01	1.50	48.499651	206.646477	144.4804398
2009	6	269	0.03	8.55	51.74463	232.615736	158.0768702
2009	7	93	0.14	24.47	32.732146	193.0834077	243.2124157
2009	8	417	0.00	8.47	33.759077	141.6676	85.841282
2009	9	1632	0.03	1.60	145.961	620.052	1674.27575
2009	10	528	0.02	8.84	39.496904	331.3751698	248.6399356
2009	11	2716	0.02	3.00	47.241094	291.9752491	451.9117545

		Loan Value	Origination Fee	Interest Rate Margin	Staff Cost	Capital	Running Cost
2009	12	94	0.22	9.01	33.496	296.27545	109.3111
2009	13	994	0.01	14.12	40.705	254.705	89.7727
2009	14	1761	0.04	2.64	167.754367	509.6584124	696.7033263
2009	15	668	0.04	8.69	76.301858	2392.846784	250.1624828
2009	16	3728	0.01	10.30	451.374	2649.877247	2074.65905
2009	17	498	0.05	1.50	177.382073	514.995147	468.913742
2009	18	7380	0.02	0.89	271.317	905.287	1498.85715
2009	19	549	0.53	7.62	59.428703	2662.456133	175.2474292
2009	20	291	0.02	18.75	41.594	176.798	283.26805
2009	21	2181	0.07	16.64	121.538	468.943	1055.85005
2009	22	199	0.10	14.92	74.278405	248.463793	427.2583599
2009	23	1082	0.16	5.73	158.048	372.469	502.5326
2009	24	1564	0.03	1.41	83.845285	238.545647	404.3149675
2009	25	77	0.02	3.16	5.234836	25.616449	32.82610305
2009	26	21146	0.02	10.19	2359.98	7364.525589	11726.39058
2009	27	998	0.01	60.59	47.040175	189.39354	373.7929556
2010	1	38537	0.01	24.13	1283.684	6509.868691	17691.01495
2010	2	6908	0.04	11.40	305.891	1582.177045	2040.1656
2010	3	129	0.38	10.49	8.096494	87.831188	98.51397395
2010	4	681	0.01	21.22	83.67	354.152	395.93025
2010	5	235	0.00	1.92	74.852548	250.179218	211.2098986
2010	6	448	0.03	15.49	55.533539	269.811273	217.9469988
2010	7	84	0.12	2.53	45.6437	224.9594604	295.1933893
2010	8	356	0.00	17.96	33.622157	132.885795	83.528477
2010	9	1586	0.06	12.58	211.279	729.4232	973.62455
2010	10	783	0.01	5.03	52.061225	349.2200551	292.2821862
2010	11	3516	0.02	8.67	88.129437	254.5979333	395.9523415
2010	12	75	0.18	48.50	35.262	298.22155	109.66235
2010	13	884	0.02	20.32	39.48	249.007	234.74
2010	14	2057	0.02	16.35	204.559793	633.5671748	776.9482136
2010	15	1116	0.02	3.82	55.005527	2369.40605	312.003862
2010	16	3263	0.00	6.90	450.264	1568.58812	1349.80785
2010	17	567	0.04	11.69	188.033	597.174	657.20155
2010	18	4772	0.02	2.87	288.426	1440.366	2137.78135
2010	19	382	0.94	7.42	76.162667	2444.389303	227.4265525
2010	20	638	0.02	12.56	37.281	215.214	311.64965
2010	21	4066	0.04	14.15	95.459	542.346	1578.31355
2010	22	57	0.20	1.89	56.477031	175.063202	121.5121059
2010	23	1454	0.16	35.16	113.552	409.449	444.932
2010	24	2324	0.02	12.64	86.633414	250.415687	607.1436198
2010	25	66	0.02	8.64	5.342299	23.722682	43.5058928
2010	26	22133	0.01	9.63	2029.29	7644.169625	7163.572678
2010	27	1177	0.01	22.97	42.571996	155.8725174	294.0755109

## **CHAPTER THREE: PROJECT 2 REPORT**

### **Perception of CEOs of Mortgage Banks in Nigeria on the Efficiency of the Nigerian Mortgage System**

## Abstract

There is abundant evidence in the literature that housing provision and housing finance in emerging economies is grossly inadequate and this has been attributed to different reasons, including inefficiency in the formal housing finance systems. The aim of this study is to investigate how Chief Executive Officers (CEOs) of Mortgage Banks in Nigeria perceive the efficiency of their industry in terms of housing finance provision, explore why inefficiencies exist in the sector, and determine how the constraints to efficiency can be mitigated.

Semi-structured interviews and two focus group sessions were carried out with selected CEOs of Mortgage Banks in Nigeria to collect data for analysis to achieve this aim. The constraints highlighted in the data collection exercises were compiled and categorized into regulative, normative, and cultural cognitive constraints using the institutional theory framework.

55% of the challenges to efficiency in the sector are attributed to regulative constraints, 24% to normative constraints, and 21% to cultural-cognitive constraints. This provides evidence that the efficiency of firms in transition and emerging economies is limited more by institutional (regulatory) constraints than other factors.

Practitioners rated the mortgage system in Nigeria as only 10% efficient. This low rating can be attributed to the negative perception of the institutional structures in the system, that constitute various forms of constraints to the effectiveness and smooth functioning of the system.

The findings also reveal that CEOs perceive the factors that impair the efficiency of the sector to be in two categories – the external and internal factors. This perceived categorization aligns with the institutional theory concept; external constraints are the regulative constraints, while the internal constraints are comprised of both the normative and cultural-cognitive components of the institutional theory categorization.

## 3.1 INTRODUCTION

This project is a sequel to project one, which investigated the efficiency of the Nigerian Mortgage Banking Sector through the quantitative assessment of measurable factors (input and output variables of the mortgage loan origination process) with DEA and SCF techniques and revealed in its findings that the sector is inefficient. It equally provided the basis for the assertion that lack of efficiency of the sector is one reason why there are challenges in accessing much-needed funds, as supported by the work of Lea (1994), who posited that a significant increase in the efficiency with which UK and USA mortgage markets deliver credits to homebuyers has led to a decline in the relative cost of mortgages, and an improvement in funds availability.

This project is therefore aimed at investigating the perception of CEOs in the sector on how efficient the sector is, to build on the quantitative assessment done in project one and also to explore the constraints to efficiency in the sector using the institutional theory framework. Understanding the constraints to efficiency is a prerequisite to identifying critical areas of operations of the sector that need reform. Besides, with limited available resources, it is practically impossible to tackle all possible constraints at the same time. So, understanding these constraints will help to prioritise them, and thereby provide solutions in order of the severity of the constraints.

### 3.1.1 Background to the study

As evident in developed economies, mortgage financing represents the *de facto* means of housing finance. In these countries, the mortgage market is among the largest components of the capital markets. In the United States, for example, mortgage debt is the largest component of the domestic debt markets. In 2006 this figure was put at \$9.7 trillion (Grandfather Economic Report - March 2007). It is, however, important to note that this figure has grown continuously over the years. Contrary to what obtains in developed economies, mortgage financing is a channel that is either only just starting to take root or is largely under-utilized in the developing economies of the world.

In Nigeria, the opportunities in the mortgage sector remain hugely unexploited. Presently the mortgage sub-sector accounts for less than 10% of Nigeria's Gross Domestic Product (GDP), (Lead Capital, 2006), as against in the USA where mortgage debt accounts for 86% of the GDP. This therefore means that great opportunities exist for growth, development and investment, and the potentials of this sector to boost the nation's economy cannot be overemphasized.

The mortgage industry in Nigeria is comprised of a few active players, which are mostly bank subsidiaries and a collection of relatively undercapitalized independent mortgage institutions. As a result of the absence of long-term funds and high interest costs, their modes of operation are modelled after the lending activities of commercial banks. These

institutions include semi-government agencies, mortgage banks and building societies. The major problem faced by the mortgage industry in Nigeria has been the inadequate supply of long-term funds, which represent the major means of providing mortgages.

The mortgage banking system in Nigeria has relied solely on accretions of meagre statutorily compulsory savings into the National Housing Trust Fund (NHTF) scheme. The antithesis of this is what obtains in the developed countries of the World where a huge portion of the countries' GDPs are tied up in mortgages. As a result of this anomaly, there have been moves by the regulatory authorities in Nigeria to increase the supply of long-term funds for onward lending to prospective homeowners. A few of these efforts include the recent recapitalization of Primary Mortgage Institutions (PMIs) in Nigeria, the pensions and financial sector reforms, the recently promoted Federal Government of Nigeria (FGN) Mortgage-Backed securities, etc. These efforts have, however, not yielded the desired results, as the problem of finance in the sector is far from being solved.

The existence of a housing deficit to the tune of about 14.9 million units as at 2010 (Igbinoba, 2011) is an indication of the huge housing need experienced in Nigeria. Buckley and Kalarickal (2004) and Merrill (2006), argued that going by the success of the mortgage sectors in developed economies, there are requirements that emerging mortgage markets such as Nigeria need to embrace if they are to effectively tackle the housing deficit issue. The requirements include stable macroeconomic conditions, a legal framework for property rights, mortgage market infrastructure, and the provision of long-term finance to promote financial intermediation.

The provision of long-term finance seems to be the major requirement for developing and sustaining a viable mortgage sector because out of the factors highlighted above, it accounts for about 70% of the quality and volume of housing units that will be produced, as well as the stability and effectiveness of the financial system (Diamond and Lea, 1992). It follows then that the development of a viable housing finance system is of utmost importance to the development and success of emerging mortgage markets.

Akinwunmi (2009) also suggested that a stable macroeconomic condition is another requirement for a thriving mortgage sector. Apart from the fact that this factor has a direct impact on the quality of housing, it also exerts a great influence on the availability of long-term mortgage finance because macroeconomic instability often results in high and volatile domestic interest rates, erratic monetary and exchange rate policies, coupled with weakness in financial systems. In addition to this, the type of macroeconomic policies adopted has a direct impact on the efficiency of the mortgage sector and housing finance. Several other researches have investigated the impact of different qualitative factors on efficiency – the most common one being financial sector reform. Figueira, Nellis and Parker (2007) provided evidence from the Polish banking industry and Poshakwale and Qian (2011) provided evidence from Egypt that financial sector reforms also have a significant and positive effect on efficiency.

Deriving from the work of Diamond and Lea (1992), an assessment of the efficiency of the Nigerian Mortgage Banking sector was carried out in an earlier research, (project one), as a fundamental step in finding an enduring solution to the challenge of long-term financing.

The efficiency of the sector was measured using quantitative techniques. Variables that represent important inputs and outputs in the mortgage loan origination process were identified, their values between 2005 and 2010 were collated and these data were used to estimate the efficiency of the sector using two different estimation techniques. It was discovered that the Nigerian mortgage sector is under-developed with total mortgage debts of less than 0.5% of the country's GDP, as against the situation in developed countries where mortgage debts account for at least 40% of the GDP.

This study is aimed at building on the previous project by investigating the perception of practitioners on the level of efficiency of the mortgage system and identifying other equally important factors that drive efficiency but which cannot be captured by quantitative measurement.

This will be achieved by interacting with CEOs in the Nigerian mortgage banking sector through structured interviews and a focus group discussion, to find out their perception of the level of efficiency of the sector and also to identify other factors that influence or determine efficiency, as well as to highlight challenges to the efficiency of the sector.

### **3.1.2 Research objectives**

Housing provision in Nigeria is a combination of many interrelated components, which include land, infrastructure, building materials, policies, building regulations, and most importantly the finance component. Finance in housing delivery is very important because of the huge financial requirement for housing production.

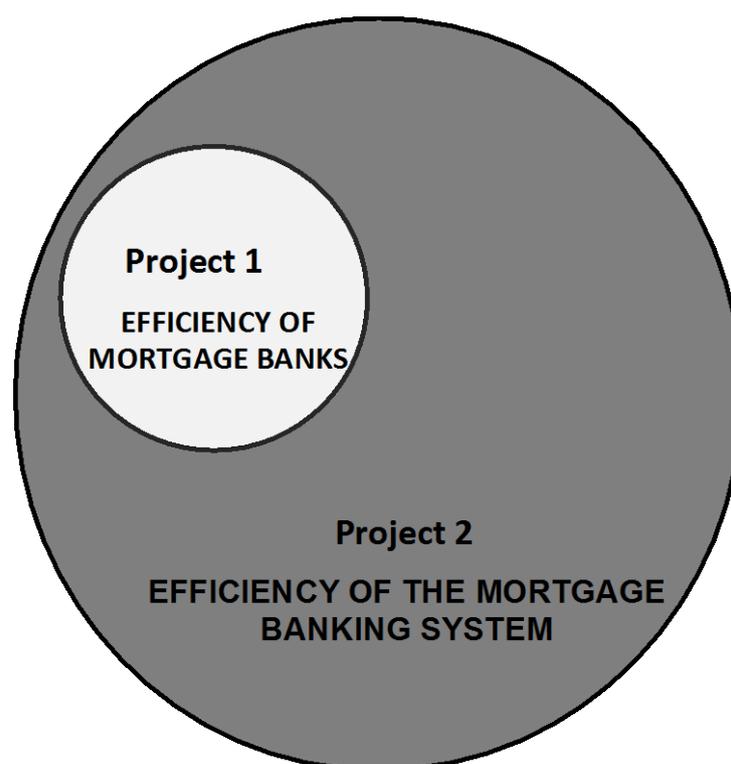
In an attempt to further address the challenges to the provision of adequate and affordable housing in Nigeria and as a sequel to project one, this project will investigate the perception of CEOs of Mortgage Banks in Nigeria on the efficiency of the mortgage system in Nigeria, with a view to understanding:

1. How efficient CEOs of mortgage banks perceive the mortgage process to be
2. What factors are perceived to drive efficiency of the process
3. The perception of constraints that impede efficiency of the process
4. How these constraints can be mitigated, and ultimately,
5. How the enhancement of efficiency of the system can help to secure long-term financing and offer same to mortgage seekers.

Achieving these objectives will help to answer two pertinent questions:

1. How efficient is the Nigerian mortgage banking sector from the perception of practitioners in the sector?
2. How can the efficiency of the sector be enhanced to secure long-term finance?

Figure 3.1: Relationship between Project 1 and Project 2



Project one (P1) examined the efficiency of mortgage banks while Project two (P2) will investigate the efficiency of the larger mortgage banking system of which mortgage banks are a subset. Figure 3.1 summarizes the relationship between projects one and two.

### 3.1.3 Rationale for the study

Evaluating the efficiency of firms within an industry or sector provides important information that can help to improve managerial performance by identifying the best and worst practices associated with high and low measured efficiency levels respectively. A qualitative assessment of the efficiency of the Nigeria mortgage banking sector, in addition to the quantitative assessment done in project one, will provide a holistic view of the performance of the sector because the central theme of qualitative methods is to provide more understanding of or a deeper insight on a specific subject, occurrence, or situation by collecting, analyzing and interpreting data that cannot be expressed merely in numbers.

Findings from efficiency studies have far-reaching policy implications, especially for developing economies because, in addition to assigning numerical efficiency values to individual firms, they help to identify other factors that influence efficiency and provide necessary information for policy reforms. The results of this work will provide information that can be readily related to academic research interest or used as a guide by policy makers, bank management, and financial system regulators, as a basis for assessing existing official bureaucracy or informing appropriate bureaucracies, and designing strategies to improve the efficiency of the sector.

As efficient banking systems tend to contribute extensively to higher economic growth in any country, studies of this nature are very important for policy makers, industry leaders and others who are reliant on the banking sector. Thus, this study will fill a demand gap. Besides, the current study is also important because there is a dearth of research that addresses the overall efficiency of Nigerian mortgage banks. Hence, this project will help to extend the mortgage banking efficiency literature, which is substantially skewed towards the banks in developed countries.

#### **3.1.4 Significance of the study**

As Nigeria is sub-Saharan Africa's second largest banking market after South Africa (Adebambo, Oduwaye and Oduwaye, 2012), the efficiency of Nigerian banks (both mortgage and commercial) is critical to the integration of the African economy. So efficiency of the country's mortgage banking sector and improvement in housing availability will not only impact on the local economy, but will hugely impact on other regional economies as well.

This study will provide insight into the effect of the efficiency of mortgage banks in Nigeria on their ability to access long-term funds and its impact on alleviating the housing deficit issue in the nation; it will also provide resource material which mortgage banking practitioners can use as a reference or guide to improve the efficiency of their organizations.

#### **3.1.5 Organization of the project**

This project will be divided into five sections. Section one presents the introduction. Section two examines and reviews the relevant literature, covering constraints to housing finance efficiency as it relates to the objectives of the study. This review will examine the relevance of institutional theory to housing finance in emerging markets, in addition to reviewing empirical researches that investigated factors that influence, determine, and/or constrain housing finance efficiency in developing countries. Section three will look at the methodology used for the evaluation of banking efficiency in this study. It will discuss the type of research method the study employs and the rationale for the choice. It will also present the type and sources of data used and discuss the method and process of analysis of the data, giving particular attention to the coding and software used for the analysis. Section four will present the findings of the research and discuss the results, comparing the findings with existing literature, as well as addressing sources of bias and other limitations. Section five will conclude the work, giving recommendations based on the findings and highlighting areas for further research. Having laid the groundwork for this research, the review of relevant literature will be undertaken in the next section.

## **3.2 LITERATURE REVIEW**

### **3.2.1 Introduction**

The previous chapter introduced this project by providing the background to, rationale for and significance of the study. This section will explore the literature in order to identify the constraints to efficiency. Identifying the constraints to efficiency is a prerequisite to finding solutions to them. A review of the relevant literature on constraints to mortgage banking efficiency, especially in developing economies, is carried out in this section in order to assess previous work and possibly identify knowledge gaps, which this present study will fill.

To introduce this literature review, I will examine the theoretical perspective of institutional theory. The theory will be explored in the context of an emerging economy to ascertain whether it is applicable to such an emerging economy. Lastly, I will review theoretical and empirical researches associated with factors that influence, determine or constrain efficiency, and highlight certain characteristics of the Nigerian mortgage banking sector in order to provide a holistic view.

### **3.2.2 Theoretical framework**

This section provides a detailed explanation of the theory of institutionalism, otherwise known as institutional theory. The principles of the theory, its relevance and application to this project will be discussed. Prior to this, the concept of institution and its nexus to institutional theory will be outlined.

The concept of institution has a long history of usage in social science (Hodgson, 2006) and its use has become widespread in recent years as a result of the growth in institutional economics as well as in other disciplines (Scott, 2001). Despite its long history of usage, there is no unanimity in the definition of the concept, but in order to provide an adequate understanding of the concept of institutions, I will consider some definitions of the concept.

Hodgson (2006) defined institution as systems of established and prevalent social rules that structure social interactions. Lawrence, Suddaby and Leca (2009) defined institutions as the widely accepted conventions that define the roles, rights, powers and duties of specific types of social actors in particular settings. Scott (2001) also defined institutions as the regulative, normative and cultural cognitive elements that, together with associated activities and resources, provide stability and meaning to social life.

Institutions are important because, as entities, they form a large part of the landscape through which governance occurs in every sphere of society. Institutions also matter for economic growth because they influence investments in physical and human capital and technology, and the organization of production. Although cultural and geographical factors may also matter for economic performance, Meyer (2010) posits that differences in

economic institutions are the major source of cross-country differences in economic growth and prosperity. In relation to housing and social welfare, Acemoglu (2005) asserts that economic institutions, such as the structure of property rights and the presence and perfection of markets, are of primary importance to economic outcomes because they influence the structure of economic incentives in society. Without property rights, individuals would not have the incentive to invest in physical or human capital or adopt more efficient technologies.

The manner in which laws, customs and established practices of institutions interact and shape behaviours and decision making in organizations and entities outside such institutions, form the bedrock of institutional theory.

The principles of institutional theory suggest that social, economic, and political factors constitute an institutional structure for a particular environment which provides firms with advantages for engaging in specific types of activities there, and where deficiencies exist in the institutional structures, individual businesses and even entire industries could become inefficient in their operations in such an environment. This implies that the institutions that are meant to provide structure and stability could become a source of limitation and constraints to the efficiency of the organizations they are meant to support. In the same vein, businesses tend to perform more efficiently where there is strong institutional support.

Institutional theory is a widely accepted theoretical posture (DiMaggio and Powell, 1991) that emphasizes rational myths, isomorphism, and legitimacy in the processes through which structures including schemes, rules, norms and routine become established as authoritative guidelines for social behaviour (Scott 2001) and its influence on organizations within society (Meyer and Rowan, 1977).

There are two dominant trends in institutional theory – old and new institutionalism (DiMaggio and Powell, 1991). The old institutionalism, also known as Old institutional theory, attempts to explain how institutions affect social structures from a classical economics perspective, while the New institutional theory focuses on developing a sociological view of institutions – the way they interact and the way they affect society. New institutionalism provides a way of viewing institutions outside of the traditional views of economics by explaining why so many organizations end up having similar structures even though they evolved in different ways, and how institutions shape their behaviour. The discussions in this project are based on the New institutional theory.

Institutional theory provides a rich but complex view of organizations (Javernick-Will and Scott, 2009). This theory postulates that organizations are influenced by pressures, sometimes arising from external sources, other times arising from within the organization or institution itself, (Zucker, 1987). According to Hoskisson et al. (2000), institutional theory focuses on the interaction of institutions and firms resulting from market imperfections. In essence, the theory posits that institutions provide the rules of the game

that structure human interactions within societies and those organizations are the players bounded by those formal and informal rules.

Institutional theory focuses on developing a sociological view of institutions – the way they interact and the way they affect society. It provides a view of institutions that is different from the traditional economic view by explaining how institutions shape the behaviour of members. There are three different perspectives that are integrated in the institutional theory framework: regulative, normative and cultural-cognitive perspectives (Kostova, 1997; Scott, 2001).

The regulative dimension emphasizes rule setting and sanctioning. According to Kostova (1997), this is relevant to official bureaucracy at different levels. The normative perspective presents an evaluative and obligatory dimension to institutionalism. It reflects value systems and is relevant to business activities and processes (Scott, 2001), while the cultural-cognitive dimension involves shared conceptions and frames through which meaning is understood. All three dimensions are at work, albeit in varying degrees, to stabilize social behaviour, and their combined interaction defines the institutional profile of any country (Javernick-Will and Scott, 2009).

Researchers construct the regulative dimension of institutional theory to reflect the system of rules or governance that operate in an institution. Orr (2004) suggests that the major source of regulatory rules and enforcement mechanism in a modern society is the state, although some regulatory structures, such as trade associations, also exist at the sector and community level. In practical terms, regulative institutionalism is reflected in issues concerning laws and regulations.

Unlike the regulative dimension comprised of externally enforced laws, the normative dimension of institutional theory addresses socially accepted norms and values internalized by actors within an institution. This means that the norms and formal values of an institution will shape the actions of those acting within them and that entities within an institution will, to some extent be constrained by the norms and rules of such institution. Normative institutionalism posits that the behaviour of members of an institution is guided by a sense of what is appropriate, what is expected in terms of social obligation and by the commitment to common values (Scott, 2001). Normative institutionalism is reflected in issues such as work place practices, work ethics, work related expectations, (usually defined by job descriptions or work roles), industry or work place organization (Javernick-Will and Scott, 2009), etc.

The last component of institutional theory emphasizes the place of cultural-cognitive processes in institutions (DiMaggio and Powell, 1991). Cognitive here does not refer to individual mental constructs, but to common symbolic systems and shared meanings that are a basis for much of the stability and predictability in social life. Cultural-cognitive elements include common beliefs, mutually developed models, and shared actions that are often rooted in culture. This dimension of institutional theory recognizes that external

cultural frameworks shapes internal interpretive process (Orr, 2004). It is reflected in societal values and cultural norms.

Contemporary institutional theory has captured the attention of a wide range of scholars and is used to examine systems ranging from micro interpersonal interactions to macro global frameworks (Scott, 2004). Given the variety of approaches embedded in the institutional theory such as the micro perspective on organizational behaviour, cost economic and evolutionary economic approaches (e.g. Scott, 2001, 2004; Zucker, 1987), this review will concentrate on the macro perspective of the theory by examining the structure of wider environments and their effects on organizational forms and processes.

### **Justification of Institutional theory in this research**

Institutional theorists assert that the institutional environment can strongly influence the development of formal structures in an industry or sector, often more profoundly than market pressures (DiMaggio and Powell, 1991; Meyer and Rowan, 1977). Innovative structures that improve technical efficiency in early-adopting organizations are legitimized in the environment. Ultimately these innovations reach a level of legitimization where failure to adopt them is seen as negligence, and so they become legal mandates. When they become legal mandates however, the bureaucracy involved in implementing or enforcing them constitutes bottlenecks that impair the efficiency of operations of either the whole industry or sector, or the individual firms within the industry.

Certain institutional structures, such as land registry and the titling process, legal procedure for foreclosure and eviction, property rights framework, structure of the mortgage market, regulatory bodies, and the structure of the financial market, are critical and fundamental to the Nigerian mortgage system. The intention in this project is to investigate through the lens of institutional theory, how these institutional structures influence the efficiency of the system.

DiMaggio and Powell (1991) conclude that the net effect of institutional pressures is to increase the homogeneity of organizational structures in an institutional environment. Firms will adopt similar structures as a result of three types of pressure. Coercive pressures come from legal mandates or influence from organizations they are dependent upon, Mimetic pressures to copy successful firms arise during high uncertainty, and finally, normative pressures to homogeneity come from the similar attitudes and approaches of professional groups and associations brought into the firm through hiring practices.

Institutional theory suggests that the systems and official bureaucracies surrounding an organization help to shape its social and organizational behaviour, and also affect its organizational processes and decision making (Hoskisson et al., 2000). North (1990) argues that the role of institutions in an economy is to reduce the cost of both transaction and information by reducing uncertainty and establishing a stable structure that facilitates

interaction. However, Peng and Heath (1996) assert that experience in the emerging and transition economies is contrary to the findings of North (1990), as macro-level institutions such as a country's legal and regulatory framework, (especially government institutions), often have a negative impact on organizations that interact with them because of their unduly rigid bureaucracies, and these place different forms of constraints on the growth and efficiency of firms, sectors and industries in such an environment. It is intended that this project will contribute to knowledge by identifying the institutional factors that are constraints to the mortgage system in Nigeria, and therefore create a basis for making policies that will help to mitigate these constraints and boost the efficiency of the system.

### **3.2.3 Institutional environment and perception of firm performance**

In the context of the new institutional theory, an institutional environment is comprised of relatively stable rules, social norms, and cognitive structures (Scott, 2001), which guide, constrain, or liberate domestic economic activities. The institutional environment sets the framework for market transactions by defining the alternative courses of action open to firms, dictating the risks and payoffs for different activities, and specifying the conditions under which firms hold legitimacy (Spencer and Gomez, 2004).

The impact of the institutional environment on business performance has been established in the literature (Peng and Heath, 1996). Hasselmann and Watchel (2007) posit that mortgage financing thrives in an institutional environment that provides secure property rights, a fair judicial system, contract enforcement, and effective limits on government's ability to transfer wealth through taxation and regulation. In this kind of environment, mortgage finance providers are more likely to extend mortgage facilities to middle- and low-income earners because of the perceived ease of repayment, or eviction in the case of default.

The effect of the institutional environment on business is most pronounced in times of economic distress when the support structures businesses put in place to cope with stringent regulatory requirements become insufficient or inadequate as a result of the economic downturn. The literature (Aidis, Estron and Mickiewicz, 2008; Hasselmann and Watchel, 2007; Manolova, Eunni and Gyoshev, 2008; Sobel, 2008; Spencer and Gomez, 2004), provides evidence that institutions influence, among other things, the quality of governance, (Aidis et al., 2008), access to capital (Hasselmann and Watchel, 2007), and the perception of business owners about the success, growth and efficiency of their businesses, (Busenitz, Gomez and Spencer, 2000; Manolova et al., 2008).

Building on the concept of institutional theory developed by Kostova (1997) and Scott (2001), and applying Busenitz et al.'s (2000) measure of country institutional profile, Spencer and Gomez (2004) investigated the link between the institutional environment and how business owners perceive the performance of their businesses on a micro level and of their industry at large. Their study posits that at both firm and industry level, how business owners perceive the institutional environment significantly influences their

perception of the success, growth and efficiency of their businesses. Their results specifically reveal that a positive perception of a country's cultural-cognitive environment has a strong positive correlation with the prevalence of small firms, a positive perception of the regulatory institutional structure significantly influences the enlisting of existing firms on the Stock Exchange, and a positive perception of the regulatory institutional environment displays a significant but surprisingly negative relationship with self-employment.

In summary, Spencer and Gomez (2004) suggest that the more positive entrepreneurs' perception of the regulatory, normative and cultural-cognitive dimensions of the institutional environment, the better their perception and assessment of their firms' performances. However, the link between perceived institutional environment and the perception of firm performance shows considerable variations in younger and older firms.

In an effort to apply institutional theory literature to mortgage financing, Hasselmann and Watchel (2007) hypothesized that bankers' willingness to provide a mortgage facility to low- and middle-income earners is strongly correlated with their (bankers') perception of the legal environment. Hasselmann and Watchel (2007) emphasize the regulative and cultural cognitive elements of institutional theory, and their research demonstrates how the perception of mortgage finance providers of the institutional environment affects their decision-making. On this premise, they examined the relationship between the legal environment and bank loan portfolios across 20 transition economies, using secondary data from the Banking Environment and Performance Survey (BEPS). The study reports that outside the mortgage banking sector, better legal systems are associated with less lending to large and government-owned enterprises. Also, bankers' willingness to accept collateral from Small and Medium-scale Enterprises (SMEs), and offer facilities to mortgage borrowers, depends on the characteristics of the national legal system and the bankers' perception of the legal environment. Within the mortgage banking environment, bankers' positive perception of the legal environment is associated with relatively more lending to low- and middle-income earners and other information-opaque borrowers.

A significant feature of Hasselmann and Watchell's (2007) study is the comparison of the perception of quality of legal institutions with direct measures of the characteristics of the legal systems across the 20 countries involved in the study. The result of this comparison (even after controlling for heterogeneity in the variables), shows that bankers' perception of the institutional environment always influences their lending decision. Hasselmann and Watchel (2007) conclude that in mortgage finance provision, a favourable legal environment not only fosters a bigger mortgage market, it also shifts the composition of lending towards the low- and middle-income earners who, according to Chiquier and Lea (2009), actually need mortgage finance the most in the emerging mortgage markets.

The evidence from previous findings that the institutional environment influences firms' perception of efficiency informs the first research question:

How do practitioners in the Nigerian mortgage banking sector perceive the efficiency of the mortgage system?

### **3.2.4 Literature on constraints to mortgage system efficiency**

The fundamental question about why housing finance in developing economies remains grossly inefficient clearly does not have a simple, single cause and a clear-cut answer. A host of interrelated factors affect the efficiency of mortgage providing financial institutions. While research is still far from a complete and integrated understanding of the factors that impair efficient housing finance provision, substantial progress has been made in disentangling the effect of some factors, as well as in identifying major constraints to housing finance efficiency.

There are a number of literatures that attempt to identify various constraints to housing finance efficiency (Musonda, 2008; Ojo, 2009). Some of these researches investigated general constraints to efficiency, such as the macroeconomic environment (Hussain and Hoque, 2002), while some focused on how specific aspects, such as ownership structure, legal issues, regulatory framework, etc., affect efficiency. As an expansion of and an addition to prior studies, this study will bring a structure to factors that affect efficiency and/or productivity of mortgage banks and other housing finance institutions by combining different constraints to efficiency identified in the literature into five groups, namely: macro-level, institutional, financial, infrastructure and micro-level constraints.

Macro-level constraints refer to factors that are in the outer realm of bank operations (and as such are beyond the direct control of the bank), which exert a significant influence on the bank's productivity or efficiency. The global financial crisis, triggered by the subprime mortgage lending in the USA and its debilitating aftermath on the global economy is a good example of how the macro-level environment influences the productivity and efficiency of banks. Macroeconomic conditions, liberalization and deregulation, regulatory framework, political instability and ineffective legal processes are some macro-level factors cited in the literature as major factors that influence mortgage bank functioning and efficiency.

In recent years, banks and financial institutions generally, have faced an uncertain economic climate because of macroeconomic factors such as globalization, liberalized deregulation, privatization, and highly fluctuating, and at times unpredictable, inflation and interest rates (Munir, Perera and Baird, 2011).

Chen and Mahajan (2010) assert that macroeconomic conditions play a crucial role in determining the efficiency or productivity of a firm. Using comprehensive data from 34 countries spanning from 1994 to 2005, they investigated how macroeconomic variables affect the productivity of firms in different sectors. Their results reveal that when

macroeconomic variables such as GDP growth, inflation, real short-term interest rate, government budget deficit, credit spread, private credit, and corporate tax rate are unstable, the productivity of firms declines.

According to Minsky (1982), bank lending and debt are central for investment and economic activities and the capitalist economy is inherently unstable and prone to crises. Rajan (2006) also examines the development of the financial sector in the second half of the 20<sup>th</sup> century and argues that the changes in the financial sector have altered the managerial incentives that in turn changed the nature of risks undertaken and exposed the financial system to greater probability of a catastrophic meltdown.

Ojo (2009), in investigating why a vibrant mortgage market is yet to be developed in Nigeria, identified macroeconomic instability and its attendant high and volatile interest rates, and ineffective official bureaucracy, as constraints to the efficiency of primary mortgage institutions. He cited the example of the failure of US savings and loans associations in the 1980s as a result of excessive interest rate risk associated with using short-term deposits to fund long-term, fixed rate loans.

In a literature review about the importance of macroeconomic stability on firm growth, Lopez (2005) asserts that macroeconomic stability is critical for growth and that instability depresses the efficiency of banks and financial institutions considerably. Mlambo and Oshikoya (2001), using a sample of 18 African countries for the period 1970 to 1996, find that fiscal, financial and monetary policies, macroeconomic uncertainty, and trade variables, serve as significant deterrents to productivity of privately owned financial institutions in Africa. Their study also finds that political instability undermines the productivity and effectiveness of private investment in Africa.

Akeju (2007) asserts that one of the greatest barriers to the large-scale provision of affordable housing is the tax burden. The imposition of value added tax (VAT), at various levels of the housing-development process adds significant costs, as much as 35%, to the cost of a house, even before titling fees and stamp duties are taken into consideration. He suggests that tax holidays, deferrals or tax exemptions on materials or home sales, or similar tax-related provisions, which have been used successfully in other countries for low- and moderate-income families should also be applied in Nigeria. "These incentives can be used successfully in attracting investors into the housing sector", he asserts.

Renaud (2004) attributes the inefficiencies in mortgage finance experienced in emerging markets to two macroeconomic variables namely – small financial system size and macroeconomic instability. Using two indicators of financial development, size of financial market and volume of financial assets, as proxies for financial depth, he showed that the financial systems in most emerging economies are quite small and shallow. He argued that the shallow financial depth incapacitates liquidity and does not encourage the type of financial innovations that housing finance requires because the smaller a financial system

is, the less its range of financial instruments and services will be, because of risk management and funding.

World Bank (2009) corroborates Renaud's assertion that financial systems in emerging economies lack depth, with evidence from 183 developing countries where more than 61 had an aggregate financial sector size (measured in money supply) of less than one billion US dollars. These countries include all of sub-Saharan African countries except Nigeria and South Africa, some large transition economies such as Ukraine, and a number of Latin American countries. Renaud (2004) is of the opinion that shallow financial systems confer structural constraints on mortgage financing in terms of economies of scale for financial intermediaries and markets, a lesser degree of local competition and efficiency in services, limited capacity for domestic risk diversification, and inadequate economies of scale for regulation and supervision.

In addition to financial market scale, Renaud (2004) identifies macroeconomic instability as another leading issue that affects mortgage financing across the spectrum of emerging markets. He asserts that macroeconomic instability and its corollary of high and volatile domestic interest rates have a disproportionate impact on long-term mortgage finance. Hassan and Javed (2009) posits that a variety of factors contribute to high macroeconomic volatility in emerging markets, and these include production structure, market segmentation and sometimes, political climate.

Apart from macroeconomic conditions, the regulatory environment can also influence the efficiency of banks (especially mortgage banks). El-Kafrawy (2012) cites the restriction on bank credit to the housing market as demonstrated by the 5% ceiling on mortgage lending imposed by the Central Bank of Egypt. This regulation, El-Kafrawy (2012) posits, has resulted in a low level of demand for mortgage finance.

In a study, Arena (2005) identified regulatory environment as a factor that influences bank efficiency and productivity, and determines bank failure or success in emerging economies. Using cross-country data for eight East Asian and six Latin American countries, he investigated constraints to bank efficiency and causes of bank failures in emerging markets. First he employed micro-level data with a foreign ownership dummy and a regulatory environment index to capture country effects, and ran models separately for East Asia and Latin America. His study finds that the effects of rule of law, corruption, risk of expropriation and contract repudiation are the highest reported constraints. The research concludes that the better the regulatory environment, the more efficient the banking industry, and the smaller the risk of failure of individual banks. Duncan (2004) and World Bank and IFC (2005), provided evidence to the same effect.

Duncan (2004) posits that an efficient housing finance system is elusive in developing economies because some fundamental regulatory issues need to be addressed. These include property rights, monetary policy, economic growth, risk assessment tools, access to capital, risk sharing, and transaction cost. With reference to property rights, Johnson, McMillan and Woodruff (2002) assert that property rights are fundamental to efficient

housing finance. The literature points to the fact that from both a policy perspective and practical operational one, weak property rights is a serious deterrent to investment in the housing sector and a serious constraint to the efficiency of housing finance in most developing economies (Akinwunmi, 2009; Kjellson and Magnusson, 2010).

A fundamental system to housing finance, apart from the banking system, is the legal system. The legal system is a system of interrelated formal institutions gathered around three main functions (Aldashev, 2009): (1) setting rules and standards for the operation of the society through laws and regulations; (2) law enforcement; and (3) dispute resolution. There is abundant evidence in the literature that ineffectiveness in one or more of these functions negatively impacts on the efficiency of housing finance. To emphasize the importance of an effective legal system to the efficiency of mortgage financing, Van Order, (2003) posits that the success of the US mortgage finance system is closely linked to the strong US foreclosure laws. Van Order (2003) asserts that an effective and efficient process of foreclosure and repossession is crucial to the efficiency of housing finance institutions because “if you want people to have good housing, you have to be able to take it away from them”. So, he attributes the ineffective housing finance in emerging countries to weak foreclosure laws and the ineffective enforcement of mortgage rights.

Djankov et al. (2002) also attribute inefficiencies in mortgage financing to the inability of mortgage finance providers to effectively enforce pre-foreclosure arrangements through the courts as a result of legal impediments in the repossession and eviction processes. They showed that Latin American courts exhibit strong legal formalism and take an unduly long time to evict mortgage defaulters. According to Djankov et al. (2002), the legal process of repossession and eviction in Latin American takes significantly longer than it does in Asia, and even in Africa. This they attributed to court formalism as a result of legal traditions acquired from colonial rulers who instituted the legal systems of many of the developing countries.

Chiquier *et al* (2004) also assert that the efficiency of a mortgage market depends to a significant extent on how effective the procedures for mortgage enforcement are. They argued that contrary to what obtains in developed economies, there is a strong perception of imbalance in property rights in developing economies. Their research suggests that property rights in developing countries remain imbalanced in favour of the creditor. They attribute this to the fact that in developing economies, policy makers and the court are reluctant to evict mortgage defaulters because they consider it culturally offensive and politically unpopular.

In the same vein, some regulatory policies in operation in the Nigerian mortgage banking sector seem to be counterproductive and detrimental to the growth, development and efficiency of the mortgage banking sector. A report by the MBAN in 2009 enumerated some unfavourable laws that are seriously affecting the growth of the sector, a major one being the Land Use Act (1978). The Land Use Act was promulgated as the Land Use

Decree in 1978 and incorporated into the Nigerian Constitution in 1979, and has since been retained in the Nigerian Constitution.

The Act vests all lands comprised in the territory of each state in the Governor of the state; hence, any land transaction not signed by the governor is not authentic. Aluko (2012) asserts that although the Land Use Act was promulgated with good intentions, experience has shown that the Act has not fulfilled its intended purpose, which is to make land readily available. Rather, its existence has made the process of accessibility to land long, tortuous and expensive. He concluded that efforts to ameliorate the housing shortage, especially for low-income earners, would remain unproductive unless the Land Use Act is reviewed or amended.

Another major challenge to providing affordable housing is the lack of infrastructure. Literature on emerging economies identifies different types of infrastructure related to mortgage financing, the most common being physical infrastructure such as roads, water, electricity, etc. Akeju (2007) opined that the cost of housing is high because developers have to provide these basic necessities at their own expense and factor in the cost, which usually is at least 30% of the housing cost, into the price of the house.

Sinha and Fiestas (2011) opined that the absence of a mortgage market infrastructure and technology, such as mortgage related insurance, and credible risk management procedures, significantly affect the efficiency of housing finance provision in many developing countries. Ojo (2009) also stated that unavailability of basic mortgage market infrastructure, such as mortgage insurance facilities and property appraisal, affects the efficiency of any primary mortgage market. Renaud (2004) identified five types of infrastructure that affect the efficiency of banking systems generally in developing countries:

1. **Legal and regulatory infrastructure:** Bankruptcy codes, accounting and auditing supervision.
2. **Information infrastructure:** Public registries, credit bureaus and rating agencies.
3. **Risk-pricing infrastructure:** Government securities markets, sub-national bond markets and private sector bond markets.
4. **Payment and settlement infrastructure:** Clearing and settlement systems, rules and standards, information technology platforms and networks.
5. **Financial stability infrastructure:** Liquidity and other safety net facilities.

Renaud (2004) further opined that where these infrastructures are absent or inadequate, banks tend to limit their banking relationship and finance provision mostly to blue-chip

customers, and this can become a very serious constraint to the development of housing finance.

Justice cannot be done to the issue of mortgage finance inefficiency without mentioning financial constraints imposed by unavailability of funds. Ojo (2009) highlighted low capitalization as a major deterrent to the efficiency of primary mortgage institutions in Nigeria. He opined that the present capital base of ₦100 million (about US\$667,000 at an exchange rate of ₦150 to 1US\$) is inadequate to finance housing on the scale that the economy requires. He also attributes inefficiency in mortgage financing in emerging mortgage markets to the absence of a secondary mortgage market. He asserts that in developed nations where mortgage banking is efficient, a holistic approach to mortgage finance is adopted. Primary mortgage institutions operate alongside secondary mortgage institutions, which provide the much-needed financial wings for primary institutions to fly. Ahmed and Bell (2007) also opined that aggressive growth of the primary mortgage market in Sri Lanka is constrained by the unavailability of long-term funds. El-Kafrawy (2012) identified the lack of a thriving secondary mortgage market in the Egyptian mortgage banking system as a strong deterrent to its development. He suggested several ways and a variety of institutional arrangements through which capital markets can be developed to support the development of mortgage markets, citing the example of countries such as Chile and Brazil. He further suggested that mortgage credit originators could raise funds from the capital (secondary) market through the issue of mortgage bonds and/or mortgage-backed securities.

Such secondary mortgage markets have become popular in developing countries in recent years (Chiquier and Lea, 2009; Loutskina and Strahan, 2009; Warnock and Warnock, 2008). In Brazil, for example, long-term lending has traditionally been very scarce due to the very high inflation rate prevailing until not so long ago. However, with support from the IMF and the World Bank, Brazil began to issue securities in the international market (Euroweek, 2007). Until recently, these securities represented an attractive asset class for local and international investors (Euromoney, 2007).

Chile's housing experience also provides a wealth of ideas for secondary mortgage market development (EIU, 2003; Corrigan, 2001; Cruz, 2004; Rojas, 2001). The Chilean housing policy, which anticipated the enabling approach in the 1990s, has succeeded in improving housing conditions in the country (Ruprah and Marcano, 2008). The analysis of Chile's experience indicates that its success only partially comes from reforms in the housing sector, and that its financial mechanisms are the result of reforms in capital markets, and a stable macroeconomic environment. Lessons from this experience include the need for an integrated approach to the reform of both housing production and the financing systems. The facilitation of private financing for housing and the reform of the secondary market are also important components of this approach.

The significant development of private mortgage financing in Chile was made possible by financial system and social security system reforms (Ruprah and Marcano, 2008). The

reforms strengthened the general banking system that originates most of the mortgages, and greatly increased the supply of long-term funds for loans. Strong banks support the credit rating of mortgage-backed bonds since they are obligations of the issuing bank. Today, the universal banking system in Chile is the main originator of mortgage loans that are securitized and sold in the capital markets. Two instruments exist. The first is the indexed mortgage-backed bond (MB) that is issued as an obligation of the originating bank and sold to investors in the stock exchange. The second is the Endorsable Mortgage Credit (EMC) issued by banks and mortgage credit companies (Corrigan, 2001; Cruz, 2004). These are financial assets backed by first mortgages endorsed by the mortgage originator that transfer to investors, the principal and interest risk of the loan, with the property pledged as collateral. (All mortgage-backed loans in Chile are denominated in a unit of account, the Unidad de Fomento (UF). The value of the UF is fixed daily by the Central Bank and follows inflation very closely. The availability of these financial instruments and the demand for them created by institutional investors (life insurance companies and private pension funds), who are the major purchasers of these long-term obligations, form the backbone of mortgage financing in Chile.

The literature on banking and housing finance efficiency also establishes that firm-level characteristics such as technology, manpower, management structure/quality, ownership structure, and capital adequacy could also undermine the efficiency of mortgage finance provision.

Sinha and Fiestas (2011) provide evidence that at the firm level, difference in capital adequacy and ownership of mortgage lending firms in developing countries, including banks, significantly affect the success, efficiency and growth of these firms. They assert that better access to finance enjoyed by firms with any degree of foreign ownership helps them expand more quickly and operate more efficiently than purely domestic firms, other things being equal.

Ojo (2009) suggests that a lack of expertise and manpower is a major constraint to efficiency in the mortgage banking sector in Nigeria. He based this assertion on the premise that managers of most of the primary mortgage institutions in the sector are from commercial and merchant banking sector backgrounds and are probably inexperienced in both the human and material resources required in the operation of mortgage financing firms, and their staff are mostly drawn from the pool of fresh/underemployed graduates who also lack specialized knowledge of the mortgage market.

Evidence from other emerging markets has shown the factors that impede housing finance efficiency in other countries. This study hopes to contribute to the literature by identifying the factors that constrain the mortgage-financing process in Nigeria, in order to determine how the Nigerian experience either differs from or is similar to other developing countries by finding out:

1. What factors drive efficiency in the mortgage system?
2. What constraints impede efficiency of the mortgage system?
3. How these constraints can be mitigated, and ultimately
4. How the enhancement of efficiency of the sector can help secure long-term financing and offer the same to mortgage seekers.

Also, it is intended that the findings of this project would create a basis for formulating policies that will help to create an efficient mortgage banking and housing finance system in Nigeria.

Table 3.1: Summary of constraints to housing finance efficiency

Author	Type of constraint				
	Macro-level	Institutional	Financial	Infrastructure	Micro-level
Ahmed and Bell (2007)		Cumbersome registration and titling process	Unavailability of long-term funds, high cost of land registration	Lack of good cadastral	
Akeju (2007)	High taxes		High cost of building	Lack of physical infrastructure	
Aldashev (2009)	Taxation	Difficult foreclosure and eviction	Land/housing price fluctuations	Unavailability of lenders credit data, lack of mortgage insurance facilities	Bundled loan origination process, low technology use, untrained staff
Chiquier et al. (2004)		Property rights		Lack liquidity facility	
Djankov et al. (2002)		Legal impediment in repossession and eviction processes		Lack of adequate information e.g. housing values, liens, portfolio history etc.	
Duncan (2004)	Monetary policy, economic growth,	Property rights	Access to capital, high transaction cost	Lack of effective risk assessment tool	
El-Kafrawy (2012)	Volatile interest and inflation rates	Regulatory /governance issues, ineffective legal framework	High operating cost, low capitalization	Lack of physical infrastructure, inefficient market infrastructures, lack of secondary mortgage market	Lack of skilled workers, long, complicated loan origination process
Johnson et al. (2002)		Property rights	Insufficient, unaffordable funds, non-automation of government process in registration and land titling	Absence of risk pricing infrastructure	
Munir et al. (2012)	Globalization, liberal deregulation, fluctuating inflation rates			Lack of good cadastral	
Ojo (2009)	Macroeconomic instability, official bureaucracy	Structure of the mortgage market, ineptitude of regulatory bodies	Low capitalization of PMI, unavailability of long-term funds	Absence of a secondary mortgage market, process, unavailability of support institutions such as credit bureau, inadequate financial market infrastructure	Lack of expertise, lack of manpower, engaging in non-mortgage related businesses, bundled loan origination

## 3.2.5 Regulatory and legislative characteristics of the Nigerian mortgage banking Sector

### 3.2.5.1 Regulatory framework

#### Industry regulators

Several bodies including the Central Bank of Nigeria (CBN), the Federal Mortgage Bank of Nigeria (FMBN), the Mortgage Banking Association of Nigeria (MBAN), the Nigeria Deposit Insurance Corporation (NDIC), the Securities and Exchange Commission (SEC), and the Nigeria Stock Exchange (NSE) regulate the operations of Primary Mortgage Institutions (PMIs) and other mortgage finance providers. Also, PMIs are governed by various legislations, such as the Central Bank of Nigeria Act (2007), Federal Mortgage Bank of Nigeria Act (1993), Nigeria Deposit Insurance Corporation Act (1998), as well as the Central Bank of Nigeria's prudential guidelines, and any other circulars that may be issued or revised by the statutory authorities as and when necessary.

#### Industry regulations

PMIs in the industry are required to adhere to several regulatory standards, the major regulatory requirements of which are highlighted in Table 3.2:

Table 3.2: Summary of prudential requirements for mortgage institutions

Measure	Indicator	Minimum Requirement
Capital Adequacy	Paid-up capital	₦100 million
Liquidity	Capital Adequacy Ratio	10%
	Adjusted capital to net credits	1:10
	Cash reserve ratio	2% of deposit liabilities
	Liquidity ratio	20%
	Loan to deposit ratio	80%
Asset Regulations	Mortgage asset to total asset ratio	30%
	Mortgage asset to loanable funds ratio	60%
Obligor Exposure Limit	Single obligor lending	50% of shareholders' fund
Specific Lending Requirements	Loan repayments	Monthly repayment on loans not >33.3% of net income
	Housing loans tenor	30 years maximum
	Mortgagor terms	Actively maintains an account with PMI for at least two years.

Source: Agosto Nigeria Mortgage Banking Industry Report 2012

### 3.2.5.2 Industry constraints and risk areas

**Legal restrictions – acquisition of title to land:** The basic legal framework for the acquisition of land in Nigeria is the Land Use Act (1978). The Act vests all land contained in the territory of each state (except land vested in the Federal Government or its Agencies) solely in the Governor of the State, as trustee of the people. The government only leases land to individuals or corporations for a maximum period of 99 years, resulting in all land related transactions requiring certification by the state governments. This has subsequently lengthened the process of perfecting land documents. The law hinders mortgage financing and creates enormous constraints to private sector involvement in the industry due to the difficulties in ascertaining land ownership. The government is currently reviewing the Land Use Act, the Mortgage Banking Association Act and the Federal Mortgage Bank Act, in order to address this issue.

Industry operators have continually expressed concerns over the fact that the costs and duration involved in the documentation of land titles is one of the highest and longest in the world. Fees charged for documentation of land transactions in some cases, is almost as high as 50% of the purchase cost of land in areas such as Lagos and Port Harcourt. Poor government records, constant policy reversals by government authorities, and frequent land revocations are major constraints facing the operators. Overall, land acquisition issues further affect the tradability of real estate as an asset class, stifling the proliferation of REITs and other such vehicles.

**Vacant possession and foreclosure:** The legal proceedings involved in obtaining vacant possession and foreclosing collateralized properties is extremely cumbersome for mortgage banks. There is an absence of a well-articulated government policy and implementation framework to address housing finance.

**Lack of minimum underwriting standard:** The industry currently lacks a framework comprised of institutions that ought to be responsible for ensuring compliance with underwriting standards, as well as the authorities' relationship with loan originators. A system needs to be put in place and agreed upon by all stakeholders. The underwriting system should emphasize minimum standardized processes and documentation, and improve automation and servicing. It should be inclusive of all institutions engaged in granting mortgages and other forms of housing finance, and present minimum standards. Imperatives for the establishment of a minimum underwriting standard include: effective verification of income and financial information of applicants, meaningful equity contribution by the applicants, adherence to reasonable debt-to-income ratios, and more robust disclosures by lenders, borrowers and other third parties, such as credit bureaus.

**Declining profitability:** The industry recently experienced a decline in profitability due to loan losses and a general slowdown in business activities. As interest rates trend upward and margins thin out in a less benign macroeconomic environment, this is likely to persist.

**Diversion of funding to property development:** Mortgage institutions in Nigeria, unlike their foreign counterparts, engage in property development for resale to the general public. Financing estate developments causes diversion of funding from mortgage creation. However, it does provide the mortgage institution with a greater control over the physical assets, since they are able to hold the original documentation for the properties. Focusing on construction projects usually infers the funding of subsidiaries or partner companies to develop these residential and commercial properties.

**Lack of long-term funding:** A major challenge for the industry remains access to low cost, long-term funding in order to meet market demand. In spite of the inflow of medium-term foreign funding from a number of development finance institutions (DFIs) in the last three years (Agusto, 2012), most of the funding available remains short-term. The industry is generally unable to obtain a significant volume of low cost funding with tenures in excess of five years, hence is unable to grant mortgages that typically exceed an estimated average of five years. Commercial banks are able to grant longer-term loans and mortgages of 10 to 15 years at better lending rates due to their larger capital base and wider access to stable low cost deposits. Progress has been made by a few PMIs to secure long-term funds through joint project developments with foreign financial institutions, non-governmental organizations, and private developers, to create housing developments in an attempt to meet some of the housing needs of the lower to middle classes.

**Managing default risk:** Mortgages or advances granted by institutions generally potentially have high rates of default when given to individual customers. The industry faces several challenges with the integrity, transparency and accountability of customers. Some institutions counter this problem by only granting loans to cooperative societies, or institutions, which essentially exclude the intended beneficiaries of Mortgage Banking Institutions. Credit risk is mitigated to a certain extent through the granting of mortgages only on property developed by the PMI itself or through joint projects with developers, as the PMI is in possession of the property documents, providing easier access in case of the need for foreclosure.

**Lack of viable financial instruments:** The industry currently lacks a secondary market for mortgage assets. There are legal and capacity impediments to creating a secondary market via securitization. Several steps such as the establishment of minimum underwriting standards, servicing, property development, and the existence of a robust capital market that can respond to instrument offers, need to be in place prior to the creation of a secondary market.

### **3.2.5.3 Lending strategies**

#### **Target for asset creation**

The target for asset creation for Nigerian PMIs is the working class of the society. The people in this segment of the population are generally employed with stable income streams, are willing to make the initial 20 to 30% down payment, and make monthly payments over a maximum period of five to 15 years to fund the acquisition of a home (Ndubueze, 2009).

The reason why this market segment is preferred is that PMIs are able to provide more mortgages to a larger number of customers, thereby spreading their risk. On the commercial side, PMIs generally target schools at all levels, churches, estate developers, and other such establishments from which the likelihood of the repayment of loan facilities is thought to be high.

In the case of estate developers, collateralized assets often serve as a sort of comfort in terms of the likelihood of recovery if the borrower defaults. In addition, PMIs also facilitate commercial mortgages to organizations and individuals. However, commercial banks are usually able to offer better rates to these larger customers seeking commercial mortgages.

#### **Collateral/security**

Unlike in more developed economies, individual identification is non-existent in Nigeria. PMIs generally grant mortgages to individuals based on personal relationships, due to a general inability to track individuals using national identification numbers of any sort. Given this, since the PMI owns the developments or co-owns them, it is able to retain the proof of ownership for the assets and is able to foreclose if necessary. Mortgage loans are also often tied in with the customers' employers, as the employer is made aware of the mortgage payments despite being unable to deduct mortgage payments from an employee's salary in some cases. Several organizations, through their staff cooperative societies, often approach PMIs on behalf of their employees, to serve as sureties in an attempt to aid mortgage asset creation.

#### **Default and foreclosure rates**

Default rates vary across PMIs, depending on the lending strategy. If PMIs lend to institutions on behalf of individuals, rather than directly to individuals, there is usually a lower default rate. Default rates typically follow the greater macroeconomic trends and can go as high as an estimated 50% for an individual PMI, depending on the type of loans granted. Residential mortgage loans generally carry lower default rates, due to customers' desire not to lose their homes and the PMIs' willingness to renegotiate the terms of defaulting mortgages to encourage repayment. Foreclosures, while present, are not prevalent due to the overwhelmingly expensive process, which can take two years or more

to conclude. Therefore industry players would rather seek to renegotiate mortgage terms following a default in order to restructure the loan. Foreclosure serves ultimately as the last resort when all other viable options have been expended.

The project is investigating the efficiency of the Nigerian mortgage system through the lens of the New institutional theory, and this section provides important information about the system I am trying to investigate; so, the section, though not about the theory, is fundamental to the whole project because it is about the system I am trying to use the theory to explain.

### **3.3 METHODOLOGY**

The literature reviewed in the course of project one undertaken prior to this project brought the realization that an experimental or quantitative method is insufficient on its own to assess and understand the dynamics of the efficiency of the Nigerian mortgage banking industry. Therefore, in order to investigate the dimensions of efficiency that quantitative methods cannot effectively cover, and to provide a deeper insight into the results of project one, a qualitative research method is adopted for this project.

This chapter describes the research method chosen for this project. It examines the effective ways of achieving the objectives of this project. It will describe the chosen research techniques, including data collection method, research instrument, data collection process, and the analysis of data. It also provides the reasons for the choice of research method, and concludes with a brief section identifying the limitations of the research method.

#### **3.3.1 Research method used**

Research is a systematic investigation to find answers to a problem through methodical processes that address the theoretical arguments surrounding the problem and provide justifications for the methods used to collect and analyze data from which answers are found (Hughes, 2012). The methodical process of collecting data to answer research questions to achieve the objective of a research exercise depends on the type of research (quantitative or qualitative) and the nature of the data to be collected.

The qualitative research method will be adopted for this project. The qualitative paradigm aims to understand the social world from the viewpoint of respondents, through detailed descriptions of their cognitive and symbolic actions, and through the richness of meaning associated with observable behaviour (Hughes, 2012). In this paradigm, which rejects both a cause-and-effect construct and universal laws devoid of any socio-historical context, the separation between researcher and respondent is diminished (Kvale, 1996).

In the words of Atkinson et al. (2005), qualitative research is an 'umbrella term', and a number of different approaches which aim at the in-depth understanding of a phenomenon exist within its framework. Researchers use the qualitative approach to explore the behaviour, perspectives, feelings or experiences of people in relation to any issue of interest. The basis of qualitative research lies in the interpretive approach to research and inquiry (Ewe and Yap, 2012; Strauss and Corbin, 1998).

Central to the qualitative paradigm is the belief that people assign meaning to the objective world, that their valued experiences are situated within a historical and social context, and that there can be multiple realities (Denzin and Lincoln, 2000). In agreement with Strauss and Corbin (1998) and Hughes (2012), I embrace the conviction that realities cannot be studied independently from their contexts. Therefore I will adopt the qualitative research

method to investigate the perception of CEOs of mortgage banks on the efficiency of the mortgage system in Nigeria.

### **3.3.2 Sample selection**

Participants for both the interview and focus group sessions were selected among CEOs of mortgage banks in Nigeria. This calibre of people were chosen as participants because of the belief that they know more about the industry and its operations than any other category of workers, so they are in the best position to provide the details and insight this research requires.

For the data collection, 55 CEOs were pre-selected using the following variables; mortgage bank's balance sheet size, number of branches, number of loans originated, years of experience as the CEO, location, and brand visibility. All the CEOs were contacted through e-mails explaining the purpose and objective of the interview/focus group discussion. For the interview, interested participants were requested to signify their willingness to participate in the data gathering exercise by replying to the e-mail, and stating the date and time that would be convenient for them, while interested participants in the focus group discussion were to signify their agreement with either of two pre-scheduled dates, time and venue. On receiving the responses, I made a phone call to each participant to confirm their preferred session (interview or focus group), date, time and venue. In all, 15 CEOs signified their interest in the interviews and their availability, and 30 responded for the focus group session.

Due to the large response for the focus group discussion, the forum was held twice with 15 participants in each session. This is a little above the recommended number of people in focus group sessions (Hughes, 2012, and Strauss and Corbin, 1998 suggest a maximum of ten people for focus group discussions). However, to ensure that I captured as many varied views as possible and also to reach saturation, and considering the fact that it may not be easy to bring the participants together at another time, I decided to run the focus group sessions in two groups of 15 participants each.

In order to obtain a national spread which would make for a representative sample for the interviews, 10 interviews were conducted with CEOs based in Lagos (the West and commercial capital of Nigeria, which used to be the country's capital until 1985) and three with CEOs based in Abuja (the North, the seat of government, and country's capital), one from the South West, and one from the extreme North.

A total of 40 CEOs formed the sample for this study (Five CEOs participated in both the interviews and focus group sessions). This sample constitutes about 54.2% of all the CEOs of the Mortgage Banks in Nigeria. I believe this sample is representative of the industry because it is representative of mortgage banks in all the geopolitical zones and ethnic groups of the nation where mortgage banks exist. Apart from this, 70% of CEOs in the sample are from Lagos State, and this closely reflects the true distribution of mortgage

banks in Nigeria; 61% from Lagos, 10% from Abuja, and 29% spread across 23 states in Nigeria.

Table 3.3: Summary of respondents' bio-data

<b>Interview Number</b>	<b>Age</b>	<b>Gender</b>	<b>Highest Qualification</b>	<b>Ethnicity</b>	<b>Years' of Experience</b>
<b>CEO 1</b>	38	Male	MSc	Nigerian – Yoruba	14
<b>CEO 2</b>	46	Male	MBA	Nigerian – Yoruba	22
<b>CEO 3</b>	56	Male	MSc	Nigerian – Yoruba	30
<b>CEO 4</b>	61	Male	BSc	Nigerian – Yoruba	37
<b>CEO 5</b>	46	Male	MSc	Nigerian – Yoruba	22
<b>CEO 6</b>	56	Male	MBA	Nigerian – Yoruba	31
<b>CEO 7</b>	39	Male	MBA	Nigerian – Ibo	16
<b>CEO 8</b>	41	Male	MBA	Nigerian – Hausa	19
<b>CEO 9</b>	54	Male	MBA	Nigerian – Yoruba	28
<b>CEO 10</b>	45	Female	LLM	Nigerian – Ibo	20
<b>CEO 11</b>	46	Male	MBA	Nigerian – Ibo	18
<b>CEO 12</b>	55	Male	MSc	Nigerian – Ibo	25
<b>CEO 13</b>	47	Male	MSc	Nigerian – Yoruba	23
<b>CEO 14</b>	45	Male	MSc	Nigerian – Ibo	15
<b>CEO 15</b>	47	Male	ACA	Nigerian – Yoruba	17

### 3.3.3 Data collection

Data were collected using the semi-structured interview and focus group methods. Interviews allow people to convey to others a situation from their own perspective and in their own words. Research interviews are conversations with structure and purpose that are defined and controlled by the researcher. Although the research interview may not lead to objective information, it captures many of the subjects' views on something. That is why the basic subject matter is not, as in quantitative research, object data, but consists of meaningful relations to be interpreted.

Since there are no standard techniques or rules for qualitative research interviews, it is important that interviewers be very knowledgeable in the discipline and common procedure for research interviews; an interview investigation can be outlined in seven stages: thematizing, designing, interviewing, transcribing, analyzing, verifying and reporting.

Thematizing involves formulating the purpose of the investigation and describing the concept of the topic to be investigated before the interviews start. Designing involves planning the interview, taking into consideration all seven stages. The next stage is the actual interviewing conducted based on the interview guide and with a reflective approach to the knowledge sought. In transcribing, the interview material is prepared for analysis by converting the oral speech into text. Analyzing involves the extraction of necessary information from the interview material. Verifying involves ascertaining the generalizability,

reliability and validity of the interview findings. Reliability here refers to how consistent the results are, and validity means whether an interview study investigates what is intended to be investigated. At the reporting stage, the findings of the study and the methods applied are communicated in a form that lives up to scientific criteria, takes the ethical aspects of the investigation into consideration, and results in a readable product.

The research interview is characterized by a methodological awareness of question forms, a focus on the dynamics of interaction between interviewer and interviewee, and also a critical attention to what is said. The purpose of the interview method as a qualitative research is to obtain descriptions with respect to interpretations of the meaning of what is described; the interviewer does not use ready-made categories but is open to new and unexpected phenomena.

The use of semi-structured interviews with open-ended questions, allows for better probity and understanding of the subject matter as it gives the opportunity for follow-up questions, and also has the advantage that what is not being said can also be inferred from body language, facial expressions or tone of voice of the participant. The focus group discussions also provided an opportunity to tap into the depth of insight of active players in the industry. The interview/focus group questions are provided in Appendix 2A.

### **3.3.3.1 Interview and focus group protocol**

The interview protocol consisted of an introduction that addressed the reason for and purpose of the study, the rationale for choice of respondents, confidentiality of information given, and access to findings of the study, if respondents so desire. The protocol also briefly outlined the structure of the interview and finally sought the consent of the respondent before the actual interview commenced. Participants in the focus group were given express permission to discuss each question until they had exhausted their ideas and a written form of the interview protocol is provided in Appendix 2B.

The interviews were all conducted face-to-face and consisted of 11 open-ended questions apart from the 6 bio-data questions. The interview was in three parts, with the first part being the biographical background data collection, the second part being the actual open-ended interview questions, and the third part being the wrap up question.

The questions were designed around the CEOs' perception of efficiency of the mortgage banking industry in Nigeria with emphasis on the constraints to the efficiency of the industry as a whole, constraints to the efficiency of individual firms within the industry, and ways of overcoming these constraints and improving efficiency.

The focus group forum protocol is a modified form of the interview protocol. Its outline and content is very similar to that of the interview. However, being an interactive forum, the confidentiality clause in the interview protocol was modified to ensure better participant and freer interaction among the participants.

The focus group discussion was held in two sessions of about one hour each, with 15 CEOs in each session, in order to ensure that the group was large enough to generate rich discussion, but not too large in order to avoid leaving some people out of the discussion. Although all the respondents are competitors in the business sense, they freely interacted and responded to the questions during the discussion. This was due in part, to the reassurance of confidentiality they had been given at the beginning of the discussion and also to the fact that none of the questions asked required anyone to divulge specific details of the operations of their firms.

Also, at the commencement of the session, the following ground rules were set:

1. Every one present must participate
2. Participants should express their opinion whether others agree with it or not
3. Wide range of opinions are welcome
4. Any participant who is exceptionally quiet or not involved might be asked to answer specific questions.

This was done to ensure an active and vibrant discussion session. Also, to get the participants to talk and fully explain their views, follow-up questions such as 'Can you give me an example?', 'What do you mean by that?', 'Please explain further', 'Can you elaborate on that?', etc., were asked after some questions that were not initially answered with sufficient depth. Apart from helping to achieve clarity on the questions asked, the follow-up questions also encouraged other participants apart from the person answering the questions to make further contributions and it created a vibrant atmosphere.

In addition to the 11 questions asked in the interview sessions, two other questions were asked in the focus group discussion. The six bio-data questions were not used in the focus group, participants were simply asked to introduce themselves, mentioning their names and the companies they represent prior to answering any question or contributing to the discussion.

### **3.3.3.2 Recording and transcribing**

Both the interview sessions and the focus group discussions were recorded to ensure that all the information given was captured in its entirety. The recordings were transcribed verbatim and the transcription was reread and compared with the recordings to ascertain that no information was missed out.

In addition to this, the transcribed data from the interviews and the focus group discussions was sent to all the participants in the data collection exercise. Respondents were required to read through the transcription and to assess if the responses truly represent their views and opinions during the data collection exercise. This was done as a means of validating the data before analysis.

### **3.3.4 Limitations of the research method**

The downside of qualitative research is that only a small number of respondents can be studied because data collection methods are usually labour intensive and time demanding. Due to the limited number of people interviewed and those who participated in the focus group, it is possible that a saturation point was not reached.

The qualitative research method is also criticized for researcher and response biases. Researcher bias occurs when a researcher consciously or unintentionally gives subtle clues either with body language, tone of voice, or through any other means to influence the subjects into providing answers skewed towards the interviewer's opinion, prejudice, or values. Also, being an active member of the sector, there might have been researcher bias in the interpretation of responses given during the interviews.

Response bias occurs when a respondent or participant in an interview consciously or unconsciously gives a response that they think the interviewer wants to hear rather than what they believe to be true. The interviewees could also have introduced some measure of response bias by not giving full answers due to not wanting to divulge trade secrets to a competitor, but an attempt was made to overcome this with the opening statement which stated why the interview was being conducted and what the answers would be used for, and also with the offer to give them the consolidated results of the interviews at the conclusion of the paper.

## **3.4 FINDINGS AND DISCUSSION**

In this chapter, the procedure for data analysis, and the findings from the data collected are discussed. In order to make for an adequate and exhaustive treatment of this chapter, it has been divided into two sections. Section one summarizes the coding, explains the data analysis, and reports the findings, while section two discusses the findings, and compares the results of this study with similar researches reviewed in the literature.

### **3.4.1 Findings**

This section explains the process of analyzing the data generated from the interview sessions and focus group discussions. A summary of individual responses aggregated in each code is given here.

#### **3.4.1.1 Coding**

An inductive coding technique was used (Strauss and Corbin, 1990, as stated by Miles and Huberman, 1994). The data generated during both the interview sessions and focus group discussions were analyzed line by line and paragraph by paragraph starting with the first interview up to the last one, (and cross reading them). Codes were generated as they emerged from the responses using NVivo 9. The initial codes generated from the responses were further reviewed and merged together based on similarities in meanings or classifications until mutually exclusive and exhaustive codes were obtained.

A total of 12 codes were generated from the analysis. The responses from the participants in both the focus group and the interview sessions formed the building blocks for the codes and a summary of the coding structure is presented in Table 3.4. The first column shows similar responses that are grouped into a single code.

In addition to coding, the institutional theory framework was applied to group the constraints to efficiency into the three categories of institutional theory, namely: the regulative, normative and cognitive-cultural constraints, as explained in the literature review (Scott, 2004).

Table 3.4: Summary of coding structure

<b>Responses</b>	<b>Codes</b>
Quality of service, minimum procedural bottlenecks, ease of access of customers, quality of loans issued (delinquency ratio of loans)	<b>Service Delivery</b>
Resourceful use of input to obtain optimal output, achieving budget within stipulated time, bottom line generated	<b>Optimal Profits</b>
Compliance with key performance indicators, improvement in minimum standard	<b>Regulations</b>
Length of time it takes to approve loans, timeliness, speed and accuracy in operations, how quickly customers are attended to, speed of the loan origination process, timing and deliverables	<b>Timelines</b>
Review of Land Use Act, Review of legislation, Review of laws regarding repossession and foreclosure, Review/Enactment of laws/policies.	<b>Enabling laws</b>
Improvement in government policy, initiation of favourable policies	<b>Policy</b>
Recapitalization of mortgage banks, creation of vibrant secondary mortgage market, creation of safety net for mortgage lenders, establishment of interim secondary mortgage market while waiting for National Assembly to review relevant laws, stimulation of secondary mortgage market through the creation of liquidity and refinancing companies, intervention funds, liquidity facility, lack of long-term funds, high credit rates	<b>Funding</b>
Removal of legal impediment, regulatory advocacy/assistance, repossession and foreclosure issues, inefficient land registry, costly/convoluted legal framework for title and mortgage perfection, inauthentic title documents, certification of title documents	<b>Legal impediments</b>
Creation of publicity for the sector	<b>Awareness</b>
Enhanced communication between practitioners and policy makers, clear communications between banks and their customers, creation of checklist of loan requirement for customers	<b>Clarity</b>
Educating customers on the requirement for loans, staff training	<b>Training</b>
Lack of data, lack of credit history	<b>Data Adequacy</b>

### 3.4.1.2 Analysis of data

Prior to asking the participants, i.e. the CEOs of mortgage banks in Nigeria, to rate the efficiency level of the sector, they were first asked to define efficiency from their own understanding. This was done to find out what they construed efficiency to be and also to find out the level of agreement in their understanding of the concept in order to assess the variability of the efficiency rating they would give.

From the interview sessions and focus group discussions, a total of 24 responses were given to the question of the definition of efficiency. From these different responses, six codes emerged: excellent service delivery, making optimal profits, exceeding expectation on industry standards, timeliness and accuracy in operations, speed of the loan origination process and delinquency ratio. A large proportion of the respondents defined efficiency in terms of timeliness and accuracy in operations as well as the speed of the mortgage loan origination process. Figure 3.2 and Table 3.5 give a summary of the responses.

### **Service delivery**

Five CEOs defined efficiency in terms of the quality of service rendered and the ease with which customers have access to such service. One CEO defined efficiency in terms of total quality service. Another defined it as service delivery with minimal procedural bottlenecks, while a third CEO defined efficiency as the ease with which customers have access to loans and other services. The other respondents defined efficiency in terms of accessibility and affordability of housing to Nigerians through mortgage facilities.

### **Optimal profit**

Three CEOs also defined efficiency by the resourcefulness in using available input to produce maximum output with reference to profits made within a specific period, realization of budget, and stakeholders' satisfaction. The response of one CEO is particularly insightful because his definition is the closest to definitions of technical efficiency in literature.

*"I look at efficiency from the aspect of input and output level, the resources available to you, how you applied it in a way that the output you get at the end of the day far outweighs the input. That is, you are able to get value from your input in the most efficient manner such that we can actually say that yes, your decision making process was quite good and resourceful and purposeful."*

And another respondent defined efficiency as:

*"The optimal use of financial and human capital."*

### **Exceeding industry expectation**

Three CEOs also defined efficiency by how well individual banks can meet and exceed key performance indicators set by the regulators of the industry. The first CEO mentioned adherence to industry-set performance indicators, another mentioned improvement on the minimum standard set by the regulators, and the last respondent mentioned surpassing or at least meeting the minimum industry standards.

## Timeliness

Seven CEOs explained efficiency as a function of timeliness, speed and accuracy in executing core functions and operations. Three CEOs defined efficiency as the speed or timeliness of the loan origination process. One CEO put it this way:

*“I would say that we are efficient when, in the shortest time possible, the maximum number of people, that is, intending home-owners, are able to have access to the loans and are able to get a service that would deliver exactly what they expect, while going through the minimum procedural bottlenecks imaginable.”*

Two CEOs mentioned how long it takes for customers to get served or how long it takes to get a loan approved, and two CEOs mentioned the timeliness, speed and accuracy of operations.

## Delinquency ratio

Only one CEO defined efficiency by the quality of loans given out and how well these loans are repaid. He is of the opinion that banks are not efficient only when they give out loans, but how much of these loans they succeed in getting back is also an important determinant of their efficiency. I consider this to be a very insightful conception of efficiency. In his own words:

*“Efficiency is not about the quantity or volume of loans given out alone, how much of these loans we are able to recover is very important. So efficiency should be about the quantity of loans originated, but with an acceptable level of quality of the loans generated, and a minimal delinquency ratio. If we are able to give a lot of loans, but we can’t get customers to repay them, then we are still not efficient.”*

Figure 3.2: Definition of efficiency

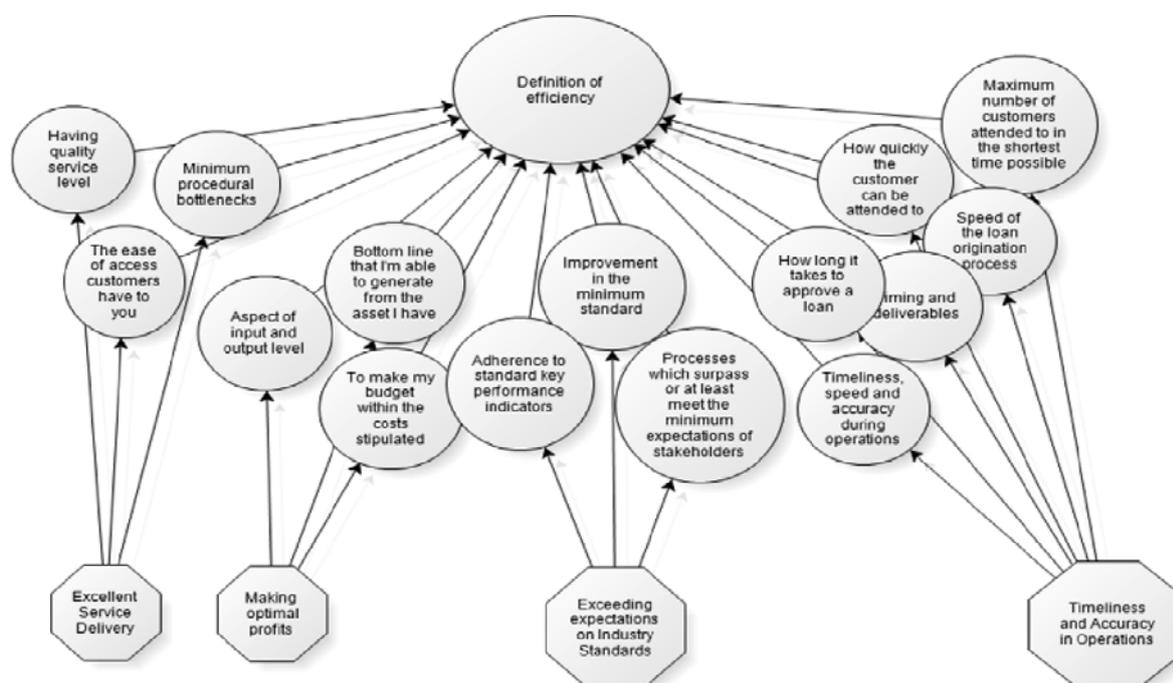


Table 3.5: Definition of efficiency by frequency of responses

Responses	Frequency	Percentage
Excellent Service delivery	3	13%
Making Optimal profit	3	13%
Exceeding Industry expectations	3	13%
Timeliness, speed and accuracy	7	28.5%
Speed of loan origination process	7	28.5%
Delinquency Ratio	1	4%
<b>Total</b>	<b>24</b>	<b>100</b>

Table 3.5 suggests that many of the respondents understand efficiency in layman's terms. Their definitions reflect the everyday use of the word. However, about 13% of the respondents defined the concept in agreement with theoretical definitions in the literature (Matthews, 2010; Musonda, 2008; Reda and Isik, 2006). Also, an analysis of the responses from the two sources of data collection shows that more CEOs in the interview sessions defined efficiency in terms of the loan origination process whereas responses from the focus group discussion had a more varied definition covering about three different areas – service delivery, optimal profits, and timeliness in operations.

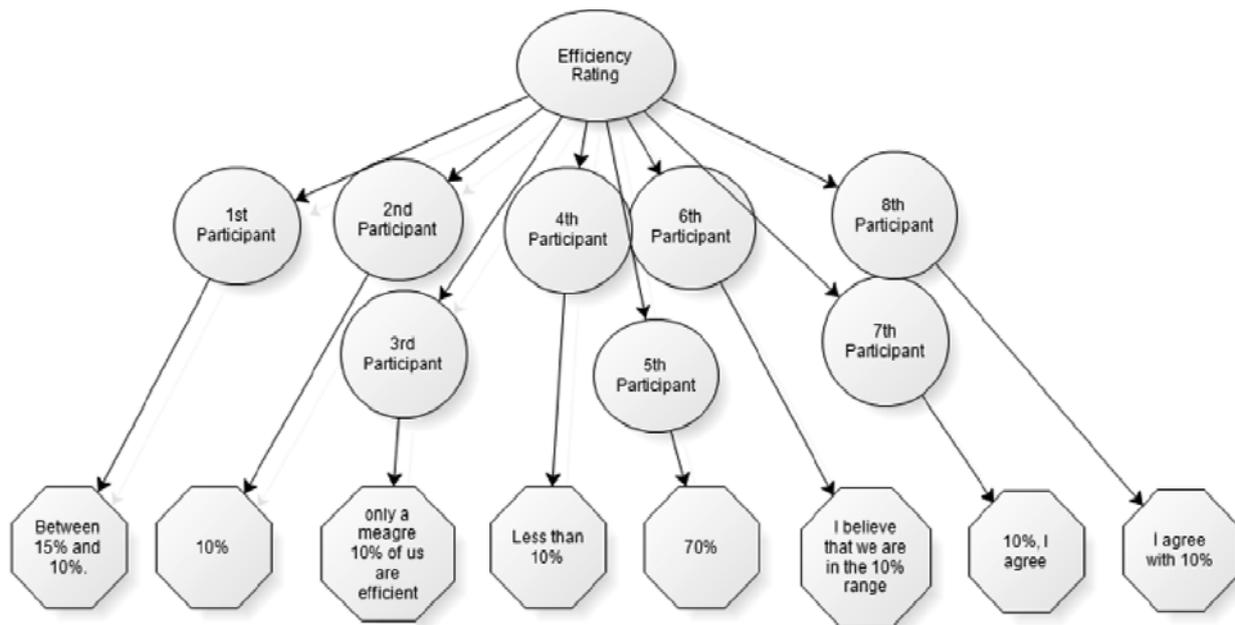
### Efficiency rating

In response to the level of efficiency of the sector, analysis of the responses shows their perception and experience. 12.5% rated the sector between 10% and 15% efficient, 62.5% rated the sector a meagre 10% efficient, 12.5% of the respondents rated the sector less than 10% efficient, while 12.5% rated the sector 70% efficient:

*“...I want to disagree with the last speaker that rated the sector only a meagre 10% efficient. That is very mean actually, and the reason why I want to talk about it is that I am one of the few that came from a very rural state. In the immediate environment where I am operating, there are no less than 10 commercial banks operating there as well, and I'm telling you I am putting up a very serious challenge to them. I am operating very competitively with them. So if coming from a very small state I can put up that, what of other PMIs in Kano, Enugu, Port Harcourt, Abuja, Lagos and other areas? So actually that estimation is too meagre for me. I would rather rate the efficiency as 70%.”*

This assessment evoked a vehement reaction from other participants. Obviously, the 70% rating is an outlier response, as there was consensus in the group as regards the 10%. For the purpose of this project, I would take the efficiency of the sector to be in the 10% range.

Figure 3.3: Efficiency rating



A comparison of this rating with the average efficiency scores obtained in the quantitative analysis done in project one shows that there seems to be a wide margin between the quantitative result and the ratings given by practitioners.

CEOs that participated in the interview were not asked to rate the efficiency of the industry. The question about efficiency rating was only asked in the focus group discussions. This was done to ensure that a general consensus was reached about the efficiency rating to avoid misinformation. So the question was asked only in an open forum where other practitioners present could approve or disapprove individual responses and a consensus could be reached on what is considered to be a realistic efficiency score for the sector.

### Constraints to efficiency

From the interviews and the two focus group discussions, 38 people responded to the question on constraints to efficiency, giving a total of 57 responses in all. 14% of the responses identified data inadequacy, 5% related to lack of collaboration among players in the industry and 30% identified unfavourable official bureaucracy. 11% of the responses identified lack of state of the art technology, 12% mentioned restrictive laws and 9% relates to ineffective regulations. 14% also identified lack of funds, and 5% identified culture as factors that impair the efficiency of individual firms in the sector.

In response to the issue of constraints during the two focus group sessions, one CEO mentioned that the constraints the sector faces are in two categories – constraints from external sources and those from internal sources:

*“My reasoning is that there are broadly two factors that affect our efficiency. The first is one that is external to us such as official bureaucracy, etc. These factors are external to us, and though we can try as much as possible to influence them, we really don’t have a lot of influence over them, at least at the moment. That is why I say they are actually external to us. And then we have factors that relate to our own internal operations.”*

Another CEO put it this way:

*“... some are micro, and by that I mean limited to our organisations and over which some organisational influence can be exerted, and some things can be done differently, while others are outside of our scope and they are outside of the control of the organisation, so they are external...”*

The factors considered as external include legal impediments such as cumbersome foreclosure and repossession processes, unfavourable legislation such as the Land Use Act, inefficient land registry system, and unavailability of data, while those deemed to be internal are speed of the loan origination process, and technology use. This conceptualization of constraints as internal and external factors is supported by Sinha and Fiestas, (2011).

### **Data Inadequacy**

In relation to data inadequacy, constraints were identified with respect to different aspects of the operations of PMIs. A prominent one is lack of credit history and non-existence of functioning credit bureaus. Others include lack of record keeping in the informal sector, which makes it difficult to ascertain the repayment capacity or verify information provided by customers, and the lack of adequate documentation that would provide information from customers. A respondent put it this way:

*“... part of it includes not having credit history for the prospective mortgagors and then not being able to also clarify or confirm the repayment capacity of the customer, because for quite a number of people, even if you have documents provided by the customer, you need to confirm them from the sources to be sure they are genuine and you need to also interview the customer, and then make some further enquiries, but we don’t have credit bureaus coming up in Nigeria ..., so you cannot really go online and get such information...”*

Another respondent’s reference to data inadequacy is:

*“One thing we do most in Nigeria is to make decisions without having sufficient data... this is the same problem we have all over Nigeria, we don’t have data... I want us to be very careful when we are answering questions that need data to substantiate.”*

### **Culture**

Inefficiencies in the sector were also attributed to culture, either at the organizational, sector or national level. One CEO cited the national culture as an impediment, as Nigerians do not like to divulge private information. Details of income and even age are seen as very private, and customers find it difficult to divulge these details, hence it is difficult to rely on information provided by customers and as such difficult to take timely loan decisions. This factor also exacerbates the problem of inadequacy of data in the

sector. A lack of credit utilization and debt repayment culture in Nigeria is another constraint to efficient operation of PMIs in Nigeria.

*“We don’t have a culture of debt in Nigeria, only a small percentage of Nigerians use credit. The implication of this is that even when mortgage loans are available, a lot of people may still shy away from taking them. And the few who take them, experience has shown, lack the discipline to pay back without being forced to. This poses a big challenge to the industry.”*

A third CEO mentioned the poor savings culture as another cultural constraint to efficiency in the mortgage sector. With regard to credit utilization, a respondent pointed out that:

*“Some people deliberately avoid building their house with mortgage facilities. They would rather prepay their mortgage debt than risk losing their homes and the social stigma of repossession.”*

### **Official bureaucracy**

30% of responses on the constraints to efficiency mentioned that official bureaucracy hampers the efficiency of the industry as a whole. One CEO felt that government policy with regard to the structure of operation in the industry, where a single institution handles all the operations involved in the loan origination process, hinders efficiency. He advocated for the creation of market segments for different specializations where there would be mortgage brokers, market scanners, scouters, underwriters, and mortgage banks, each playing a different origination role or handling different activities of the loan origination process.

Two CEOs mentioned the need for policy changes in court and other processes regarding requirements for and transfer of title and legal mortgages. Two CEOs also mentioned the need for government policy changes with respect to ability to confirm genuineness of title documents at the land registry, which according to one respondent:

*“... at present is very cumbersome and can take up to 2 weeks.”*

One CEO mentioned the need to reduce the fees applicable to transfer of titles and legal mortgages. Another CEO mentioned the need for changes in policies regarding the communication system, while three mentioned the need for changes in policies relating to physical and operational infrastructure. One CEO mentioned the need for good roads and the creation by government of long-term funds and government guarantees in order to aid the origination process and to improve efficiency:

*“I’ve looked at the mortgage business and I did a little bit of study all over the world. Even with a little bit of study in Nigeria, you discover that for a mortgage business to run very well, we need a good road network, whether we like it or not, that’s the truth. The reason the mortgage business is successful in Abuja is because Abuja has a good road network. If the road network in Lagos is improved significantly, mortgages would triple within six months. I will prefer to focus on building low cost, say between, ₦3million and ₦5million down in the suburbs and outskirts of the city. If there’s good land, good environment, low construction cost, with adequate road linkages, places that take 2 hours or more to commute now with take 20 minutes to drive to, and people will buy houses built there as they will not see these places as too far from their jobs. If given the approval, I can create 20*

*kilometres of roads that will link up communities in the suburbs. I'll finance it myself and put tollgates there. It will take me some years yes to get my money back but those roads will link to other major routes and create alternative routes to people's homes. So road network is also something we have to think about."*

One CEO also mentioned the need for changes in the fiscal and monetary policies of the country, the institution of a secondary mortgage market, and a liquidity facility company. In addition to these, he pointed out that mortgage and mortgage market infrastructures such as title insurance, mortgage insurance, and effective property appraisal, need to be put in place.

## **Technology**

Five of the CEOs mentioned various aspects of technology and technological improvements as being required to drive efficiency. One CEO mentioned the lack of technology for loan appraisal as one of the main constraints of efficiency and advocated for the increased use of technology and reduction of manual processes. Another CEO stated the need for online processes commencing with the loan application, the use of origination software, having an online land and title registry, automating other government processes that have to do with loan origination, and having government support the deployment of adequate technology.

With reference to technology as a constraint, one CEO explained that:

*"I think technology is still a very critical constraint to efficiency. Most of our operations are not automated and that affects how efficient we are. Take credit scoring for instance, we should have a method of credit scoring that is technology based where you just key in the right inputs or the individual inputs for the customer and then you get what you want, rather than going the manual way or trying to appraise the customer manually. I think technology will help a great deal. This is not eliminating the physical meetings or engagements that you do with the client or the customer but technology would really help in terms of credit scoring, and in terms of underwriting, so that's a major constraint because I don't see us doing that yet in the market."*

## **Regulation**

Five of the CEOs felt that the lack of effective regulatory intervention in some aspects of operations poses a serious challenge to efficiency. One CEO identified the absence of effective credit bureaus to facilitate credit recording and checks and also the ineffective enforcement of credit policy. He also mentioned the lack of empathy for PMI operators by regulatory bodies. He cited the instance of the Central Bank showing empathy for micro-finance banks by helping to advertise them, thus creating awareness of their services, but such was not done for mortgage banks. Two CEOs mentioned the lack of uniform underwriting standards that would be internationally acceptable across all mortgage banks, to enable foreign investors to invest in the mortgage notes created. Two CEOs mentioned the need for regulatory improvements in risk assessment and monitoring processes.

## **Laws**

Respondents mentioned the need to amend the land laws and other laws relating to mortgages. Seven of the eight respondents mentioned the constraints that the Land Use Act, Repossession laws, and contract laws pose to efficient operations in the sector, while one CEO mentioned the need to amend the foreclosure and securitization laws, and another also mentioned the need for the creation of a Freedom of Information bill to aid information gathering and verification, in addition to the Land Use Act and other laws.

## **Collaboration**

Four of the CEOs mentioned lack of collaboration among key industry players as a factor that negatively affects efficiency in the sector. They pointed out the need for increased collaboration among industry players, especially in the areas of data exchange. One CEO also mentioned that a non-cordial relationship between the board of directors and the management negatively affects efficiency.

## **Funding**

Eleven respondents mentioned that unavailability of long-term finance for operators in the sector poses a serious challenge to their efficiency. Three CEOs mentioned the non-existence of a secondary mortgage market and another two identified inadequate capital of existing PMIs. One of those two CEOs said that:

*“At the moment, most primary mortgage institutions are funded by deposits sourced from customers, the public sector, borrowings from financial institutions, and shareholders’ equity. These sources cannot provide the volume and duration of funds that can sustain our operations in the long run, so finance is a major issue at the moment.”*

One CEO mentioned lack of intervention funds from the government, three mentioned unavailability of long-term funds and two mentioned the lack of a liquidity facility.

Figure 3.4: Constraints to efficiency

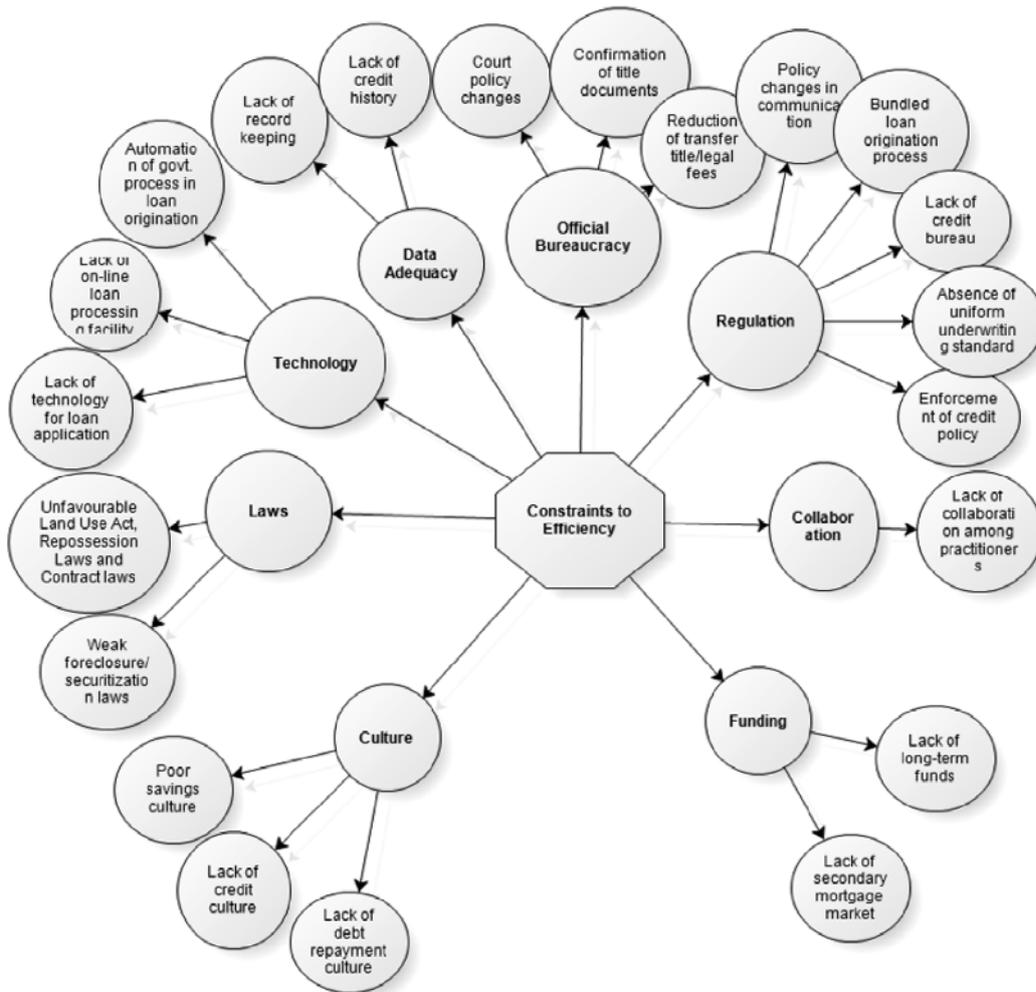


Table 3.6: Summary of constraints to efficiency

Constraint	Frequency	Percentage
Data Inadequacy	8	14%
Unfavourable government policy	17	30%
Lack of state of the art technology	6	11%
Ineffective regulation	5	9%
Laws	7	12%
Lack of collaboration among industry players	3	5%
Culture	3	5%
Unavailability of long-term funds	8	14%
<b>Total</b>	<b>57</b>	<b>100%</b>

## Categorizing constraints using institutional theory framework

Table 3.7: Categorizing constraints within institutional theory framework

	<b>Constraints</b>	<b>Category</b>
1.	Ineffective assessment in risk and monitoring processes	Normative
2.	Cumbersome registration and titling process	Regulative
3.	Inconsistent underwriting standards	Normative
4.	Legal impediments in foreclosure and repossession processes	Regulative
5.	Unfavourable legislation	Regulative
6.	Ineffective fiscal and monetary policies	Regulative
7.	Lack of secondary mortgage market	Regulative
8.	Lack of liquidity facility	Regulative
9.	High cost of registration and transfer of title deeds	Regulative
10.	Lack of uniform accounting year end and international financial reporting standard	Normative
11.	Weak property rights	Regulative
12.	Slow loan origination process	Normative
13.	Lack of state-of-the-art technology	Normative
14.	Lack of physical infrastructure	Regulative
15.	Lack of mortgage market infrastructure	Regulative
16.	Lack of collaboration among industry players	Cultural-cognitive
17.	Poor savings culture	Cultural-cognitive
18.	Lack of empathy for PMI operators by regulatory bodies	Cultural-cognitive
19.	Lack of credit culture	Cultural-cognitive
20.	Lack of debt repayment culture	Cultural-cognitive
21.	Customers' reluctance to provide necessary information	Cultural-cognitive
22.	Bundled loan origination process	Regulative
23.	Lack of securitization laws	Regulative
24.	Lack of technology for loan appraisal	Normative
25.	Lack of cadastral system	Regulative
26.	Official bureaucracy	Regulative
27.	Ineffective prudential regulations	Regulative
28.	Lack of intervention funds from government	Regulative
29.	Insufficient manpower	Normative

Table 3.8: Summary of categorized constraints

	<b>Category of constraints</b>	<b>Frequency</b>	<b>Percentage</b>
1	Regulative constraints	16	55%
2	Normative constraints	7	24%
3	Cultural-cognitive constraints	6	21%

## How constraints to efficiency can be mitigated

A total of 67 responses were obtained from 20 people. 25% advocated for a change in official bureaucracy while 8% addressed issues pertaining to review of legislations. 10% of the responses also touched on clear communication between practitioners and regulators as well as between practitioners and customers. 9% of the responses advocated for improvement in technology and 8% addressed regulations. 9% also suggested improvement in data collection, 2% addressed the delinquency ratio, 4% advocated for collaboration among PMI operators and 2% suggested improving publicity and awareness for the sector.

## Policy

Seventeen CEOs advocated for changes in existing policies and the enactment of new ones that will provide a conducive operating environment for primary mortgage institutions in Nigeria. Respondents suggested that many of the existing policies relating to the legal aspects of mortgage banking, such as the requirements for transfer of title and legal mortgages, and the procedure for confirmation of title documents, act as serious impediments to the efficiency of the sector. Policies relating to the communication system between practitioners and industry regulators, creation of infrastructure and amenities that will enhance the real estate market, as well as the fiscal and monetary policies in the country also need to be amended to enhance the efficiency of the sector. The following response summarizes the priority respondents gave to the issue of policy:

*"In order of importance, I believe improvement in government policy is the most important way our efficiency can be enhanced at the moment. It is very key. Most of the other issues can be sorted out of the bureaucracy is favourable. Removal of legal impediments is also critical, and then we can think of other issues like recapitalization of mortgage banks, intervention funds, liquidity facility, vibrant secondary mortgage market, regulators' advocacy and creating awareness, etc."*

One CEO suggested the unbundling of mortgage functions through the creation of market segments for different specializations in the mortgage loan origination process where different professionals would handle different activities in the process. Two CEOs also suggested policy changes in court and other processes regarding requirements for and transfer of titles and legal mortgages. Two CEOs mentioned the need for government policy changes with respect to the ability to confirm the genuineness of title documents at the land registry, which at present is very cumbersome and can take up to two weeks. Another CEO mentioned the need to reduce the application fees for transfer of title and legal mortgages. One CEO also mentioned the need for government policy changes with regard to the communication system. Another CEO advocated for policy change with respect to provision of infrastructure and amenities, such as electricity and good roads, by the government in addition to the creation of government long-term funds and government grants in order to aid the origination process in order to improve efficiency of the mortgage banking sector. One CEO further mentioned the need for changes in the fiscal and

monetary policies of the country, institution of a secondary mortgage market and a liquidity facility company.

### **Legislation review**

The issue of the review of laws that impair the efficiency of the sector is a recurring response among the focus group participants. Two participants mentioned the need to amend the Land Use Act, and one made reference to the review of Repossession laws. Three of the CEOs mentioned the need to amend the land laws and other laws relating to mortgages, and one the need to amend the foreclosure laws and securitization laws while another CEO mentioned the need to amend the Land Use Act, Repossession laws, and contract laws. Another CEO suggested the creation of a Freedom of Information bill to aid information gathering and verification.

### **Funding**

Seven respondents advocated for the provision of long-term finance for operators in the sector through the creation of a vibrant secondary mortgage market, recapitalization of existing PMIs, provision of intervention funds from the government, creation of a liquidity facility, and the establishment of an interim secondary mortgage market while waiting for the National Assembly to review existing laws in favour of the sector.

### **Technology**

One respondent mentioned improvement in technology as a necessary investment to boost the efficiency of mortgage institutions in Nigeria. Five of the CEOs suggested improvements in various aspects of technology as being required to drive efficiency. One CEO mentioned the lack of technology for loan appraisal as one of the main constraints of efficiency of the loan origination process and advocated for the increased use of technology and the reduction of manual processes. Another CEO suggested the use of online processes in the mortgage loan application process, the use of loan origination software, having an online land and title registry, automating other government processes that have to do with loan origination, and having government support for the deployment of adequate technology. To summarize their responses:

*“In terms of technology, we can find user friendly technology that takes away a whole lot of the human resources and the attendant cost savings will more than pay for the cost of the technology. I think this is a way to overcome these constraints.”*

And

*“We can’t talk of efficiency without talking about automation. Do we automate our processes, for instance, mortgage origination, loan management, etc.? If we do that, of course our efficiency will increase and we will be able to do more than we are doing now.”*

## **Awareness**

One CEO also pointed out that creating awareness of the sector and the services that mortgage banks offer would go a long way in helping to improve their growth, profitability and ultimately, their efficiency.

## **Clarity**

Seven CEOs mentioned clarity as a factor that can help to drive efficiency, especially in relation to loan origination. Clarity was mostly defined as clear communication between the bank and its customers on the requirements for obtaining a mortgage loan and the conditions precedent to approval and disbursement of the loan. Four CEOs advocated that mortgage banks should have a checklist of all requirements, to be given to customers from the onset, or that would be on their website, so that customers would know whether they met the conditions for a loan or not and whether to bother applying for a loan. They felt that ineffective communication between the bank and the customer is the greatest hindrance to efficiency as this response reveals:

*“...One of which is developing a checklist, because we find that sometimes the process has gone through a critical stage, before the mortgagor gets to know about a new requirement, and he begins to run around again to meet that condition. As soon as that condition is met, you find maybe the head of unit asking for something else, and the credit officer returns to the mortgagor again to get that thing. So developing a checklist goes a long way in ensuring that all those issues are outlined ab-initio and the customer makes up his mind if he’s able to go through with it or not.”*

Three of the CEOs also stated that clarity of job descriptions and processes of loan officers was very important to help them discharge their duties effectively:

*“...Yes, meaning these constraints can be overcome by having a clear communication process and making sure that the right officer is well informed and well educated as to what has to be done.”*

## **Training and enlightenment**

Most of the CEOs mentioned training as an impediment to efficiency and a tool that can improve efficiency. One CEO stated that one of the major constraints was that customers had no knowledge of what constitutes a proper title to a property and as such, after a loan had been approved it would be realized that the documents have not been properly registered or that the property had no title, save for a receipt of purchase, etc. Three CEOs stated that customers needed to be educated to ensure their applications were complete and accurate as most of the delays in origination were caused by this. Three CEOs also stated that the staff and management of mortgage banks needed to be trained in order to improve efficiency, while two CEOs stated the need to train public sector workers in order to improve the turnaround time of title searches and verification, which is a critical aspect of the loan origination process.

## Data

Six of the CEOs mentioned the provision of adequate data with respect to different aspects of the mortgage intermediation process as a means of improving its efficiency. Four CEOs advocated proper record keeping in the informal sector to make it easy to ascertain the repayment capacity or verify information provided by customers, while two CEOs suggested that banks should take adequate documentation of customer information.

## Regulation

Five of the CEOs felt that there was a need for regulatory intervention in some aspects of the operations of mortgage banks in order to improve efficiency. One CEO stated that the regulators needed to set up effective credit bureaus to facilitate credit recording and checks. Three CEOs suggested that industry regulators need to design and enforce internationally acceptable and minimum/uniform underwriting standards for mortgage banks and other mortgage finance providers, to enable foreign investors to invest in the mortgage notes created. Two CEOs advocated for regulatory improvements in risk assessment and the monitoring process, while one CEO mentioned other regulatory changes required, including enforcement of credit policy guides and the need for empathy on the part of the regulators towards mortgage operators.

## Collaboration

Three of the CEOs mentioned collaboration as being important to efficiency. Echoing one of the responses:

*“A lot of the CEOs of PMIs are here today but you won’t see them again in another year except if a meeting like this is called, and so sharing ideas is inhibited. From what we have done today, I have learnt so much... I know that a lot of impediments are there, especially for those of us operating in other states, but then when we come together, we can look at how others are getting things done and how we can do things better. I think the more the merrier, the more we agree to work as a team, the better it would be for us, rather than trying to succeed on our own.”*

These three CEOs all mentioned the need for increased collaboration among industry players especially in the areas of data and information exchange.

## Delinquency

One CEO suggested that efforts to reduce the volume of delinquent loans would hugely boost efficiency because the quality of loans being originated and the volume of delinquent loans being originated are two of the most important measures of efficiency. He further suggested that considerable emphasis should be placed on the due diligence and credit checks before loans are approved. He also stated that more emphasis should be placed on the ability of the loan officers to obtain adequate information from and about the customers that will ensure repayment of the loans. He equally suggested the need for the verifiability of information given by customers regarding credit history, income level,

capacity to repay, adequacy of security/collateral, and other customer information to be taken seriously by the CEO in order to reduce the ratio of delinquent loans.

### **Other issues**

An issue that kept recurring throughout both the interview sessions and the focus group discussions is the categorization of constraints. CEOs naturally categorized the factors that affect their efficiency into internal and external factors as these excerpts demonstrate:

*“There are two things that affect our operations, one is the policies, which is external to us. We can try as much as possible to influence it, but it is actually external to us. And then we have our own internal operations. By internal operations I mean our efficiency, like how long it takes us to originate loans. For example, when a customer brings documents to us, it probably takes us maybe two months to get back to the customer. These are some of the few constraints also holding back our success.”*

And

*“We have constraints to efficiency in terms of regulations and resources which are external to us and we also experience some constraints to our operations with regards to issues which are internal to us.”*

CEOs categorized constraints that relate to the regulatory environment, the legal system, physical and mortgage market infrastructure and other issues over which they have no direct control as external factors, and those that relate to their operations and resources over which they could exercise some influence, such as technology, manpower, speed of the loan origination process, as internal factors. An analysis of the construct and content of this categorization reveals that external factors align with the regulative dimension of institutional theory, while the internal constraints are comprised of factors that reflect the normative and cultural-cognitive dimensions of the institutional theory.

### **3.4.2 Discussion**

Through the lens of institutional theory, this study has investigated the perceptions of CEOs of mortgage banks in Nigeria on the efficiency of the Nigerian mortgage system. In agreement with the theory, the results have shown that the inefficiencies in the Nigerian mortgage system are more as a result of the bureaucracies in the system, which is a reflection of the institutional factors rather than the market forces related to the demand, supply, or even the finance of housing.

The practitioners' definition of efficiency agrees with theory, although there are more varied definitions of efficiency from the focus group discussion than in the interview responses. Three responses correlate with the theoretical definition of technical or managerial efficiency, (Matthews, 2010; Musonda, 2008; Reda and Isik, 2006). A large proportion of the participants defined efficiency in terms of timeliness and accuracy in operations, service quality, meeting and exceeding industry set benchmarks, and profitability.

A further look at the operational activities for which efficiency is considered most important revealed that practitioners believe that more efficiency in loan origination and underwriting will help to improve the overall efficiency in the industry. Basically, practitioners believe that an efficient loan origination process would have a positive impact on the growth of their businesses because it will lead to an increase in loan portfolio, market share and customer retention, which will ultimately guarantee the continuity of their businesses.

This result agrees with the findings of Meon and Weill (2006), who provided evidence that improvement in the efficiency of the loan origination process exerts a significant boost on overall efficiency, and Drechsel (2007), who showed that inefficiencies in the loan origination processes of the Swiss banking industry impaired the growth of the industry significantly. The opinion of participants in the focus group and interviews also agrees with Kablan (2007) and Kirkpatrick et al. (2007), who posit that banking industry efficiency is a function of two critical factors to loan origination – quality of loans and bank soundness.

Practitioners perceived the system to be about 10% efficient. This low rating can be attributed to the negative perception of the institutional structures in the system that constitute various forms of constraints to the effectiveness and smooth functioning of the system. I would attribute this negative perception in part to the expectation of the CEOs about the mortgage banking system. Many of the CEOs have had years of experience in the commercial banking system, so there is probably a level of performance they are used to and expect to have, which the mortgage system falls short of because of the regulatory peculiarities and policy limitations the mortgage banking sector has. So the practitioners could have rated the efficiency of the mortgage banking system as low, relative to their commercial banking experience.

The low perception of the efficiency of the sector by the CEOs could also be explained by the research of Spencer and Gomez (2004), which provided evidence from three countries – New Zealand, Switzerland and Finland – that practitioners tend to rate the efficiency of their business low when they have a negative perception of their institutional environment. The findings of this study have revealed that CEOs had a slightly negative perception of the regulatory and legal environment in which they operated. If this could be generalized, then the low efficiency rating observed could also be explained by the CEOs' perception of their institutional environment.

Investigation of the constraints to efficiency reveals that the CEOs perceive the Nigerian mortgage banking sector to be inefficient due to both internal and external factors, although the external factors are more on the efficiency of the sector than the internal factors because the type and gravity of internal constraints experienced varies across the banks, whereas the effect of external constraints to efficiency is equally felt by all the banks in the industry. Besides, the external factors determine how conducive the environment is for business transactions. This perceived categorization aligns with the institutional theory. The external factors are typical of the regulative constraints, while the internal factors are comprised of the normative and cultural-cognitive constraints based on the institutional theory framework.

Unfavourable legislation tops the list of external factors that impede the efficiency of the sector. The MBAN had submitted a memorandum to the Senate Committee on Constitution Review to the effect that the Land Use Act and other legislation that negatively impact on their operations be reviewed and amended. Akeju (2007) asserts that plans are being made by the Federal government to amend the Land Use Act and seven other similar legislations (MBAN, 2009), that affect the operations of the mortgage banking sector. The other laws are:

- The Federal Mortgage Bank of Nigeria Act 1993
- The Insurance Act 2002
- The Investment and Securities Act 1999
- The Mortgage Institutions Act 1989
- The National Housing Trust Fund Act 1992
- The Nigeria Social Insurance Trust Fund Act 1993
- The Trustee Investment Act 1962

Also additional bills on securitization and foreclosure have been added to create a more conducive economic and legal environment for the operation of mortgage finance providers.

The procedures required for registering property in Nigeria are numerous – involving about 16 stages and about 180 days. This presents opportunities for corruption, especially because the processes are not automated. According to a World Bank report “Doing Business in 2009 – How to reform”, Nigeria’s reforms have led to a reduction in the time required to complete the process of property registration from 180 days to 80 days. But much still needs to be done to reduce this duration further because it takes only one day in some other countries such as Norway and Singapore. Still, with regard to the property registration process, automation and especially a change in work culture and attitude to work in government registries will further help to substantially reduce the duration of property registration.

A favourable regulatory environment cannot be achieved without a stable macroeconomic environment. Stability in macroeconomic variables will go a long way to improve the state of mortgage finance in Nigeria. Lenders, investors and borrowers prefer a stable economy where decisions can be taken without any apprehension. Government intervention to keep inflation at manageable levels will ensure that interest rates tend downwards and this will also stabilize other macroeconomic variables. As inflation and interest rates decline, banks and pension funds will be encouraged to look less towards government securities and more towards the private sector in which to invest their assets. Thus, mortgages and mortgage-based investments would stand to benefit if the macroeconomic environment were to continue to improve.

Figure 3.5: Framework for mortgage system efficiency



The framework in Figure 3.5 shows the factors that impact on the efficiency of the mortgage banking sector and the consequences or results of having an efficient mortgage industry as derived from the findings. The framework is circular to reflect the dynamic nature of the constraints to efficiency of the sector. It also reflects the fact that any change in one of the factors will cause a ripple effect either to diminish or exaggerate other constraints. This dynamism implies that the identified constraints exert their influence without any regularity over time and they affect the overall efficiency of the mortgage banking sector with varying impact.

Constraint is a limiting factor, which an institution must either adapt to or overcome. In mechanics, the word constraint is used to qualify factors that have any magnitude of interaction with other relevant factors, such that the nature of their interaction may be positive, negative or even null. Extending this meaning to the framework above, I could identify certain factors, such as clarity, training, data adequacy and technology, as constraints that have positive interactions among themselves; if one of these constraints is effectively mitigated, it will have a positive ripple effect on all the other factors such that the negative consequences of those other factors will also be reduced.

Regulations, legal impediments and bureaucracies create another combination of constraints that have positive interactions among themselves and also with awareness and funding; a conducive legal and regulatory environment will create awareness for the industry and will also attract long-term funds. Collaboration would have positive interactions with other factors such as technology, awareness and training.

### **3.5 SUMMARY AND CONCLUSION**

This chapter concludes with a summary of the findings, comparing the results obtained here with previous researches in order to highlight similarities or differences and to bring out the unique contribution of this work, and to highlight areas of research where further investigation will be of benefit.

#### **3.5.1 Conclusion**

To conclude this project, it is important to mention that this study hopes to answer two pertinent questions, which will provide much-needed information for practitioners in the industry, and industry regulators alike. The first question is How efficient is the mortgage banking sector in Nigeria? and the second is How can the efficiency of the sector be enhanced to secure long-term funds?

The findings of this study provide evidence that the mortgage banking sector in Nigeria is about 90% inefficient. This evidence is in support of the results of the quantitative assessment done in project one, although there is a huge difference in the efficiency score obtained from quantitative analysis of efficiency done in project one and the qualitative assessment in this study, yet both estimates still place the sector at the lower end of the efficiency ladder when compared with other countries in sub-Saharan Africa.

As derived from the interviews and focus group discussions with CEOs in the mortgage banking sector, the inefficiency observed in the sector is the result of the many constraints to its operations especially as regards the laws and policies regulating activities in the sector. These constraints no doubt have contributed to the gross inefficiency observed. Also the involvement of mortgage banks in non-mortgage related businesses such as direct construction of housing for sale, financing of local purchase orders (LPOs), and giving short-term loans for non-mortgage purposes is a deterrent to efficiency, and could be responsible for the low performance in terms of the volume of loans originated. It is also a major departure from their primary mortgage financing role and a serious deterrent to the offshoot of a much-needed secondary mortgage market.

In my opinion, the issue of departure from primary mortgage financing functions was not perceived as a constraint to efficiency by practitioners, but rather as a diversion in an effort to increase profit. However, efficiency in mortgage financing should not just be about profits and returns alone, attention should be paid to the volume of loans originated, with an acceptable level of quality of service, and a minimal delinquency ratio.

The major constraints to efficiency, as revealed in the findings, are restrictive constraints imposed by external factors such as official bureaucracy, regulatory laws, weak property rights, cumbersome land registry and titling procedure, tedious foreclosure/eviction processes and the lack of integrity, transparency and accountability of customers, which result in a high delinquency rate. These constraints are not peculiar to Nigeria alone, other emerging mortgage markets in sub-Saharan African countries have experienced the same issues. Mass house ownership (especially by low- and middle-income earners) and the

eradication of slums will, however, not become a reality unless these issues are successfully mitigated.

A review or amendment of relevant laws, such as the Land Use Act, will go a long way to boost efficiency in the sector. It is believed that the review of the Land Use Act and other legislations will facilitate the emergence of a much-needed secondary mortgage market which, with its attendant long-term funding sources, including FDIs, pool of contributory trust funds (specialized housing/shelter funds), pension funds, bank deposits, and government intervention funds, as well as its long-term funding products such as securitization, MBSs, bonds, REITs, liquidity facilities, etc., will significantly improve the efficiency of the mortgage banking sector.

Practitioners are also hopeful that if the on-going recapitalization exercise is successfully implemented, there will be more funds for PMIs to operate with, and this will increase their capacity and boost efficiency, at least in the short run. This will also help the sector keep up with the pace of development in other sectors of the economy, and will reduce the bottlenecks experienced in the provision of housing, and the funds flow process.

To address the internal constraints to efficiency, CEOs suggested that industry regulators should set clear and integrated guidelines and benchmarks that will set a standard for the quality of service delivery, the duration of loan origination, and quality of documentation required from customers, among other operational issues. This will ensure the smooth running of operations for practitioners, and challenge individual banks to focus on and emphasize efficiency in their operations. Some CEOs also advocated for more compliance with current regulatory requirements of the MBAN because cooperation in this regard will help to create more awareness for the sector.

This would be further enabled through the use of effective technology and adequate uniform underwriting standards. In summary, the mortgage banking sector in Nigeria is in its growth phase and the mortgage market is still growing, and as such there is room for improvement. Practitioners and industry regulators alike should look outside their immediate environment and market, and learn from developed economies to improve their efficiency.

The primary contribution of this project to practice is the development of a framework for the efficiency of the mortgage banking process, which incorporates both the external and internal factors that affect efficiency. With a proper understanding of the dynamics of this framework, practitioners can improve on the efficiency of their operations. Also, previous projects in banking efficiency have not examined the perception of practitioners on the efficiency of their firms or industry through the lens of institutional theory, so the findings of this project make a unique contribution to the mortgage system/banking efficiency literature.

### 3.5.2 Areas for further research

Opportunities for further research exist in the area of quality of the loan origination process, as most CEOs focus on the time taken to originate loans and the volume of loans originated, with little attention paid to the quality or delinquency ratio of loans originated. To improve on the quality of loan origination, it would be of interest to investigate the following areas further:

**Unbundling the mortgage loan origination process:** This will consolidate mortgage servicing, and involve more professionals in the process, thus increasing its efficiency.

**Developing a comprehensive credit information system:** The availability of credit information is an important prerequisite for developing a secondary mortgage market as and an important way of lowering the cost of transactions and reducing risk in the loan origination process.

**Standardizing mortgage loan documentation:** Standardized documentation carries a number of benefits for development of the sector. It helps consumers feel more comfortable with documentation, and it facilitates a homogeneous market, which can then more easily turn to the capital markets and offer standard mortgage assets in return for funding. It also makes it easier to enforce regulatory standards.

**Professional training/certification of mortgage loan originators:** There is also a prospect for further research into the area of certification of mortgage loan originators/officers, and its attendant effect on increased efficiency, in order to confirm or refute the hypothesis that structured training and certification programmes will help in improving the efficiency of the loan origination process.

In addition to these, and in light of the fact that most of the constraints to efficiency mentioned by the respondents are in relation to the debilitating impact of the external environment on the sector, further research is also necessary with regards to how the external environment can be recreated to boost efficiency. Specifically, in-depth research is imperative to examine how existing government policies, official bureaucracy, and industry regulations can be reviewed and/or how new policies and laws can be enacted to enhance efficiency in the sector. For instance, further research on how the present titling and registration process could be streamlined into a simpler, more secure and reliable process, which is both cheap and efficient, would significantly boost the efficiency of the mortgage system. Research efforts could also be directed at how a comprehensive housing policy will be formulated.

Among other reasons, lack of adequate manpower is a cause of internal inefficiencies as the study has shown. The reality is that there is a shortage of skilled manpower that can take the mortgage industry to the desired level of efficiency. Capacity has not been built over the years because the mortgage sector did not really exist and the conditions were not favourable for long-term lending, as this would have led to asset-liability mismatch. The industry needs to build capacity in all aspects of operations of mortgage banking and the mortgage market.

# APPENDICES PROJECT 2

## Appendix 1

### INTERVIEW QUESTIONS

#### Section A

##### Bio-Data

1. Age Range
  - 20 to 29 years
  - 30 to 39 years
  - 40 to 49 years
  - 50 to 59 years
  - 60 years or above
2. Highest Educational Qualification
3. Years of Experience
4. Years with present institution
5. Previous Positions
6. Gender

#### Section B

1. What would you define Efficiency as in relation to the mortgage banking sector in Nigeria?
2. How important do you think Efficiency is to the mortgage banking sector in Nigeria?
3. How important do you think industry players take Efficiency of the mortgage banking sector in Nigeria to be?
4. Which activity in the mortgage banking sector in Nigeria do you think Efficiency is most important to, and why?
5. How do you measure Efficiency in the mortgage banking sector in Nigeria?
6. How do you think it should be measured?
7. What are the main constraints of operating Efficiently in the mortgage banking sector in Nigeria?
8. How can these constraints be overcome and Efficiency improved?
9. What do you think your role is in promoting Efficiency of the mortgage banking sector in Nigeria?
10. What impact do you think improved Efficiency would have on your business?
11. How can your external environment (e.g. Policies) be changed to improve Efficiency of the mortgage banking sector in Nigeria?

## Appendix 2

### FOCUS GROUP QUESTIONS

1. What would you define Efficiency as in relation to the mortgage banking sector in Nigeria?
2. How important do you think Efficiency is to the mortgage banking sector in Nigeria?
3. How important do you think industry players take Efficiency of the mortgage banking sector in Nigeria to be?
4. Do you think efficiency is a competitive tool?
5. On a scale of 1 to 100, how would you rate the Efficiency of the sector?
6. Which activity in the mortgage banking sector in Nigeria do you think Efficiency is most important to, and why?
7. How do you measure Efficiency in the mortgage banking sector in Nigeria?
8. How do you think it should be measured?
9. What are the main constraints to operating Efficiently in the mortgage banking sector in Nigeria?
10. How can these constraints be overcome and Efficiency improved?
11. What do you think your role is in promoting Efficiency of the mortgage banking sector in Nigeria?
12. What impact do you think improved Efficiency would have on your business?
13. How can your external environment (e.g. Policies) be changed to improve Efficiency of the mortgage banking sector in Nigeria?

## Appendix 3

### INTERVIEW/FOCUS GROUP PROTOCOL

#### Introductory statement

I would like to thank you for the time taken out of your very busy schedule to grant this interview/participate in this forum. My name is Femi Johnson and I am a doctoral student of Cranfield School of Management, Cranfield University, United Kingdom, undertaking a doctorate in business administration focused on *'Developing the mortgage sector in Nigeria through the provision of long-term funding – the role of efficiency and enabling policies'*. As part of my studies, I am researching Mortgage Bank CEOs' opinions of the efficiency of the mortgage banking sector in Nigeria.

#### For Interview

I have initiated this interview to gather data, which I will analyze to extract necessary information for my research. I am not looking for any particular answer, just candid and representative answers. I would like you to feel comfortable with saying what you really think and how you really feel. And don't hesitate to ask me to clarify any question you do not understand.

#### For Focus Group

I have initiated this forum so that we can learn from each other about what is really going on in our sector. This is a 'no holds barred' discussion and there are no right or wrong or desirable or undesirable answers. So, I want to us discuss freely and without any reservations. Our unique and individual contributions will provide a holistic perspective to the research.

#### Concluding remarks

This data collection exercise is strictly for academic research purpose and I assure you that all information provided will be kept confidential; your company name or other identifying information will not appear in any study report – all results from this exercise will be reported as statistical summaries.

I will be recording this session on tape; I hope this is acceptable to you. The purpose of this is so that I can get all the details but at the same time be able to carry on an attentive conversation with you. Also, the transcription of the recordings will be used as input data for coding and analysis. In addition to the recording, I will be taking some notes to capture my insights or understanding of the answers given as we go.

Your answers in this interview/focus group forum will be treated confidentially, your identity will be kept anonymous and the information you give will only be used for the research alone and not for any other purpose. And I offer to send you the final

consolidated results of this research if you are interested in receiving them.

### **Interview outline**

This interview is a semi-structured interview and is not expected to last longer than 1 hour. The interview is comprised of three parts, and I will now give you an outline of the interview.

First, I will collect some biographical background data

Second, I will ask open-ended questions

- Please feel free to elaborate or illustrate in any way you want
- When I ask follow-up questions I am seeking to gain a clear understanding as questions may be interpreted in different ways
- Finally, I will wrap up and conclude the interview

### **Focus Group Outline**

This discussion will focus on the efficiency of the mortgage banking sector. It is an open discussion and everyone is expected to participate freely. I will ask open-ended questions about how efficient we are, what factors drive our efficiency, what factors impair it, the effect of the external environment on our efficiency and how inefficiencies can be mitigated.

To participate:

- Please introduce yourself by mentioning your name and the organization you represent.
- I, or any one present, can ask follow-up questions to gain a clear understanding as questions or even answers can be interpreted in different ways.
- When you have something to say after your first response, please repeat your name each time. This will help me to relate comments to speakers when I am listening to the tape again as I will not be able to see who is speaking.
- However, if you have comments or concerns outside this scope, please do not hesitate to bring them up.

## **CHAPTER FOUR: PROJECT 3 REPORT**

### **Enabling Policies that Promote Efficient Mortgage Market Operations**

## Abstract

Dearth of long-term funds has been identified as a major deterrent to the growth of the mortgage sector in Nigeria. Also, literature provides evidence that inefficiency in the sector poses a serious constraint to the availability of much needed funds. This study seeks to investigate possible sources of long-term funds within the economy and the policies that can be enacted to enhance efficiency and create an enabling environment for mortgage finance to thrive.

A review of sources of funds and housing finance policies in emerging economies where mortgage finance/housing is thriving was conducted. The result of this investigation and prevailing circumstances within the Nigerian mortgage sector formed the content of a mixed method questionnaire survey designed to gather data for the study. The survey was conducted among the three major stakeholders in the mortgage/housing market – consumers, finance providers and the government.

600 consumers were randomly selected from the three sub-sectors of the Nigerian housing market – the informal sector, the subsidized formal sector and the formal sector. Existing mortgage banks formed the survey population for the finance providers while 77 government agencies (at the state and federal level) concerned with housing/housing finance participated in the survey.

The study identified accumulated deposits in pension funds, unclaimed dividends, funds in dormant accounts of commercial banks and other financial institutions, and funds from insurance companies, as possible sources of long-term funds for housing finance, while a concerted effort is being made to set up a secondary mortgage facility.

The findings also reveal that policies to create an enabling environment for mortgage finance should revolve around strengthening the NHF scheme, capacity building for PMBs, integrating the mortgage market into the capital market, setting up appropriate infrastructure and/or remodelling existing ones to enhance the mortgage market, and the introduction of a new legal framework to strengthen property/security rights.

## 4.1 Introduction

Housing is an important driver of economic growth in developed and developing countries alike, and the literature (Chiquier and Lea, 2009; Hoek-Smit, 2005; World Bank and IFC, 2005) provides evidence that the housing sector will boost economic growth only where the mortgage market is efficient. An efficient mortgage market is one that has devised effective means to overcome obstacles, such as lending restrictions, lack of financial infrastructure, lack of funds for long-term lending, legal and regulatory constraints, limited institutional capacity, and lack of access to mortgage credit, to mention a few.

An efficient mortgage market guarantees long-term funds because it attracts investors. Also, when the market is efficient, consumers have better access to the available funds, and this in turn helps to stimulate demand for housing finance.

Apart from this, an efficient mortgage market catalyzes the development of housing finance by enhancing the depth of financial institutions that channel funds between surplus and deficit agents in the mortgage sector. The depth of financial institutions refers to the size of those institutions relative to the overall economy. It reflects the degree of development of the financial sector. Financial depth is used as a measure of the size of financial institutions and financial markets in a country.

Regardless of the specifics of housing in any country, most housing markets are comprised of four critical components: institutional, financial, human resource and infrastructure (El-Kafrawy, 2012; Hoek-Smit, 2005). For an economy to achieve an efficient mortgage market, these critical components must be effectively harnessed; they must be available in the right degree and synchronized in the right quantity for efficiency to be attained.

However, even when the components are correctly synchronized to suit the economy, the peculiar characteristics of housing itself, such as its immobility and location specificity, often create market inefficiencies. When this happens, government regulation, through macroeconomic management and housing sector-specific policies, becomes absolutely essential to improve housing market efficiency and to drive growth in the sector.

To corroborate this, Hoek-Smit (2005), drawing on an international comparative study of 65 countries, asserts that 'policies matter more than endowment (GDP) in improving mortgage market efficiency'. She suggests that for impressive results, mortgage market inefficiencies are better tackled from the policy perspective because policies have a major impact on house prices, quality, and tenure choice. Policies also have a great influence on housing production and investment in the housing sector, and impact the role finance providers play in the sector.

At present, the mortgage market in Nigeria is grossly inefficient and underdeveloped; residential mortgage lending is typically small in scale – approximately 0.5% of the GDP (Ya’u Kumo, 2011) – difficult to access and only bank-based, with little reliance on capital markets (Chiquier and Lea, 2009). The development of the mortgage market has been constrained by an underdeveloped housing finance system, lack of an effective legal, regulatory and institutional framework, inadequate access to long-term funding, cumbersome property registration procedures, and lax collateral enforcement, as well as ineffective foreclosure procedures. This has exacerbated the housing deficit experienced in the country.

Market efficiency can only be attained when new policies are enacted. This is necessary to eradicate or at least alleviate the legal impediments and bureaucratic bottlenecks that are in existence. These challenges prevent the generation of long-term funds internally and also discourage foreign investors from bringing long-term funds into the market. In essence, an effective housing finance policy is fundamental to the creation and sustenance of a thriving and flourishing housing sector and to the reduction of the housing deficit in Nigeria.

Unfortunately, most researches carried out on the Nigerian mortgage market have focused on areas such as demand (Adedokun et al., 2011), supply (Akinwunmi, 2009; Pius, 2012), accessibility and affordability (Ademiluyi, 2010; Aribigbola, 2008). These research interests essentially border on the impact and dynamics of endowment factors on the market, with policy researches on the Nigerian mortgage market being few and far between. However, considering the level of inefficiency of the sector (as evidenced in the results of projects 1 and 2), a holistic approach to improving the efficiency of the market through policy initiatives is necessary.

Thus, this project responds to the need for a clear strategy to improve the efficiency of the mortgage market in Nigeria, especially on the finance side (because finance is considered to be the pivot of housing (Yakubu et al., 2012)), by developing policy to strengthen the financial components of the market in order to create an enabling environment to attract and sustain long-term funds in the sector.

Accordingly, this project reviews the issues that are central to the development of an efficient mortgage finance industry. Since the focus of the research is specifically on the mortgage market and not the housing market in its entirety, this review will be limited to an assessment of available sources of funds and an investigation of potential sources, especially those that have proved successful in other emerging markets. According to the literature (Chiquier and Lea, 2009; Lea, 2010; Warnock and Warnock, 2008), housing finance systems that have proved successful in other emerging markets are characterized by access to credit, consistent and adequate liquidity, effective risk management and adequate regulatory oversight, transparency and accountability, as well as systemic stability.

In addition, this project will examine existing housing finance policies and systems in selected emerging economies with thriving mortgage markets. Drawing on their strengths, it will attempt to make policy suggestions to enhance the efficiency and growth of the mortgage finance system in Nigeria.

However, recognizing that if all parts of the housing system are not efficient, efforts to increase the efficiency of housing finance alone may be futile, strategies to improve the institutional and infrastructure components of the market will also be investigated to provide a holistic and integrated approach to policy recommendations.

The rest of the chapter is organized as follows: Section 1.1 provides a brief background to the project. The section situates project 3 in the context of the whole thesis. It gives a brief summary of projects 1 and 2, and how they relate to project 3. Section 1.2 highlights the rationale for the study. Section 1.3 outlines the issues with housing finance policies in Nigeria, reflecting on the fact that one of the major issues the country is faced with is the dearth of adequate funds for the housing sector. Section 1.4 outlines the general and specific objectives of the project. Sections 1.5 and 1.6 highlight the significance and limitations of the study respectively. Section 1.7 outlines the organization of the whole project, while the last section in the chapter explains some important terminologies used in the project.

#### **4.1.1 Background**

The overarching objective of this thesis is to make policy recommendations that will help to create an enabling environment for the generation, attraction and sustenance of long-term funds for housing finance in Nigeria. To achieve this broad objective, two important issues that are essential precursors to the acquisition and sustenance of long-term funds for a mortgage market have been investigated in the two previous projects.

Project one investigated the efficiency of the Primary Mortgage Banks (PMBs) using two quantitative techniques – DEA and SCF. PMBs are important entities in the acquisition, disbursement, and management of mortgage finance in Nigeria. In fact, based on the framework of the mortgage system in Nigeria, PMBs are the nucleus of the formal housing finance system, so their efficiency will be a strong determinant of the availability of resources, especially finance, for the housing sector. The findings of project one revealed that mortgage banks in Nigeria are inefficient. This finding agrees with the results of Chiquier *et al.* (2004). Their paper posits that a significant increase in the efficiency with which mortgage markets in the UK, USA and emerging economies such as Chile and Malaysia deliver credits to homebuyers has led to a decline in the relative cost of mortgages, and an improvement in funds availability. Based on this, project one provided the basis for the assertion that lack of efficiency of the sector is one reason why there are challenges in accessing much-needed funds.

Going forward, project two further investigated how principal stakeholders in the mortgage system – the CEOs of mortgage banks – perceived the efficiency of the larger system, of which the PMBs are a part, to be based on the rationale that evaluating the perception of the CEOs about the efficiency of the whole mortgage system will provide a holistic view of the performance of the mortgage sector. In project two, the efficiency of the processes, bureaucracies, laws, regulations and policies that surround mortgage credit provision was investigated from the perception of CEOs of selected mortgage banks in the sector. The result of project two revealed that the mortgage system was assessed by the CEOs as inefficient, and that the inefficiency observed in the system is more as a result of the many challenges to its operations with respect to the laws and policies regulating activities in the sector than as a result of the operations of the primary mortgage institutions.

#### **4.1.2 Rationale for the study**

The results of projects 1 and 2 revealed that inefficiencies exist in the operations of the PMBs and in the larger mortgage system within which they operate. These inefficiencies limit the attraction and generation of necessary funds for mortgage finance. The literature further provides evidence that these inefficiencies are better tackled from the policy perspective (Hoek-Smit, 2005). It therefore becomes necessary to develop strategies and formulate policies that will enhance the creation and sustenance of an enabling environment for mortgage finance. This will, no doubt, help to improve their efficiency and be instrumental in attracting, and/or generating funds for long-term lending for mortgage purposes.

#### **4.1.3 Statement of the problem**

In 1991, the National Housing Policy was launched with the ultimate goal of ensuring that all Nigerians owned or had access to decent housing accommodation at affordable costs by the year 2000. The main objective of the policy was to make the private sector the main vehicle for the organization and delivery of housing products and services (Yakubu et al., 2012). At the target year (i.e. year 2000), the National Housing Policy had failed to make the anticipated impact on housing provision. This can be attributed to inadequacies of the PMBs, lack of access and title to land, and the problem of mortgage loan affordability, among other reasons (Okewole and Aribigbola, 2006).

The recognition of the growing housing problems in both the rural and urban areas of Nigeria and the acceptance of the failure of the expired 1991 National Housing Policy prompted the Federal Government of Nigeria to set up a 15-Person Committee to review the existing housing policy and articulate the New National Housing Policy (NNHP) of 2002 (Aribigbola, 2008).

The objectives of the NNHP were also not realized due to certain factors. The low interest rate of the National Housing Fund that makes banks and insurance companies reluctant to invest in the fund is one reason. The macroeconomic environment, with its attendant

high inflation rate, and structural bottlenecks in the economy are others. The structure of bank deposit liabilities, which is preponderantly short-term and thus discourages the long-term lending that is required in mortgage financing is also worth mentioning.

Over a decade after the enactment of the NNHP, there are still no noticeable or quantifiable improvements in the housing conditions. This is largely because of the unavailability of adequate funds for the sector. According to Chiquier and Lea (2009), provision of long-term finance seems to be the major requirement for developing and sustaining a viable mortgage sector. This is because it accounts for about 70% of the quality and volume of housing units that will be produced, as well as the stability and effectiveness of the financial system. Developing and attracting long-term funds for financing housing purchase therefore remains a challenge to be tackled in order to improve the efficiency of the mortgage market in Nigeria.

#### **4.1.4 Objectives of the study**

The overarching objective of this project is to investigate existing and potential sources of funds for housing finance in Nigeria and in other comparative emerging economies. Policy recommendations that will help to create an enabling environment for the generation, attraction and sustenance of long-term funds for housing finance in Nigeria will then be made based on the findings.

This will be achieved by investigating and identifying housing policies and programmes as well as mortgage products and financial policies that have been used in other emerging economies with thriving mortgage markets which have enhanced the efficiency of their housing finance systems.

Also, a survey will be conducted through the use of three different sets of questionnaires targeted at consumers, finance providers, and government agencies in Nigeria. These questionnaires will be analyzed using both quantitative and qualitative techniques, and then integrated with the findings of projects 1 and 2 in order to provide robust recommendations for the sector.

To achieve the main objective, the following specific objectives are outlined:

- Conduct an extensive review of the literature on types of housing policies, mortgage finance instruments, and products and sources of funds for housing finance in selected<sup>2</sup> emerging economies, namely Brazil, Chile, Malaysia, Mexico, and South Africa. The review will take cognizance of the infrastructures and regulations put in place to generate, attract and sustain long-term funds for housing finance in these countries.

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<sup>2</sup>To varying degrees, the housing finance systems in these countries are characterized by easy access to credit for consumers, and consistent and adequate liquidity for finance providers. Also, the government and regulatory authorities provide effective risk management, adequate regulatory oversight, as well as transparency and accountability. All of these put together have helped these countries achieve a significant level of systemic stability in mortgage/housing finance.

- Examine the housing finance system in Nigeria in order to identify its strengths, weaknesses and potentials.
- Collect primary data on housing finance and analyze them, and get respondents to propose policy recommendations they believe would be suitable in Nigeria.
- Make policy recommendations to
  - Strengthen the financial environment
  - Strengthen the institutional capacity and regulatory environment.
  - Bring the required efficiency and standardization into the mortgage banking sector in Nigeria
  - Attract long-term funding to the mortgage banking sector in Nigeria

#### **4.1.5 Significance of the study**

This project responds to the need for a clear and effective strategy for attracting, acquiring or generating, and sustaining long-term funds for the mortgage sector. It is significant because it will not only provide practical policy recommendations for improving the mortgage credit provision in Nigeria, but will also act as a developmental road map that can be tailored to Nigeria's peculiar needs.

Improving housing finance is believed to deepen mortgage market operations, and as the mortgage market deepens there is greater opportunity for households to maximize their investment in housing. Also, improved housing finance has a positive influence on the economy at large, directly by facilitating transactions and indirectly by providing an enabling and conducive environment for the transactions to take place.

Improving the availability and access to housing finance also affects the economy in indirect ways that go beyond specific transactions. For instance, Chiquier and Lea (2009) have suggested that housing wealth has a stronger effect on consumption expenditure than do other forms of savings. This implies that studies to improve housing finance are significant because of the far-reaching effect of their findings on individual homeowners, institutions within the housing sector, society and the economy at large.

#### **4.1.6 Limitations of the study**

The housing sector encompasses economic activities that relate to construction or renovation and purchase of buildings for a whole range of purposes of which residency is just a part. The focus of this project, however, is on the residential part alone. And in considering residential housing, the project is particularly interested in financing residential housing through mortgages. This distinction is necessary in the light of the fact that in Nigeria, many people purchase or renovate their houses without taking a mortgage; they self-finance the building or renovation of their houses, while some use housing micro-finance. In addition, not all those who take out a mortgage use it to finance residential houses. Also, developers sometimes provide long-term finance to buyers through instalment sales. This project is, however, focused on residential housing finance

through mortgages. The implication of this scope translates to two limitations for the study.

The first limitation is that in investigating policies in other emerging economies, it will only take cognizance of the financial components of housing policies and strategies. It will only take into account broader housing policy considerations where it directly relates to residential housing finance. For instance, it will only discuss fundamental aspects of a comprehensive housing policy such as urban development rules, access to land for development, slum upgrading tools, non-finance subsidies, etc., as it relates to housing finance.

The second is that in recognition of the fact that there are different forms of mortgage finance such as developer, residential and rental mortgage finance, and housing micro-finance, this project only focuses on mortgage finance for home acquisition. Also, it is not restricted to a particular income level or socio-economic group, but will attempt to proffer policy recommendations that cut across the different categories of residential mortgage finance seekers.

#### **4.1.7 Organization of the project**

This project is divided into five chapters. This chapter is the introductory part of the project, it gives a background to this research/study, stating the problem, which the project is set to solve, and outlining its objectives.

Chapter two addresses the dynamics of the housing market, the evolution of housing policies in emerging economies, the impact of policy on housing market efficiency, provides a critical review of housing finance policies in the selected emerging economies who share important similarities to Nigeria but have developed better housing finance systems, addresses housing finance issues in Nigeria, and executes a literature review of housing finance supply deficiencies in emerging economies.

Chapter three highlights the research methods and key steps employed in achieving the objectives of the project. In this chapter, the research design, variables and indicators for measurement, data collection procedures and data analysis methods are outlined.

Chapter four presents the results of both the critical review and data analysis carried out, and an extensive discussion of the results in relation to the present state of housing finance in Nigeria.

Chapter five gives a summary of the study, with conclusions from the discussed findings highlighted. Also, important policy recommendations to enhance and improve the availability of and access to housing finance in Nigeria are made, and areas for further research are also stated.

## Terminologies

**Housing sector:** The housing sector refers to the interaction between the private and public sectors in the range of economic activities that relate to land acquisition, construction or renovation, and purchase or acquisition of buildings for different purposes. It comprises private sector stakeholders such as professionals (quantity surveyors, architects, civil and structural engineers etc.), developers and contractors, as well as government agencies that provide infrastructure and regulatory oversight for the activities that go on in the sector.

**Housing market:** The housing market refers to the supply and demand for houses, usually in a particular country or region. It is characterized by important features such as supply of housing (stock or quantity of housing), the demand for housing and house prices. Factors that influence the housing market include interest rates, state of the mortgage market, economic growth, and population and demographic trends.

**Mortgage market:** The mortgage market refers to the totality of interactions between suppliers (investors) and consumers (borrowers) with intermediaries (mortgage lenders and brokers) in-between, in a framework set by law and regulation. Changes affecting any of these categories affect the characteristics and effectiveness of the market.

**Housing finance system:** The housing finance system refers to the institutional framework involved in the process of channelling funds from savers to borrowers for the purpose of buying, building or renovating houses, either for residential purposes or otherwise. This spawns a broad array of activities ranging from contractual savings schemes to depository institutions specializing in mortgage finance, to the issuance, sale and trading of mortgage-backed securities.

## 4.2 Literature Review

### 4.2.1 Introduction

Global trends in the mortgage market have shown that housing finance plays an important role in improving the efficiency of any mortgage market (Hoek-Smit, 2005). First, research shows that financial institutions (bank and non-banks) have been the dominant lenders in most countries with efficient mortgage markets. Secondly, the availability of affordable mortgages may enhance savings, contributing to financial sector development and macroeconomic stability. New mortgage finance instruments, such as mortgage-backed bonds<sup>3</sup>, can provide a relatively safe alternative investment, stimulating investment in housing from non-traditional sources (e.g. domestic pension funds, international capital providers, etc.). Mortgage-backed securities should, however, be used with caution. Appropriate regulatory guidelines should be laid out and enforced to avoid a repetition of what resulted in the subprime crisis in the US.

Availability of mortgage finance also permits more than housing to be purchased. It allows illiquid savings accumulated in housing to be liquefied when a house is used as collateral for loans, and this could be used to finance small and medium scaled businesses. For example, in the US where mortgage finance is highly developed, it is estimated that up to 80% of new business creation is financed through loans from financial institutions using houses as collateral (Chiquier and Lea, 2009).

An efficient mortgage finance system is one where credits are available to qualified borrowers without an unduly prolonged waiting period, the relative cost of mortgage credit is proportional to the cost of credit in the economy generally, and it reflects the risk of the investment. Also, it is able to withstand exogenous shocks moderately well and is diverse, with products that are able to meet diverse consumer needs (Oyalowo, 2012).

Literature provides evidence that certain factors are fundamental to developing an efficient housing finance system in emerging economies. These include macroeconomic stability, a competitive and efficient primary mortgage market (Chiquier *et al.*, 2004), adequate laws, efficient titling system and judicial process (Nubi, 2010; Okoroafor, 2007), an adequate infrastructure on information for assessing collateral and credit risk, and the development of capital markets (World Bank and IFC, 2010).

In summary, the efficiency of mortgage markets globally is a reflection of economic growth, financial liberalization, and infrastructure strengthening (Chiquier and Lea, 2009; Merrill, 2009). The literature (Demirgüç-Kunt and Levine, 2001; Renaud, 2004; Warnock and Warnock, 2008), provide evidence that an efficient mortgage market or housing

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<sup>3</sup> An increase in loan incentives such as easy initial terms and a long-term trend of rising housing prices had encouraged borrowers to assume risky mortgages in the anticipation that they would be able to quickly refinance on easier terms. However, once interest rates began to rise and housing prices started to drop moderately in 2006-2007 in many parts of the US, borrowers were unable to refinance. Defaults and foreclosure activities increased dramatically as easy initial terms expired, home prices fell, and adjustable mortgage interest rates were reset higher.

finance system exerts a strong positive impact on economic growth. However, Demirgüç-Kunt and Levine (2001) and Renaud (2004) argue that economic growth does not necessarily translate to efficiency in mortgage markets. Rapid development of the banking sector in most transition<sup>4</sup> economies and some emerging<sup>5</sup> economies did not result in any direct improvement in the mortgage sector or associated sub-sectors in the economy.

Therefore to enhance the efficiency of local or regional markets, reforms and policy initiatives of these factors should be undertaken. Global trends also reveal that efficient mortgage markets tend to have unbundled the mortgage value chain (Lea, 2005). According to Jacobides (2001), a major characteristic of efficient mortgage markets is functional separation (or unbundling) in which different specialists perform the various functions underlying a mortgage loan.

#### **4.2.2 Basic infrastructure for developing a sustainable housing finance system**

A housing finance system refers to the mechanisms, instruments and policies through which financial resources from both the public and private sectors are mobilized and channelled into housing development. The housing finance system is somewhat different from the general system of financing because the housing sector is confronted with some peculiar challenges due to the nature of its operations.

The availability of adequate and long-term finance is the cornerstone of any effective and sustainable housing policy and strategy. Renaud (2004) suggests that the system of housing finance used in a country is determined by the total resources available in the country, the degree of urban concentration, the geographical scale, the structure of financial policies, and the kind of regulatory environment, among other factors.

A review of the literature (Chiquier *et al.*, 2004) also reveals that there are two fundamental systems of housing finance; one system is based on the mobilization of deposits directly from the public, and the other on indirect mobilization of financial resources through the sale of debentures of various maturities to the capital market. The building society or savings and loans system of housing finance in the US is a typical example of the former. This system has been used as a model in many other countries as well.

Whatever system of housing finance is adopted in a country, Warnock and Warnock (2008) assert through empirical evidence, that certain conditions are prerequisites to the development of an efficient and effective housing finance system. Not surprisingly, many of the factors associated with well-functioning housing finance systems are those that also help to secure long-term finance for the housing market (Renaud, 2004). Therefore, emerging economies that want to grow their mortgage markets must ensure that these conditions, i.e. macroeconomic stability, property appraisal, availability of information on

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<sup>4</sup> A transition economy is one that is changing from a centrally planned or controlled system to a free market. (Morazan et al, 2012)

<sup>5</sup> An emerging economy is an economy that is experiencing rapid growth and urbanization. (Morazan et al, 2012)

the borrower, secure collateral, legal protection for both lender and borrower, mortgage related insurance, multiple sources of funds, and liquidity facilities, are satisfied.

Macroeconomic stability is a fundamental requirement for an efficient mortgage finance system. Chiquier and Lea (2009), Merrill (2009) and Warnock and Warnock (2012) assert that an unstable macroeconomic environment poses a high risk to the lender. For instance, where inflation is volatile, lenders would incur substantial interest rate risk if they were to lend at a fixed rate, so they tend to pass the risk to the borrower by offering variable rate loans. However, no matter who bears it, interest rate risk could cripple the development of the housing finance system.

According to Merrill (2009), a sound property appraisal will enhance the efficiency of the overall housing market because it will afford the buyers better information to judge the relative value of the property they want to purchase. Also, Merrill (2009), in Chiquier and Lea (2009), posits that a system for accurate assessment of the value of a property is also a crucial support function to mortgage finance because the accuracy of valuation determines the true level of loan-to-value ratio (LTV), and LTV is an important predictor of default. So, sound and accurate property appraisal helps borrowers to correctly value what they want to purchase, and also helps lenders to accurately determine if the borrower has sufficient capacity to pay back the loan.

Credit bureau reports on the debt and loan repayment history of a prospective borrower provide crucial information for the lender to assess the creditworthiness of the borrower. Despite its necessity and importance, many emerging markets have difficulty convincing borrowers to supply adequate information. Moreover, credit information is scarce in emerging mortgage markets because of the time required for newly established markets to build up credit histories.

Deposit taking institutions usually fund mortgages through deposits. If this is the only source of funds however, housing finance will run into some problems; a reliance on deposits limits funding sources by geographical location and will also prove inadequate in the long run as it will be financing long-term investments with short-term funds, and given that housing is expensive, short-term loans are insufficient to fund home purchases (Warnock and Warnock, 2008).

Long-term funds for the housing finance system can be sourced through the capital market and other secondary sources. However, a liquidity facility is still necessary to provide a backup for lenders in case of temporary liquidity crunches.

In summary, the basic infrastructure that promotes the efficient functioning of housing finance systems includes factors that promote long-term lending, such as the ability to value property and repossess it in case of default, credit information of borrowers and favourable macroeconomic conditions, as well as factors that promote the mobilization of funds (Chiquier and Lea, 2009).

### 4.2.3 Housing finance system in Nigeria

#### Overview of the macroeconomic conditions

Nigeria is Africa's largest oil producer and the twelfth largest producer in the world. It has significant gas reserves and its macroeconomic balances are impressive. Opportunities in telecommunications, tourism and power generation are huge. Though classified as a low-income country in sub-Saharan Africa (World Bank and IFC, 2005), the Nigerian economy grew at over 5% between 2004 and 2010 (EFInA, 2010) and this represents the longest and strongest period of sustained growth in more than two decades. Following a series of military regimes after independence in 1960, a successful transition to civilian rule in 1999 opened the way for a well-tailored, home-brewed, economic reform programme known as the National Economic Empowerment and Development Strategy (NEEDS) that set the stage for a solid lift-off in investment and economic growth. A summary of key economic indicators between 2008 and 2012 is presented in Table 4.1.

Table 4.1 Key economic Indicators

Indicators	2008	2009	2010	2011	2012
<b>GDP (\$bn)</b>	165.92	207.11	168.59	228.64	243.98
<b>GDP per capita (\$)</b>	1376	1091	1437	1496	1055
<b>Inflation Rate (%)</b>	12.00	12.00	10.85	10.48	12.26
<b>Exchange Rate to USD (N)</b>	150.40	151.52	153.63	156.70	155.75
<b>Mnetary Policy Rate (%)</b>	9.75	6.00	6.25	12.00	12.00
<b>Treasury Bill Rate (%)</b>	5.61	4.00	7.47	14.27	11.77
<b>Saving Deposit Rate (%)</b>	2.92	3.33	1.51	1.14	1.66
<b>Prime Lending Rate (%)</b>	15.26	19.55	15.74	16.75	16.54
<b>Maximum Lending Rate (%)</b>	21.15	23.77	21.86	23.21	24.61
<b>Unemployment Rate (%)</b>	5.80	11.80	19.70	21.10	23.90

Source: [www.cenbank.org](http://www.cenbank.org), <http://data.worldbank.org/indicator>

Nigeria is one of the most urbanized countries in sub-Saharan Africa (World Bank, 2009). Nigeria has a population of 168 million people, the largest in Africa, and the second largest economy on the continent. The urban population has increased from 10% in 1952 to 48% in 2009 (UN Statistics Division, World Statistics Pocketbook, 2010) and 50% in 2012 (CIA), with Lagos estimated to have around 17 million inhabitants, making it one of the most populous cities in Africa. The Federal Ministry of Lands, Housing and Urban Development regulates the real estate and housing sector. The Ministry has two implementing agencies, the Federal Mortgage Bank of Nigeria (FMBN), which is the apex mortgage institution, and the Federal Housing Authority (FHA), which is responsible for supplying low-income housing, while the Federal Ministry of Lands, Housing & Urban Development regulates the FHA, the Central Bank of Nigeria (CBN) regulates FMBN.

The formal sector constitutes about 15% of the housing market (Ademiluyi, 2010), and it is insufficient to meet demand. Where supply exists, this is targeted at high-income earners, while houses categorized as low-income are still mainly outside the reach of

low-income earners. As a result, rents and house prices are high. This sector is predominantly a seller's market where rents are paid two years in advance on average. The cheapest apartments for sale in the suburbs of Lagos cost about ₦2-₦3 million (\$13,000-\$20,000), about ₦5 million (\$33,333) on the outskirts of Lagos, while within Lagos itself the figure is closer to ₦10 million (\$66,666), (Boleat and Walley, 2008).

In spite of its underdevelopment, the Nigerian government hopes to 'use the mortgage market as a major agent of positive social and economic change by making mortgage finance available to all classes of Nigerians. Mortgage finance requirement to tackle the housing deficit in Nigeria is conservatively estimated at about 15 – 20 trillion naira (between 9 – 12 billion US Dollars)', (Ya'u Kumo, 2011).

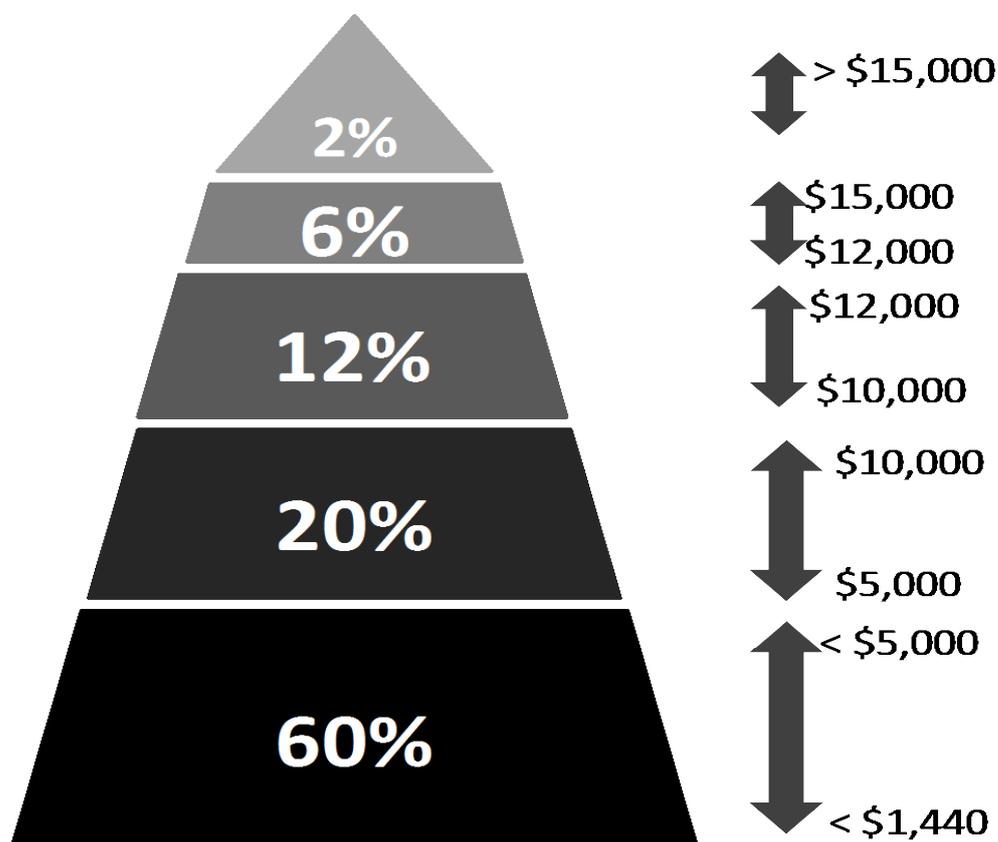
The underdevelopment of the mortgage market is due, among other reasons to the widely dispersed income distribution of working class Nigerians. Income levels of the working population in Nigeria are both low in absolute terms and also very unevenly distributed. This is a common occurrence in the majority of sub-Saharan Africa and is one of the single most difficult barriers to overcome in building a vibrant mortgage market (World Bank, 2009).

According to the World Bank (2009), in an ideal mortgage financing system, household income should be characterized by:

- (i) **Sufficient absolute level of income** – this is the minimum level of income, which guarantees that households earn enough to cover the cost of a mortgage in addition to the regular household expenses. A prudent ratio of 40% mortgage payment to income is considered adequate globally (ILO, 2011). However, with 33.3% mortgage payment to income ratio operating in Nigeria, only about 12% of the urban population can afford mortgages and a meagre 4% of the rural population can afford mortgages with supplementary, informal income, which may not be accounted for in loan origination procedures.
- (ii) **Verifiable income** – which helps to ascertain the repayment capability of the borrower. This is also a major challenge to mortgage financing in Nigeria because the majority of the population, even in urban centres, subsists on informal income.
- (iii) **Consistent income** – given the long tenure of a mortgage loan, ascertaining the consistency of a borrower's income assures the lender that a regular income will be earned over the lifetime of the loan. This condition also poses some challenges to mortgage financing in Nigeria because a large segment of the population is mostly small and medium scale entrepreneurs who frequently do not have proof of the consistency of their income.

Figure 4.1 shows the income distribution vis-à-vis mortgage affordability for the urban population in Nigeria. The estimates are calculated using survey data from the Nigerian Household survey - Panel (2012).

Figure 4.1 Income distribution of the urban population in Nigeria



Source: Nigerian Household survey – Panel (2012)

The majority of the population has a total household income which is barely at subsistence level. At the top end of the income distribution, income is much higher but for a very small minority. This presents a major obstacle in meeting the ‘sufficient absolute level of income’ criteria for the expansion of the mortgage market.

#### 4.2.4 Housing finance system in selected emerging economies

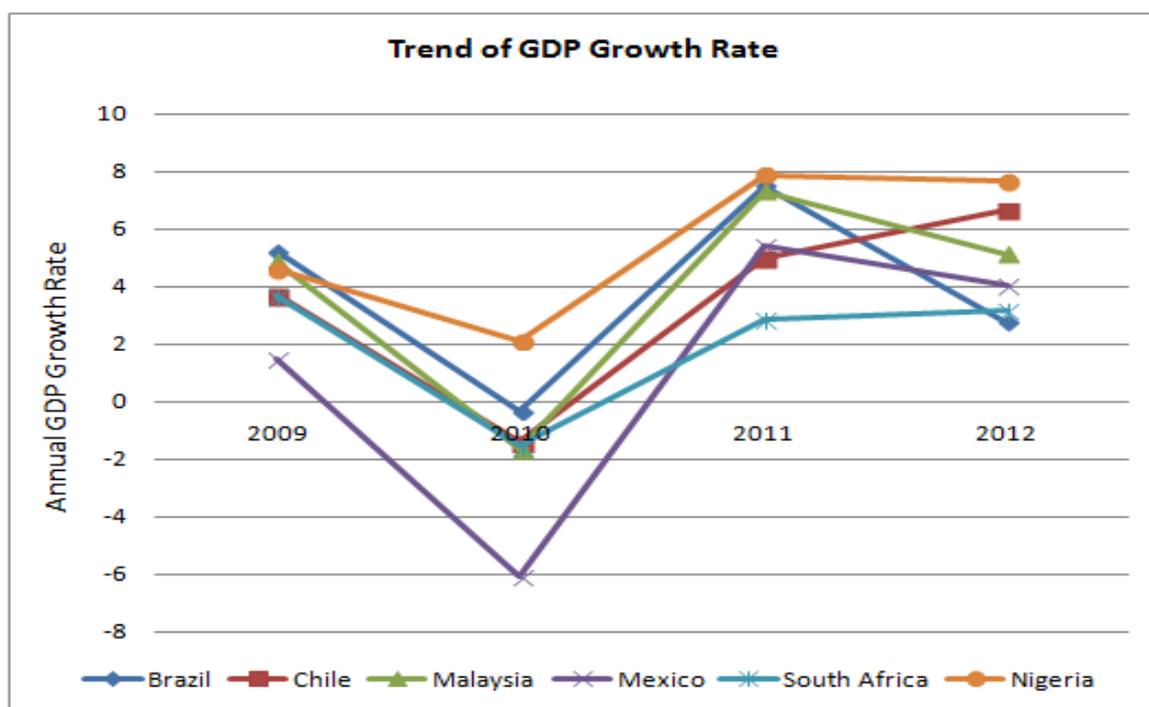
Having examined the structure of the mortgage market and housing finance in Nigeria, and the factors that contribute to their inefficiencies, the next section will examine the housing finance systems in the selected emerging economies.

This section undertakes a review of specific housing finance instruments, products, and interventions in five countries, namely Brazil, Chile, Malaysia, Mexico, and South Africa, where substantial progress has been made in the quest to meet the challenge of providing decent housing for their citizens.

These countries have been selected because like Nigeria, they are categorized as emerging economies (IMF, 2011). Also, among other emerging economies, they have achieved and maintained macroeconomic stability, have taken steps to liberalize their financial systems, and are experiencing steady economic growth. Added to this, within the past three decades, they have all faced and surmounted significant challenges in improving the functioning of their housing markets and their mortgage finance systems in order to meet the needs of a broader segment of their population.

These countries are also considered fair comparators for Nigeria in terms of the health of their economy and the level of economic activities. Although there is a considerable variation in the actual GDP values across the selected countries, their annual GDP growth rate exhibits similar trends to that of Nigeria (see Figure 2.2). This suggests that these countries share similar intrinsic macroeconomic factors such as personal consumption (a major determinant of eligibility for and affordability of mortgage credit), business investment, government spending, as well as exports and imports with Nigeria.

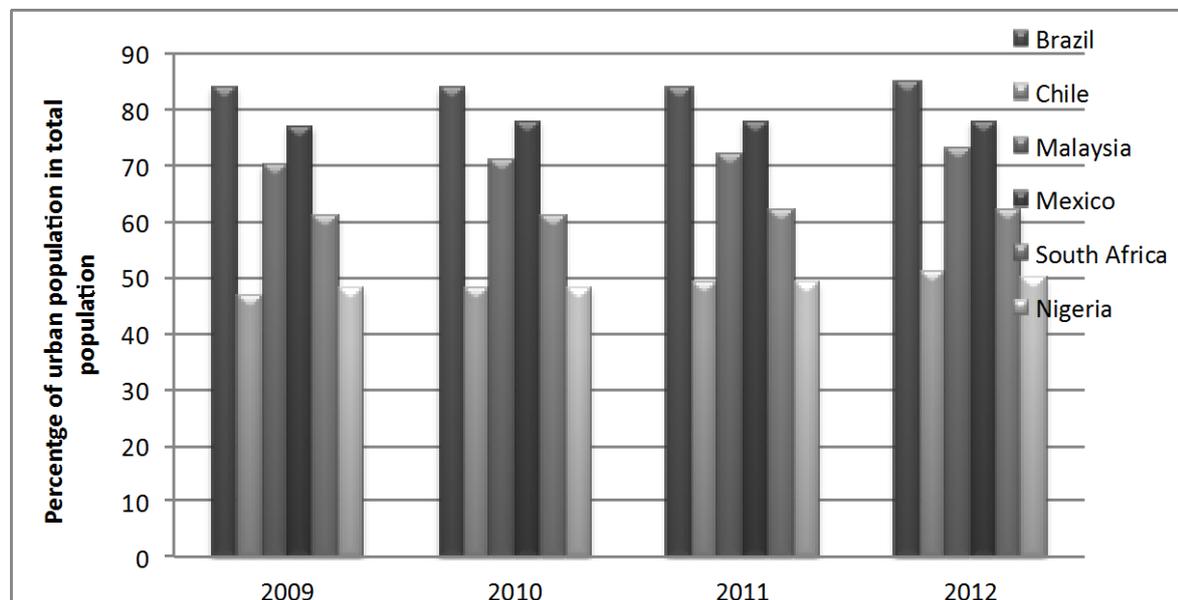
Figure 4.2 Comparison of the trend of annual GDP growth rate among selected countries



In addition, the rate of urbanization in the selected countries is comparable to that of Nigeria. The annual urbanization rate is between 1.1% and 1.2% in these countries with the exception of Malaysia whose urbanization rate is 2.4%. Apart from this, with the exception of Chile whose urban population is about 48% of its total population, urban population in relation to total population is over 60% in all these countries; this implies that more than half of the population lives in urban centres. Also, similarly to what is experienced in Nigeria, income is unevenly distributed in all these countries (except for Malaysia).

Yet in spite of the similar urbanization indices and income distribution, these economies have succeeded in developing mortgage markets that are significantly larger than that of Nigeria. The ratio of mortgage loans to GDP is 4.8%, 11%, and 33% in Brazil, Mexico and Malaysia respectively, while it is a meagre 0.5% in Nigeria. Therefore, understanding how mortgage financing is being managed in these countries will provide a beneficial insight to tackle the present issues in Nigeria.

Figure 4.3 Comparison of percentage of urban population to total population in selected countries



Apart from the general similarities in the selected economies in terms of the trend of annual growth rate, rate of urbanization, percentage of urban population in total population and the size of the mortgage market, the following paragraphs highlight other important characteristics of these countries that inform their inclusion in the selection.

Brazil's economy is the largest in South America, just as Nigeria's is the second largest in Africa (Africa Economic Outlook, 2013; Brands, 2011). However, since 2003, Brazil has improved its macroeconomic stability, built foreign reserves, reduced debt, kept inflation rates under control and become committed to fiscal responsibilities. After witnessing unprecedented economic growth in 2007 and 2008, the global financial crisis finally hit Brazil. Brazil's currency and stock market saw huge fluctuations as foreign investments dwindled, demand for commodity exports dried up and external credit increased. However, Brazil was one of the first emerging markets to stage a recovery, with GDP growth returning to positive levels.

In terms of macroeconomic stability, and quality and stock of housing, the Chilean system of housing finance has been very successful. Chile is one of the few countries whose housing finance system depends to a large extent on the capital market rather than on internally generated pools of funds or government interventions. In spite of this, the system has been very successful and coped with the global financial crisis fairly well.

Despite the fact that the mortgage market in general and public housing programmes in particular are based on banking credit, the system did not suffer significant losses during the recent global financial crisis. In 1990, one in every four houses in Chile was overcrowded or extremely overcrowded, while in 2009 only one in 10 houses experienced overcrowding. Moreover, these improvements were more visible among the low- and middle-income distribution.

Similarly, due to increased macroeconomic stability, Mexican housing stock has significantly increased in size over the last decade. In 2005, housing stock had more than tripled relative to the 1970s; according to World Bank and IFC (2010), the quantity of housing units increased by 81.5% from 2000 to 2007.

The development and maturing of housing finance systems in the selected countries cannot be attributed to a single component, but to a complex and well-balanced mix of economic, political and legal factors properly harnessed to suit the characteristics and meet the peculiar needs of each country. Therefore, the next section will examine the common financial factors that contributed to the success of the housing finance system in each of the identified countries. Emphasis will be placed on the sources of funds, type of capital market instruments, the structure of the housing finance system, and the effect of a secondary mortgage market on the development of a viable and thriving housing finance system in these countries.

### **Sources of funds for housing finance in selected countries**

In considering the sources of funds, the emphasis of the comparison between Nigeria and the selected countries will be on where these countries obtain funds for housing finance, such as through pooled deposits in housing specific schemes, general deposits and savings, the capital market, foreign investors, the government through subsidies or intervention funds, or any other source. As mentioned in the previous section, lack of adequate funding for mortgage lending is a major setback for the Nigerian mortgage market. This section profiles how the selected emerging economies have tackled funding issues based on the peculiarities of each country.

Mortgage finance has enjoyed considerable success in Brazil, Chile, Malaysia and Mexico, especially due to the availability of long-term funds either generated within their local housing finance systems, or from foreign investments (Chiquier *et al.*, 2004). The literature reveals that these countries secure funds for mortgage credit and financing of other aspects of housing through guaranteed pooled funds, the capital market, and government interventions in the form of subsidies or special housing finance programmes (Chiquier and Lea, 2009).

## Pooled funds

This section considers those emerging economies that fund their housing finance primarily through funds pooled from individual investors contributing to a scheme or trust that is specifically designed for housing.

Apart from the general sourcing of funds from deposits and savings, the existence of a secure pool of funds, which lenders can source for long tenured loans, has strengthened mortgage financing in Brazil and Mexico. In Brazil for instance, the housing finance is built around two systems – the Brazilian Housing Finance System (SFH) and the Brazilian Real Estate Finance System (SFI), which are funded differently, and operate differently because they target different markets.

The SFH, in addition to short-term deposits in banks owned or controlled by the federal government, secures its long-term funds from retirement savings that each employer (including government) deposits into their employees' accounts every month. The retirement fund, though private, is fully administered by the government. About 52% of this fund is used to raise mortgages for low-income earners and 20% of the same fund is deposited with the Central Bank for lending to the SFI and other private housing finance providers for onward lending as mortgages to low-income earners. In essence, about 72% of the retirement savings fund is used to fund mortgages for low-income earners. The SFH uses short-term deposits to finance housing construction and also to fund mortgages for middle- and high-income earners.

In addition to deposits from customers, the SFI secures long-term funds from loans from the Central Bank (from 20% of the retirement funds) and the capital market through investment instruments that securitize mortgages, called *Certificados de Recebíveis Imobiliários* (CRI). The SFI also uses its long-term funds to fund mortgages for high-income earners while it uses the short-term deposits to finance housing construction for the same category of people.

The advantage of the Brazilian system of funding is that it mitigates fund-mismatch, which often arises when short-term deposits are used to finance long-term investments. Pension funds are used to fund mortgages for low-income earners and they are given a long enough time to pay back, whereas funds from deposits are used to fund mortgages for higher income earners who supposedly can repay within a relatively shorter time, and to finance construction. Apart from this, the two different structures ensure that mortgage finance is affordable for different income categories since the two systems have different criteria suited to the different income categories for assessing eligibility for mortgage credit, for determining the loan ceiling, the interest rate, and the tenure.

The Mexican housing finance system also thrives on the availability of various pooled funds, collectively referred to as National Housing Organisms (ONAVIS), for housing finance. However, unlike in Brazil, there is no different finance structure for housing construction and mortgage loans. Housing funds are usually given as mortgage loans

and the recipient disburses the loan in the way and manner they consider best to meet their housing needs.

The ONAVIS operates through different agencies pooling funds at regular intervals from different categories of people and using the same funds to create mortgage loans for those who contribute to the funds. The agencies operating in the ONAVIS include the Institute of the National Fund for Workers Housing (INFONAVIT), Funds for Housing Authority (FOVISSSTE), National Trust Funds for Popular Habitations (FONHAPO), Housing Bank Financing (FOVI), and the National Housing Council (CONAVI).

The INFONAVIT and FOVISSSTE are funds for public sector housing finance and are primarily meant for low-income earners. The FOVI, which became the SHF in 2002 (World Bank and IFC, 2010), provides funding for the private sector through the commercial banks and non-bank institutions specializing in mortgage credits, i.e. the SOFOLES and the SOFOMES. FOVI funds are generally used to raise mortgages for medium to high-income households. The FONHAPO and CONAVI funds are used to sponsor specific government housing programmes and subsidies such as the “National Housing Program 2007 – 2012”. These programmes are usually aimed at increasing the housing stock.

The INFONAVIT is a tripartite fund pooled from the bi-monthly contribution of employers and employees in the private sector, and the government, for housing financing to workers employed in the private sector. Under the INFONAVIT scheme, employees of the private formal sector of the economy allocate a monthly contribution of 5% of their wages to an individual account. They can use their accumulated funds to obtain a direct mortgage loan, or any other loan from other INFONAVIT-related programmes if they meet the eligibility criteria. However, if the worker does not demand a mortgage loan by retirement age (65 years), the accumulated resources are added to his or her pension fund. The INFONAVIT seems to be the most viable housing finance fund because it contributes about 42.7% of the total investment in housing every year (UN-HABITAT, 2010).

To support the individual contributions for the ONAVIS, the Mexican government invests about 1.5% of its internal gross production (approximately US\$9.75 Billion) into mortgage financing plans yearly. This serves to boost the efficiency of the system and to guarantee the survival of the different funds contained in the ONAVIS.

The system of pooled funds for housing in Mexico bears some resemblance to the National Housing Fund (NHF) in Nigeria. However, it is different from and better than the NHF because it is structured to cater for people in different income categories and the requirement for mortgages are better suited to the category of people each agency caters for. Also, the Mexican system enjoys considerable support from the government in terms of funding to supplement the mandatory contributions from individuals, unlike what obtains in Nigeria.

In Chile, although the mortgage finance system is largely capital market-based, the consolidation of the fully funded private pension system introduced in 1981 (Pardo, 2001), contributed immensely to the capacity of the capital market to absorb mortgage-backed securities. Apart from the pension funds, resources for long-term lending are also sourced from life and other insurance funds. About 72% of the funding for financing of housing is raised through pensions, and life and other insurance funds (UN-HABITAT, 2010).

In South Africa, no form of pooled funds or mandatory contributions to support housing exists, supposedly due to the apartheid policy that operated in the country for many years. During this period, the housing sector in South Africa was fragmented, inconsistently funded, and lacked role definition and accountability. Housing finance was mainly supported by different kinds of subsidies from the government (UN-HABITAT, 2010c). After the abolition of apartheid, short-term intervention funds such as the Mortgage Indemnity Fund (MIF) were set up by the government to boost housing finance. Its purpose was to encourage mortgage lenders to resume lending on a sustainable scale in the affordable housing market of neglected areas in the country. Its main focus was to provide financial institutions with indemnity insurance for a limited period (1995-1998), against losses in certain areas, if they were unable to repossess properties due to a breakdown in the due process of law. In order to achieve this, the MIF provided cover to accredited financial institutions, assessed prioritized areas and provided accreditation for these areas, and resolved problems in areas that could not be accredited. The MIF was closed in May 1998 in terms of its original agreed mandate. During its period of operation, it was able to generate R10 billion in new loans. In addition, it played an essential bridging role between government, financiers, and communities, by attempting to lay the foundation for a healthy and sustainable future relationship.

The only pooled fund that mortgage finance in Nigeria draws from is the National Housing Fund (NHF). The NHF was established subsequent to the promulgation of the National Housing Fund Decree No. 3 of 1992 as a mandatory scheme to mobilize cheap and long-term funds for housing credits. The fund represented the financial component of the National Housing Policy, which was adopted in 1991. The fund was initiated with the intention of facilitating the mobilization of funds for the provision of houses for Nigerians at affordable prices and the provision of long-term loans to mortgage institutions for on lending to contributors to the funds. Other objectives of the fund, according to the enabling decree, include ensuring a constant supply of loans to Nigerians for the purpose of building, purchasing and improvement of residential houses, and providing incentives for the capital market to invest in property development of specific programmes that would ensure the effective financing of housing development.

The fund was also to draw resources from contributions by Nigerians, in both the public and private sector, who are mandated to contribute 2.5% of their basic monthly salary, investment by commercial banks (10% of their loan and advances at an interest rate of 1% above the interest payable on current account by banks) and insurance companies (minimum of 20% of non-life funds and 40% of life insurance funds) as well as financial

contribution by the federal government. However, the fund only draws resources from contributions by Nigerians in both the public and private sector that are mandated to contribute 2.5% of their basic monthly salary, as the government has not enforced the other sources.

However, the NHF funding base seems inadequate for the housing finance needs of the country. The fund was instituted in 1992 and as at 2012, 20 years after its commencement, total collection was only ₦77 billion, with loan applications standing at ₦39 billion (Adedokun et al., 2011). Considering the huge housing deficit and the population of Nigeria, the resources of the funds is rather inadequate to cater effectively for mortgage finance.

The NHF should rightly be the main source of funds for housing development in Nigeria to effectively solve the current dearth of housing stock as noted in Adedokun *et al*, (2011), because the scheme provides a relatively cheap source of funds with a fixed interest rate of 6% per annum and a maximum tenure of 30 years. However, the response to the scheme in terms of the total contribution it has generated indicates that it has insufficient resources to handle the present demand for mortgage credit in the country.

A reform of the NHF system may be necessary to encourage better participation. I suggest a reform of the scheme in the light of the beneficial effect a reform would have on the pension's fund. The enactment of the Pension Reform Act of 2004 triggered strong growth in the annual contributions to pension funds, currently estimated to be about ₦125 billion over the last five years of contributions (with a projected growth rate of about 15% per annum). This by far exceeds the total contribution of the NHF in its 20 years' existence. Considering the fact that over 30% of the Nigerian population are in formal employment in either the public or private sectors (Ya'u Kumo, 2011), there exists a great potential for the pooling of funds for mortgage financing through mandatory contributions from the workforce.

Apart from a reform of the NHF Act, other ways in which mortgage financing in Nigeria could be enhanced through pooled funds is by enacting policies to make pension funds available for mortgage lending, either individually by making laws to enable individual workers access their pension funds for the purpose of mortgage, or through the government allocating some percentage of mortgage funds for PMBs through the FMBN, or better still by allowing mortgage banks access to pension funds directly from pension funds administrators for mortgage lending. Whichever way it is done, opportunities abound for exploring the feasibility of pooled funds for providing long-term lending for the Nigerian mortgage market.

### **Capital market**

The strength and depth of the capital market has been asserted to influence the efficiency of housing finance, especially where a housing finance system is heavily dependent on the capital market or external investors for sustenance (Pardo, 2001;

Renaud, 2004). This section considers emerging economies that finance housing from funds sourced from the capital market through any suitable channel, avenue or instrument.

The Brazilian housing finance system, through the SFI, leverages on the capital market for funds for long-term lending. The SFI is designed to operate within the parameters of the financial and capital markets. However, the weakness of the secondary market for investment vehicles does not help the system to achieve proper relevance.

Of the five countries being discussed, Chile's system is most dependent on the capital market for long-term funds (IMF, 2011; Pardo, 2001). Financial institutions leverage on capital market instruments like mortgage bonds, endorsable mortgage loans and non-endorsable mortgage loans to provide long-term credit facilities for qualified and creditworthy households.

Mortgage bonds are regulated by the Central Bank of Chile's financial rules and specific regulations by the Superintendent of Banks and Financial Institutions (SBIF). These rules allow banks to finance mortgages with third-party resources but force them to keep originating loans in their balance sheets and take the risk of non-payment to investors.

Mortgage bonds were subject, among other regulations, to a loan-to-value (LTV) ratio of 75% and a limit on the dividend equal to 25% of taxable income for loans of less than UF3,000 (Pardo, 2001). However, in August 2009, the Central Bank of Chile decided to modernize, integrate and adjust its rules on mortgage loans by issuing mortgage bonds. At the same time, the measure allowed loans of this type to be offered at more competitive terms than other mortgage loans (Organisation for Economic Co-operation and Development (OECD), 2012).

Endorsable mortgage loans are regulated by law through the "Ley General de Bancos" and specific SBIF regulations. These rules allow banks to finance mortgages with their own sources and then transfer them to other financial institutions, mainly insurance companies. Endorsable mortgage loans are subject to a loan-to-value (LTV) ratio of 80%, fire and life insurance, and prepayment rules, but they are not subject to a limit on the dividend-to-taxable income ratio. These loans can have fixed or flexible rates (TAB plus spread - Bank Active Rate), and they can be securitized.

Non-endorsable mortgage loans do not present any special requirement. They do not have a loan-to-value limit, insurance requirement, or dividend limit, and they have the same repayment restrictions as endorsable loans. They are the most flexible instruments for mortgage loans.

The resources for housing finance in Mexico are also sourced from the capital market. This avenue is mostly used by real estate and infrastructure development companies, (UN-HABITAT, 2010a), and SOFOLES also provides securitization for private institutions offering housing finance. According to the IMF (2011), between 2007 – when the avenue opened up with the creation of the Mexican Association of Real Estate and Infrastructure Funds (AMFII) – and 2011, \$6 trillion has been invested in housing finance through this

avenue and it is projected that between 2011 and 2016, an estimated \$21 trillion will be invested in the housing sector from this source. As at 2009, SOFOLES has also securitized a total of \$2.9 billion (about 30% of the capital market participation). However, INFONAVIT also uses securities as an important alternative source of funding, an effort that began in 2004 and now has more than 2.9 billion securities in its mortgage portfolio (IMF, 2011).

In spite of the existence of a strong capital market in Nigeria, sourcing of funds for mortgage finance through the capital market is an avenue that has not been exploited. Landmark reforms across banking, insurance and pension sectors between 2004 and 2007 transformed the Nigerian capital market. The result was unprecedented growth. Between 2003 and 2007, market capitalization increased by over 66% of Compound Annual Growth Rate (CAGR), from ₦1.4 trillion to ₦10.2 trillion. In March 2008, market capitalization reached an all time high of ₦12.6 trillion (NSE, 2009).

The capital market instruments available for raising funds for mortgage lending are Real Estate Investment Trusts (REITs) and Bonds. A few mortgage finance institutions have attempted to raise bonds through the capital market; however, the attempts were not successful.

### **Structure of housing finance system**

This section investigates how the emerging economies have organized their housing finance systems and how these structures have influenced the availability of funds for finance providers and accessibility to funds by the consumers. This is considered important for the review because it is generally believed that the adequacy of the structure of housing finance systems to the peculiar needs of the country usually facilitates the success of housing finance, especially in emerging economies (Chiquier and Lea, 2009; IMF, 2011).

The housing finance system in Brazil is designed to operate as liens on property, making it easier to foreclose on the property in the case of default, without having to go through rigorous legal processes, thereby serving to lower the risk to finance providers. This has greatly aided the extension of mortgage facilities to the lower income segment, which constitute over 60% of Brazil's population. Apart from this, the system is also built around two institutions, the SFH and SFI, who operate differently, are funded differently, and reach out to different target households, thus complementing each other (UN-HABITAT, 2010b). Furthermore, the Brazilian mortgage market enjoys a high level of government participation. Apart from the government-owned or controlled pool of funds, the government further provides support through different forms of subsidies such as subsidies for first-time home buyers, subsidies to buyers through savings account contributions, and subsidies to selected groups such as low-income earners. The provision of subsidies is made easy by the fact that a government-owned bank has a 75% share of the housing credit market (IMF, 2011).

The success of the structure of the housing finance system in Mexico is greatly aided by the influence of unions, such as the Mexican Workers Confederation (CTM), the Regional Confederation of Laborers and Farmers (CROC), and the Federation of State Workers Syndicates (FSTSE). The pressure exerted by these unions on the government has provided the impetus to keep the system working and to ensure transparency and accountability.

However, this has seriously limited the ability of the system to reach salaried workers that do not belong to these institutions, and of course only reinforced the system's exclusion of non-salaried workers in the country from receiving any type of assistance. To redress this, FOVI created an agency, the SOFOLES to cater for salaried workers that are within the jurisdiction of the government or another organized workforce.

Also, the housing finance system in Mexico possesses particular characteristics, which differentiate it from that of other countries. These special characteristics, being the different funds INFONAVIT, FOVISSSTE, etc., are set up specifically to handle the country's economic adversities.

Banks and other financial institutions are the main providers of mortgage credit in Chile because the Chilean housing finance system is heavily dependent on the capital market and not the government for sustenance (Meyer, 2012). In spite of this, the government closely regulates and monitors their activities. For instance, the Central Bank of Chile incorporated a number of provisions into the current regulations that allow banks greater flexibility in the payment of dividends, and achieved greater consistency between the simulations of the dividends of loans granted by mortgage bonds and those offered by other mortgage financing modalities (OECD, 2012).

Government also ensures that the banking institutions are empowered to give such credits covenanting more than one fixed interest rate during the term of a mortgage. The Central Bank additionally created a new category of mortgage bonds, which may be financed by loans representing over 75% of the value of collateral, with a limit of 100%, anticipating the need to observe regulatory safeguards especially designed for this purpose.

Furthermore, in 2011, according to OECD (2012), the Central Bank of Chile allowed banks to issue jumbo bonds (bundles of mortgage bonds) without repayment risk (although they have to remain on the banks' balance sheets). These regulatory measures and safeguards have facilitated the extension of mortgage credit to a larger number of households and have considerably reduced the risk to credit providers.

Morandé and García (2004) and Pardo (2001) also suggest that price indexation and the development of a vibrant capital market based on institutional investors are key developments that enhanced the structure of the Chilean Housing finance system. Also, despite the fact that the Chilean housing finance system is largely capital market-based, it has been successful because the system enjoys a high level of government participation through different interventions and subsidies, such as subsidies to first-time

buyers upfront, subsidies to buyers through savings account contributions, guarantees and loans from housing finance funds and government agencies, as well as credit enhancement to lenders (IMF, 2011). These subsidies have served to make housing credit affordable for the economically disadvantaged who ordinarily may not have been able to afford housing finance from banks and other privately owned financial institutions.

The structure of the Nigerian mortgage market bears a greater resemblance to that of Mexico than any of the other four developing countries because it predominantly depends on the pooled funds from compulsory contributions from the working population. However, the Nigerian housing finance structure is not as organized and specialized as that of Mexico. Both public sector and private sector workers contribute to the same source and are assessed using the same criteria when applications for loans are made. In addition, the Nigerian housing finance structure does not have any arrangement for the self-employed and others who are not in the formal workforce. This leaves an ample segment of workers outside the mandatory contribution. Borrowing a page from the structure of the Mexican finance system could help in making mortgage credit available to low-income earners who would require less stringent conditions for access to mortgage credit, and also the self-employed who may qualify for mortgage credit but are denied the privilege because they are not within the formal work environment.

### **Secondary mortgage market**

This section examines the impact of the presence or absence of a secondary mortgage market in the countries reviewed and how these countries have managed it, if it is present, or how they have been able to work around the absence of a secondary mortgage market yet still achieve impressive housing/housing finance delivery.

The role of securitization of housing loans in promoting secondary markets for mortgages in developed economies has inspired developing countries to explore the avenue of secondary mortgage facilities to increase funds available for housing finance and reduce significant housing shortages. Developing countries recognize that a vibrant secondary mortgage market can provide distinct benefits including, among others, a deeper capital market, housing policy that responds to the needs of the private sector, and reduced risk exposure for industry participants.

The housing finance systems in Chile and Malaysia, being more capital market-based than government funded, have enjoyed tremendous successes as a result of the presence of secondary mortgage facilities.

Following the recession that restricted credit for housing in 1987, Cagamas Berhad was created in Malaysia to raise medium- to long-term mortgage-backed bonds to refinance mortgages created by commercial banks and other private finance companies, to provide more liquidity to mortgage lenders, to reduce the market risk, and to sustain the housing sector. This marked a significant achievement in housing finance in Malaysia (Chiquier *et al.*, 2004).

Cagamas purchases mortgage loans (the principal balance outstanding) from mortgage originators, with full recourse to the primary lenders, at a fixed or floating rate for 3 to 7 years. This is in effect a secured financing with Cagamas looking first to the credit of the financial institutions when mortgage loans default. Cagamas issues debt securities to investors in the form of fixed or floating rate bonds, Cagamas notes, or Cagamas Mudharabah (Islamic) bonds. The debt is amortized independently of the mortgages (Isa, 2009).

Cagamas' refinancing activities have been successful largely because it receives a number of significant privileges from the Malaysian government, which has made its lending attractive for primary lenders (Chiquier *et al.*, 2004). Some of these privileges include the fact that (i) Loans sold to Cagamas are not subject to the Central Bank reserve requirements, (ii) Its securities are eligible as liquid assets (banks and finance companies must keep an additional 10% of assets in liquid form), and (iii) Its securities carry a risk weighting of 10% (compared to a 50% rating for housing loans), for investing credit institutions (Isa, 2009).

In the cases of both Chile and Malaysia, the secondary mortgage facilities are considered successful because there has been sustained issuance of mortgage securities and they finance a significant part of the mortgage market (35% in Malaysia and 70% in Chile) (Isa, 2009). Chilean mortgage bonds are the major fixed income instruments in the capital market and they enjoy widespread acceptance without ever having received government guarantees. In Malaysia, Cagamas has been successful in attracting new lenders into the market and lengthening the term of mortgage loans.

Both Cagamas and Chilean lenders issue bonds, and the development of their lending activities has not required more complex mortgage security structures. Cagamas issues "agency" debt, unsecured obligations of the corporation that are in effect backed by their mortgage loan portfolios. Chilean mortgage bonds are general obligations of the issuer backed by preferential access to the collateral. As "pass-through" structures, they are more complex than straight debt but considerably simpler than most mortgage securities. These results suggest that simpler structures may be more likely to be successful than the more complicated securitization models in emerging markets (Chiquier *et al.*, 2004).

At the moment, there is no secondary mortgage facility in Nigeria. However, the FMBN serves as a secondary institution through which the PMBs access the National Housing Fund (NHF). Unlike the conventional secondary mortgage facilities, the FMBN does not refinance the PMBs. It is considered a secondary institution because it does not deal with the customers directly. The PMBs act as the intermediary between the FMBN and the populace. A limitation of the FMBN as a secondary mortgage finance institution is that it does not access the capital market for funds, it only disburses the NHF contributions. In this sense, the FMBN does not qualify as a secondary mortgage facility. To address this issue, a full-fledged secondary mortgage facility, the Nigerian Mortgage Refinance Corporation (NMRC), has been proposed and plans are underway to ensure that it is established.

NMRC will be an intermediation vehicle, bringing long-term funding to mortgage originators and issuing high quality corporate bonds for investment by institutional investors, particularly Pension Funds Administrators (PFAs). In addition, NMRC will be the focal point for change by eliminating current impediments to mortgage lending. Currently interest rates remain high, resulting in the spread of mortgage lenders being high due to inefficiencies in pricing credit, interest rate risks and liquidity premiums. It is envisaged that NMRC will rationalize these pricing mechanisms through its developmental efforts and lower the cost of mortgage loans. Finally, the creation of NMRC will also stimulate the supply of affordable housing in Nigeria.

NMRC will be a private company with a public mission. The shareholders of NMRC will consist of four groups of investors namely:

- Commercial Banks and Mortgage Banks 60%
- International Financial Institutions such as IFC, Shelter Afrique, etc. 10%
- Private Investors (Investment Funds, Private Pension Funds, etc.) 10%
- Ministry of Finance Incorporated (representing the government) 20%

NMRC will initially refinance or purchase mortgage loans from the originators. The exact mode of operations will be decided based on the legal opinion regarding the strength of security for NMRC under the above modes of operation.

NMRC will dedicate its resources to developing three areas: business flow, technical mortgage lending activities and improving the enabling environment for mortgage lending. The technical activities are important to manage the risks inherent in mortgage lending. Investment in improving the enabling environment is for the long-term benefit of market development, thus generating a growing flow of business in the future. As a result, it is envisaged that about half of NMRC's expenses will be dedicated to such activities in the first year, dwindling down to smaller and smaller levels each year as the market becomes better organized and the impediments to growth are removed.

There will be four phases of development as follows:

Phase 1: This phase will cover all the preparatory work to be done for the commencement of operations. NMRC will also refinance/purchase legacy mortgage loans with recourse originated in the states of Lagos, Rivers and FCT. Currently the mortgage originators do not register the properties due to the high cost of registration. However, NMRC will only refinance/purchase mortgage loans in respect of properties that are registered, as NMRC needs the security of the loan in the event of the bankruptcy of the lenders. Since registration of the properties is a key issue for the functioning of NMRC, the sponsors will seek the assistance of the Ministry of Finance and the CBN, to request as a priority the Governors of the states of Lagos, Rivers and FCT (as a demonstration pilot), to reduce the registration fees for properties. Initially, NMRC will fund its purchases from a World Bank loan of US\$275 million. Phase 1 will cover Year 1.

Phase 2: In this phase, NMRC will continue to purchase legacy loans as well as new standardized loans. At the same time, considerable time will be devoted to technical activities that are important for managing the risks inherent in mortgage lending for the long-term benefit of the market. Based on the Financial Projections, NMRC will start to issue corporate bonds with full guarantees from the Federal Government. Phase 2 will cover Years 2 to 3.

Phase 3: In this phase, NMRC will only refinance/purchase standardized mortgage loans by issuing corporate bonds without guarantees. Phase 3 will cover Years 4 to 6.

Phase 4: In this phase, in addition to refinancing/purchasing loans with recourse, NMRC will also purchase loans without recourse and hold them in its portfolio. Depending on the stage of development of the bond market, NMRC could also securitize the loans by issuing residential mortgage-backed securities (RMBS). Phase 4 will cover Year 7 onwards.

NMRC's initial source of funding will be from a World Bank loan of US\$275 million disbursed through CBN. In addition, it will also use its paid-up capital for funding its mortgage operations.

On exhaustion of the World Bank loan, NMRC will initially issue corporate bonds with full guarantees from the Federal Government of Nigeria. Once the market is familiar with NMRC, NMRC will start issuing bonds without any guarantees. Although corporate bonds will be the predominant form of funding for NMRC, NMRC will also arrange for lines of credit with banks in the event that it is unable to issue bonds and needs funding. For asset/liability management purposes, NMRC will also depend on the money market for borrowing short-term money and placing its excess funds for short periods.

As NMRC will be exposed to market risks, liquidity risks, credit risks and operational risks, it will identify these risks clearly and set the mitigants for the risks in place.

NMRC will strive to operate in all aspects with as low a risk profile as possible. Some risks cannot be avoided, but many can be carefully managed. One such area is asset/liability management (ALM), often referred to as interest rate risk. The key technique for minimizing interest rate risk is duration matching. Essentially, NMRC will seek to match the duration of its assets, primarily mortgage loans, with liabilities of a similar duration. At a high level, NMRC will be purchasing mortgage loans with final maturities of about 15 years, but with average lives of about five to seven years. In addition, stemming largely from the way purchase-with-recourse contracts will be structured, many of these recourse loans will have a contractual duration of five years after which time the originator is obligated to buy the loans back. Purchases without recourse are more complicated to manage, as the duration of these loans is a function of the underlying prepayment and amortization rates that can reasonably be estimated.

A summary of housing finance systems in the selected emerging economies highlighting the peculiar characteristics of each country with emphasis on the main lenders, method of funding, government support, interest rate type and loan-to-value (LTV) ratio is provided in Table 4.2.

Table 4.2 Summary of housing finance systems in selected emerging economies

Source: International Monetary Fund, 2011

Economy	Main lenders	Sources of funds	Government support	Interest Rate type	Loan-to-Value ratio (LTV)	Summary
<b>Brazil</b>	Banks, non-depository mortgage companies, and government housing companies	Largely through housing finance schemes owned directly or indirectly by the government	Subsidies to first-time buyers up front, Subsidies to buyers through savings account contributions, Subsidies to selected groups, e.g. low-income earners, Provident funds' early withdrawal for housing purposes, Guarantees/loans from housing finance funds and government agencies.	Variable	<b>Average:</b> 80-100 <b>Observed Max:</b> 100	Two housing finance systems operate alongside each other: the Sistema Financeiro de habitação and the Sistema de Financiamento Imobiliário. Only less than 50% of property purchases were financed with mortgages. Under SFH regulations, banks are required to direct 65% of savings deposits balances into real estate lending. A government-owned bank has 75% share of the housing credit market.
<b>Chile</b>	Banks and mortgage administrators of insurance companies	Residential mortgage-backed securities and deposits	Subsidies to first-time buyers up front, Subsidies to buyers through savings account contributions, Guarantees/loans from housing finance funds and government agencies, Credit enhancement to lenders.	Variable	<b>Observed max:</b> 75 <b>Covered bonds:</b> 75-100 (depending on the product)	With a share of 58.7%, the Endorsable Mortgage Credit (EMC) is by far the most important mortgage instrument, as its flexible terms enjoy growing popularity with banks and borrowers. These mortgages are mainly financed with issuances of long-term senior and subordinated corporate bonds.
<b>Malaysia</b>	Banks and Treasury Housing Loan Division	Residential mortgage-backed securities, deposits, refinancing through Cagamas and unsecured debt	Subsidies to selected groups – government employees. Provident funds' early withdrawal for housing purposes. Guarantee/loans from Cagamas but without formal government support.	Variable	<b>Observed max:</b> 80 <b>Covered bonds:</b> 90	Treasury housing loan division (12%) which provides (subsidized) housing loans to government employees only, Employees' Provident Fund early withdrawal for house ownership, Cagamas, as government-promoted secondary mortgage liquidity facility, is not involved in origination but only in refinancing. Loans sold to Cagamas are not off balance sheet. Malaysia has issued staff housing loan receivables via Cagamas, to further develop the asset backed securities market.
<b>Mexico</b>	Housing Funds: ONAVIS through Infonavit and Fovissste FOVI through Banks and non-depository institutions: SOFOLES and SOFOMES.	Deposits, and residential mortgage-backed securities	Subsidies to first-time buyers up front, Subsidies to buyers through savings account contributions, Subsidies to selected groups e.g. low-income earners, Provident funds' early withdrawal for housing purposes, Guarantees/loans from housing finance funds and government agencies.	Variable	Depends on the provider	Infonavit/Fovissste (funds for housing for workers) loans carry an implicit subsidy and the "esta es tu casa" programme, which offers upfront subsidies for low-income households willing to buy properties. The government offers indirect subsidies to the housing market by explicitly guaranteeing obligations of the Sociedad Hipotecaria Federal (SHF), a government housing finance agency. The SHF supports the market for residential mortgage-backed securities (RMBSs) by offering mortgage insurance, financial guarantees, and by assuring the liquidity of the market, but it does not issue RMBSs.
<b>South Africa</b>	Banks and specialized mortgage institutions, including government agencies	Deposits from pension funds and insurance companies	Subsidies to buyers through savings account contributions, Provident funds' early withdrawal for housing purposes.	Variable	<b>Observed max:</b> 100	The National Housing Finance Corporation provides wholesale financing to financial intermediaries and lends directly to low- and medium-income individuals. The Rural Housing Loan Fund lends to intermediary housing lenders who in turn, lend to individual low-income earners.

This section therefore highlights some underlying conditions, derived from the literature, necessary for policy makers to consider when formulating housing finance policy.

**Mortgage finance is one of many key elements that need to be in place for successful housing delivery to happen:** Interventions in mortgage finance will have limited impact if much-needed reforms across the entire housing delivery chain, which is comprised of land, development rights, infrastructure, construction, and end users, are not addressed effectively (Chiquier and Lea, 2009).

Since the value of a housing unit is not only determined by its intrinsic worth, but also by the environment in which it is situated, housing finance efforts should not focus on the house alone; they should include creating viable neighbourhoods that will ultimately add to the worth of individual houses within it.

Furthermore, since housing is a long-term investment, it could depreciate in value over time if it is not properly maintained. Some studies have shown that more often, the costs of maintaining a property through its existence are significantly higher than the initial capital costs to construct it. Strategies to handle the cost of maintaining a property over its life cycle should therefore be incorporated into housing finance programmes.

**Finance is required at each stage of the housing delivery chain – lack of finance in any one area will undermine the entire chain:** The second observation is closely related to the first. All phases of the housing delivery chain require finance and the type of finance options (secured debt finance, unsecured debt finance, savings, direct income, equity, and grant finance) suitable for these different phases differ, hence, housing finance programmes should take cognizance of this for effectiveness.

**The mortgage-backed finance systems that dominate housing finance thinking fail to address the breadth of housing finance needs:** The third observation is that housing finance systems built around mortgage-backed securities have some limitations which, if not properly handled, could threaten their success. The recent subprime crisis in the US, which eventually led to a global financial crisis, is a good example.

Mortgage-backed finance systems require certain financial and bureaucratic infrastructures to be in place in order to work effectively. For instance, there is the need for an efficient property/title registration system, a regular and consistent source of income for mortgage users, ability to repossess in the case of default, etc. Where these do not exist (which is the case in most emerging economies), mortgage-backed finance systems could run into some problems.

- Due to the mismatch between the duration of the source of funding and the lending that occurs, derivatives are often used to source funding from the capital markets. This in itself is not a problem and such markets have an important role to play in enabling such financial systems to operate. However, where such derivative trading is used as a source to generate profits, the entire system is threatened. In order to make profits through derivatives one has to, in essence, bet against the market, which by definition will only be successful in a limited number of cases. Doing so is therefore very risky, and considering the high levels of gearing of banks, the consequences can be extreme, as seen in the subprime crisis.
- In many cases, the easing of underwriting to facilitate housing ownership and address the affordability constraints of households is highly problematic, as it does not address the source of the problem. The Wall Street Journal (4 June 2012) published an article stating that the real incomes of US households had not increased since 1990. This, together with the fact that real house prices had increased over that period, resulted in the decline of housing affordability. This is not a problem that can be overcome by extending greater finance into this market. If the affordability issue is not addressed, repayment problems will occur over time. Over-gearing poorer households is a recipe for disaster.
- Similarly, the use of standard debt to household income ratios, such as 30%, is equally problematic as it fails to recognize the different spending patterns and demands on households across the income bands. Research in South Africa suggests that such ratios should be closer to 15-20% rather than 25-30%. In short, the levels of debt finance extended should be limited to what households can sustainably afford (Rust, 2006).
- Loan to value ratios fall into a similar trap. This is because the value of the house is determined at the date of the loan, and yet the value of a house is likely to fluctuate over the term of the loan depending, *inter alia*, on the nature of the housing cycle. To make matters worse, the house is by definition over-valued at the top of the cycle and under-valued at the bottom. This is because prices will revert to the mean over time, which means that by definition, house prices at the top of a cycle must come down over time, (IMF, 2011; Warnock and Warnock 2008).
- The problem is further exacerbated because lending criteria are generally less stringent over boom periods and higher loan to values are permitted. Therefore, not only are the houses over-valued but also higher loans are given out against the “over-priced” assets, putting both the household and bank at risk. Secured lending can be problematic at the lower end of the market because the asset value of the houses is low, liquidity in the market is low, household incomes are low, and very importantly,

the nature of the household income is uncertain. As a result, it is often quite rational for a household not to take up secured lending opportunities because their precarious economic position results in their houses being vulnerable to repossession.

- Shorter term, unsecured lending (micro-finance) is in many ways better suited to this market. The downfall of this finance is that it is very expensive. The question remains about whether a hybrid solution can be found. Could a product be designed where a small secured loan is made over a shorter period (e.g. 3-5 years) on a rolling basis? If so, the key challenge to be overcome is the cost associated with small loans.

In summary, these observations point to the fact that trying to address the housing issue through mortgage finance alone will not solve the whole problem and may in fact threaten the financial and other related markets in the process. Furthermore, housing finance needs to relate to, and be structured around the housing delivery process, with the finance being tailored to each stage of the process and the different contexts in which the delivery takes place.

## 4.3 Methodology

### 4.3.1 Research methods

Research methodology refers to the philosophical paradigm that undergirds a research exercise and influences the methods or techniques employed in the design of the research by way of data collection and analysis. Methodology encompasses the what, why, where, and how of the research exercise. It steers the course of the research process, bringing the topic to life through the collection and analysis of data (Riley et al., 2000). There is no single best methodology for conducting research; the choice of methodology depends on the nature of the research and the type of data required.

Policy research is the process of studying or analyzing an important social problem in order to provide policy makers with recommendations to resolve it (Levine, 2004). A policy research usually begins with the identification of a social issue, examines the existing policies regarding the identified issue, evolves through the research process and eventually comes up with alternative policy actions for dealing with the problem. Policy research is unique because it focuses on action-oriented solutions or recommendations to social problems.

Different types of research methods are employed in policy research exercises because not all methods are appropriate for every research study context or question (Etzioni, 2006). Policy research methods include those that are based on a qualitative research paradigm such as focused synthesis, case studies, and action research, as well as those that take a quantitative approach such as secondary analysis, field experiment, cost-benefit analysis, cost-effectiveness analysis, and surveys (Gholipour and Jandaghi, 2012).

**Focused synthesis** is a selective review of published material and existing research relevant to a particular policy issue. This is a qualitative research method that is appropriate when a rich and reliable literature on the social issue in question exists (Dukeshire and Thurlow, 2002; O'Connor, 2005).

**Case studies** are used in policy researches to examine the process of policy implementation and its impact on a specific group of people. It helps to gain an in-depth understanding of a complex issue.

Both case studies and focused synthesis employ qualitative techniques such as interviews, focus group discussions, or action research to gather and analyze data.

**Secondary analysis** is another policy research method, which involves collecting and analyzing data from secondary sources of information about the current policy on an issue, and making recommendations for alternatives. Although it is considered to be the most cost-effective method for answering research policy questions (Dukeshire and Thurlow,

2002), it can only be effectively used where reliable and up-to-date databases are available.

**Surveys** and **field experiments** are policy research methods used when the objective is to examine the potential impact of a policy prior to its implementation or to assess its effectiveness after it has been implemented (Dukeshire and Thurlow, 2002).

Other research techniques for investigating policy issues are the **cost-benefit** and **cost-effectiveness** analyses. These are used to select an optimal policy among a number of alternative policies and as such, they are appropriate where alternative policy options exist (Colman, 2001).

The later policy research methods are based on the quantitative research paradigm, so data collection and analysis methods that are relevant to the quantitative research are employed.

My overriding concern is that the research method adopted should be both relevant to my research objectives, and rigorous in its operationalization. The main objective of this project is to investigate existing and potential sources of funds for housing finance in Nigeria and in other comparative emerging economies. Policy recommendations that will help to create an enabling environment for the generation, attraction, and sustenance of long-term funds for housing finance in Nigeria will then be made based on the findings. Therefore, I will use both the quantitative and qualitative research methods in this study.

#### **4.3.2 Research design**

A quantitative research technique will be employed to achieve the objectives of this study. A survey will be conducted with a structured questionnaire designed to identify and prioritize suggested activities that could be adopted to enhance the efficiency of the mortgage sector. Babbie and Mouton (2005) state that survey research is one of the best methods used in collecting data where the objective is to reach a larger portion of society, which would have been difficult to observe directly or through the use of other methods.

Apart from this, the survey was considered suitable for this project because it would allow me reach a large number of housing sector stakeholders, particularly the consumers, within the limited time frame available for this project. Because the survey questions are standardized, respondents have the opportunity to organize their thoughts before completing the questionnaires, and hence are able to give well thought out answers. Researcher bias is also greatly minimized in a survey because it is difficult for the researcher to influence the responses of the participants.

In spite of its advantages, the survey has some limitations, which undermine its effectiveness. The first is that while it is possible to reach a large number of respondents, the technique lacks depth because the pre-answer format prevents respondents from

giving detailed answers. To mitigate this limitation, the questions asked in the questionnaire are based on a thorough literature review and have been designed to cover as much of the subject matter as possible.

Another limitation of this technique is that more often than not, questionnaires are completed in the absence of the researcher so there is no room for clarifying respondents' doubts, or their misunderstanding of the questions asked, if there are any. To address this limitation, I selected respondents that I was certain would have an in-depth understanding of the subject matter.

Prevalence of low response rate is another limitation of the survey technique for data collection. To mitigate this, I administered more questionnaires than actually required to increase the coverage.

Mortgage finance concerns three categories of people; the consumers or end users, the finance providers, and the government that facilitates the interaction between the consumers and the finance providers by creating an enabling environment conducive for the interaction between them to take place. Bearing this in mind, the survey was designed to involve these different strata of stakeholders, so a representative sample that incorporates various categories of stakeholders was selected.

The consumers are the mortgage finance seekers. Finance providers include FMBN, mortgage banks, commercial banks, real estate developers and other non-bank mortgage finance providers. The government is comprised of all public sector parastatals and agencies responsible for housing. The survey was conducted with different questionnaires for the three stakeholder groups identified earlier.

#### **4.3.3 Survey population and sample selection**

##### **Consumers**

The sample of consumers for this survey was randomly selected from the three sub-sectors of the Nigerian housing market:

**The informal sector:** This sector constitutes the largest segment of the market. It comprises people (mostly small and medium scaled entrepreneurs) who do not qualify for formal mortgages. For instance, one major precondition for access to a mortgage facility is the ability to repay through a regular monthly salary. More often than not, this category of people, even when they are financially capable of taking mortgage loans, are denied access to it because they do not have any proof of the consistency of their financial capability.

Apart from this, the lengthy procedures and high costs of transactions often confine housing finance transactions to taking place in the formal sector, thereby widening the share of the market this sector takes.

**The formal open market sector:** This comprises the financial institutions giving mortgage loans; mortgage banks and commercial banks do the vast majority of lending. In this segment, the inability to effectively underwrite borrowers makes mortgage finance providers require the borrower to make mortgage payments through salary deduction. Three sub-categories of mortgage users can be identified here – low-income, middle-income and high-income earners.

**The subsidized sector:** This sector is a subset of the open market sector. It comprises workers in both the public and private sector (and a few high net-worth entrepreneurs) that contribute to and are eligible to access loans from the National Housing Fund (NHF). The NHF is a compulsory provident scheme, the proceeds of which can be used only for house purchase. 2.5% of employees' wages are deducted and paid into the fund. Contributors are entitled to a ₦5 million (about \$30,000), loan at an interest rate of 6% for a maximum of 30 years after six months of contribution. Workers in government agencies and government-owned higher institutions of learning are the target population for this group.

The sample of consumers was selected within Lagos state alone. This is because Lagos is the commercial nerve centre and the most populous state in the federation, and the demographic composition of Lagos is representative of the entire nation (Ilesanmi, 2010).

### **Finance providers**

The existing mortgage banks would form the population for this group. Two officers – the CEO and the Head of Operations – of these banks would be the targets for questionnaire administration. These officers have been selected because they have in-depth understanding of mortgage operations and would be able to provide satisfactory answers to the questions. However, where they are not available, they can delegate the administration to any other member of staff who is capable of providing adequate answers.

### **Government**

Government parastatals and agencies responsible for housing and infrastructure development and housing finance are the target group for this category. This includes the Federal Housing Authority, the federal housing corporation in all the 36 states of the federation, Ministry of Housing and Urban Development in all the 36 states, the CBN, the FMBN and other agencies.

The e-mail addresses of contact persons representing these agencies were obtained from their websites. These contacts were acquainted with the survey and their permission to execute the survey was obtained. The questionnaires were then forwarded to them by e-

mail for onward delivery to the respondents, and the completed questionnaires were also returned the same way.

#### **4.3.4 Research Instruments**

The instruments for data collection are semi-structured questionnaires designed to elicit relevant information from the three identified stakeholders – the consumers, the finance providers and the government. The literature review on the selected emerging economies formed the basis of the questions featured in the questionnaire. Each of the questionnaires is in two parts; the closed-ended part, designed using a Likert categorical scale to measure respondents' attitudes towards the different housing finance issues, and the open-ended unstructured part, which allowed respondents to make policy suggestions.

##### **Questionnaire 1 - Consumers**

This questionnaire was administered to consumers who were randomly selected from the three sub-sectors of the Nigerian housing market.

The introductory part of the questionnaire elicits information on the respondents' bio-data including age, gender, and academic qualification(s). Apart from the bio-data section, the questionnaire contains five questions. The first question seeks to identify the existing sources through which consumers obtain finance for house purchase or construction. The options incorporate both the formal and informal sources of housing finance. This can give an estimate of how much people seek financial aid for housing needs from the formal sector, especially through mortgage.

The second question assesses the ease of obtaining funds from the identified sources. This is important to ensure that when funds are available, they will reach those who need them.

The third question itemizes different strategies that have been employed in some of the selected countries to aid the availability and accessibility to housing finance. This question seeks the opinion of the respondents on the suitability of such methods if they were to be utilized in Nigeria.

Question four investigates the willingness of respondents to utilize new sources of housing finance if they are made available. Knowing this will greatly influence the types of policy recommendations that will be proffered.

Question five is an open-ended question requesting respondents to make recommendations on what to do to create an enabling environment for housing finance and to enhance the efficiency of the mortgage sector at large.

## Questionnaire 2 - Mortgage finance providers

This questionnaire is designed for housing finance providers. The existing mortgage banks form the population for this group. Two officers – the CEO and the Head of Operations of these banks are the target for questionnaire administration. These officers were selected because they have in-depth understanding of mortgage operations and would be able to provide satisfactory answers to the questions.

The issues addressed here are those revealed by the findings of project two which investigated the causes of inefficiencies in the mortgage system. The questionnaire is in two parts; the first part elicits information on the respondents' bio-data and, in addition, respondents are requested to indicate their profession and the duration of time they have been involved in the mortgage sector. This will help to assess their versatility and the depth of experience they have in mortgage finance.

This questionnaire contains seven questions in addition to the bio-data. The first question seeks to identify the financiers' current sources of funds and the extent of availability of these funds from each of the identified sources. This information provides a good basis for the policy recommendation that will be made regarding source and availability of funds for mortgage finance.

The second question investigates the adequacy of available funds for long-term lending. This is critical because for mortgage lending, availability of funds is not enough; the funds must be long tenured in order to give the consumers room to spread the repayment over a long period.

In the light of the inadequacy of the sources of funds for long-term lending, question three attempts to investigate the possibility/adequacy of raising long-term funds using different avenues through the capital market. Question four also seeks to find out how to raise long-term funds for mortgage lending from existing pools of funds such as unclaimed dividends, dormant accounts in commercial banks, and pension funds.

Policy recommendations need to factor in risk, and so to this end, question five attempts to find out the types of risk most prevalent in the mortgage market so that recommendations made will take into account such risks and provide effective ways to mitigate them.

Question six hopes to find out from finance providers what strategies are necessary for enhancing the efficiency of the environment within which they operate with the focus on policy formulation and policy review, information and training, expansion of market coverage, as well as the efficiency of their own operations.

The last question is an open-ended question requesting respondents to make recommendations on what to do to create an enabling environment for housing finance and to enhance the efficiency of the mortgage sector at large.

### **Questionnaire 3 – Government**

This questionnaire is designed for government agencies and parastatals that handle mortgage/housing finance issues.

The questionnaire for this group is also in two parts. The first part elicits information on the respondents' bio-data and in addition, respondents are requested to indicate their profession, the particular agency they work with and the duration of time they have been involved in the mortgage sector. This will help to assess their versatility and the depth of experience they have in mortgage finance.

This questionnaire contains five questions in addition to the bio-data. The first two questions seek to identify the measures that consumers and finance providers respectively can put in place to help government agencies serve them better and consequently to improve the efficiency of the system, while the third question seeks to find out steps the government can take to enhance the efficiency of the system.

The fourth question seeks to find out how the government, in conjunction with the industry regulators such as CBN and MBAN, can either individually or in collaboration with one another, effect changes that can help to enhance the efficiency of the system.

The last question is an open-ended question requesting respondents to make recommendations on what to do to create an enabling environment for housing finance and to enhance the efficiency of the mortgage sector at large.

## 4.4 Results and discussion

This section presents the results of the analysis of data collected through the questionnaires. The first part presents the results while a discussion of the findings is presented in the second part.

### 4.4.1 Presentation of results

This section presents the findings of the survey, and gives a summary of the data collected, the details of data analysis, the types of statistical techniques used for the analysis and a discussion of the findings. In order to effectively present the results, the section is divided into two parts. The first part presents the quantitative analysis of the closed-ended questions while the second part presents the qualitative results of the open-ended questions. In both parts, the results for the consumers, finance providers and government agencies are presented separately.

#### 4.4.1.1 Quantitative analysis

##### 4.4.1.1.1 Consumers

#### Response rate

Six hundred questionnaires were administered to the three categories of consumers identified, based on the proportion of each category and their income distribution in the working population. Table 4.3 gives a summary of the response rate of each group.

Table 4.3 Response rate of consumers

Category	Number of questionnaires administered	Number of questionnaires returned	Response rate
Informal sector	300	240	80.00%
Subsidized formal sector	150	122	81.33%
The formal open market	150	141	94.00%

Overall, a total of 503 questionnaires were returned out of the 600 questionnaires administered and this gives a response rate of 84%.

## Bio-Data

Table 4.4 Bio-data of respondents (Consumers)

Variable	Frequency	Percentage
<b>Category of consumers</b>		
Informal sector	240	47.77
Subsidized formal sector	122	24.25
The formal open market	141	28.03
<b>Total</b>	<b>503</b>	<b>100.00</b>
<b>Gender</b>		
Male	285	57
Female	212	43
<b>Total</b>	<b>497</b>	<b>100</b>
<b>Age Group</b>		
21 – 30 years	144	29
31 – 40 years	233	47
41 – 50 years	109	22
51 – 60 years	11	2
<b>Total</b>	<b>497</b>	<b>100</b>
<b>Income Category</b>		
Low-income earners	289	57.50
Middle-income earners	165	32.80
High-income earners	49	9.70
<b>Total</b>	<b>503</b>	<b>100.00</b>
<b>Highest Academic Qualification</b>		
Secondary education	51	10.14
Bachelor's degree	315	62.62
Associate Degree	92	18.29
Master's Degree	32	6.36
Doctoral Degree	13	2.59
<b>Total</b>	<b>503</b>	<b>100.00</b>

Within each of the identified categories of mortgage facility users, the questionnaire administration was done to reflect the income structure of the urban population in Nigeria (Fig. 2.1). About 60% of the respondents were selected among the low-income workers. As defined in the National Housing Policy (2004), a low-income earner refers to any employee or self-employed person whose annual income is/or is below the minimum wage, which is about US\$1,440. The Nigerian Household Survey (2012) further classified this group as people earning between US\$1,440 and US\$5,000 annually.

For ease of questionnaire administration, low-income earners were randomly selected from workers in grades 1-6 of the civil service, grades 01-04 of the tertiary institution staff, low cadre workers including drivers, office assistants, cleaners, etc. in the private sector, and the self-employed.

The medium income earners, as classified by the Nigerian Housing Survey (2012) are people earning between US\$5,000 and US\$12,000 per annum. About 30% of the respondents were selected from the middle-income earners. This group of respondents is randomly chosen from workers in grade levels 7-11 in the civil service, 5-9 in the tertiary institutions, and workers below managerial level in the private sector.

The high-income earners, randomly selected from workers above grade levels 11 and 12 for the civil service and tertiary institutions respectively, and senior executives in the private sector, constitute the remaining 10% of the sample.

### Existing sources of housing finance

Three main sources of financing housing construction or purchase were itemized in the questionnaire. They include government-related sources such as the NHF, private sector-based sources, especially the mortgage banks, commercial banks and micro-finance banks, as well as informal sources such as developers, loans from employers, and loans from family and friends.

Table 4.5 Preference for existing sources of housing finance

	<b>Extremely likely</b>	<b>Very likely</b>	<b>Moderately likely</b>	<b>Slightly likely</b>	<b>Not at all likely</b>
Mortgage Bank	47.3%	38.5%	5.2%	5.8%	3.2%
Commercial Bank	12.5%	36.6%	20.4%	14.0%	16.5%
NHF	29.5%	39.5%	15.5%	6.5%	9.0%
Micro-Finance Bank	10.5%	13.3%	13.1%	14.3%	48.8%
Developer	14.4%	8.6%	19.8%	23.0%	34.2%
Employer	13.1%	33.5%	18.1%	10.8%	24.5%
Government programmes	6.4%	38.4%	27.6%	12.9%	14.7%
Family and friends					

The results show that 85.8% of the respondents prefer to seek mortgage finance from formal sources. Both the upper quartile (over 75%) and the middle quartile (50%) of the respondents assert that it is **extremely likely** that they would seek housing finance from mortgage banks, while the lower quartile (25%) of the respondents comprises the respondents who would prefer to obtain housing finance from other sources apart from the mortgage banks.

About 50% of the respondents are willing to explore commercial banks and the NHF for housing finance. Over 75% of the respondents are not willing at all to explore informal

sources (developer, loan from employer, and loan from family and friends) to finance housing.

### Potential sources of housing finance

Apart from the existing sources of housing finance investigated in questions 1 and 2 of the questionnaire, other potential sources of housing finance identified in the literature and from housing finance policies in the selected emerging markets were itemized in the questionnaire, and the preference of respondents for these sources of housing finance was investigated.

### Preferences for other sources of housing finance

Table 4.6 Preference for potential sources of housing finance

	Extremely likely	Very likely	Moderately likely	Slightly Likely	Not at all
Government financed scheme for public sector workers	16.3%	50.5%	18.1%	6.8%	8.3%
Government financed scheme for private sector workers	11.5%	37.6%	20.7%	11.3%	18.9%
Government financed scheme for self-employed and special citizens	18.6%	32.7%	21.8%	12.3%	14.6%
Federal subsidy for the unemployed	20.3%	25.4%	19.7%	17.9%	16.7%
Interest free lending systems	26.3%	41.3%	13.4%	9.5%	9.5%
Government administered pension funds	12.5%	43.6%	21.7%	11.8%	10.4%
Private sector administered pension funds	18.2%	46.0%	21.4%	6.7%	7.7%
Housing specific co-operative societies	18.1%	59.7%	12.7%	7.1%	2.4%
Housing finance through insurance companies	5.8%	48.9%	18.7%	14.8%	11.8%

The results indicate that the majority of the respondents are willing to explore other sources of housing finance initiated and implemented by the government, such as housing finance schemes for public sector workers, private sector workers, the self-employed and special citizens. 61.1% of the respondents reported that they are likely to utilize government administered pension funds (if they are available) while 54.7% are likely to utilize insurance funds for housing finance if the opportunity is made available.

Customers' willingness to explore special banking systems such as Islamic banking for housing finance is also encouraging as 67.6% of the respondents are willing to do so. Based on the findings of this study, the potential avenues for expanding housing finance to customers, apart from government sponsored schemes, are private sector initiated and implemented sources such as pension funds and insurance funds initiated and

implemented by the private sector, and the avenue of cooperative societies specifically designed for housing finance.

#### 4.4.1.1.2 *Mortgage finance providers*

The primary mortgage banks formed the population for this group. Two questionnaires were administered in each of the 83 mortgage banks presently operating, to be filled by the CEO and the Head of Operations or any other member of staff delegated by these officers. Out of the 166 questionnaires administered, only 113 were completed and returned. This gives a response rate of about 68%. A summary of the bio-data of the respondents is presented in Table 4.6.

#### **Bio-Data**

Table 4.7 Bio-data of respondents (Financiers)

Variable	Frequency	Percentage
<b>Gender</b>		
Male	66	58.93
Female	46	41.07
<b>Total</b>	<b>112</b>	<b>100.00</b>
<b>Age Group</b>		
21 – 30 years	14	12.40
31 – 40 years	81	71.70
41 – 50 years	18	15.90
<b>Total</b>	<b>113</b>	<b>100.00</b>
<b>Highest Academic Qualification</b>		
Bachelor's Degree	41	36.30
Associate Degree	6	5.30
Master's Degree	66	58.40
<b>Total</b>	<b>113</b>	<b>100.00</b>
<b>Years of experience</b>		
1 – 5 years	35	31.00
6 – 10 years	46	40.70
11 – 15 years	32	28.30
<b>Total</b>	<b>113</b>	<b>100.00</b>
<b>Academic Background</b>		
Architect	9	8.00
Accountant	7	6.20
Banker	82	72.60
Estate Surveyor	7	6.20
Legal practitioner	8	7.10
<b>Total</b>	<b>113</b>	<b>100.00</b>

## Sources of funds and their adequacy

Table 4.8 Comparison of the availability and adequacy of sources of funds for mortgage finance

Sources of funds	Extremely available	Very available	Moderately available	Slightly available	Not at all available
Equity	*11.5% **(4.4%)	13.3% (8.9%)	43.4% (23.9%)	31.8% (52.2%)	- (10.6%)
Term loans	3.5% (3.5%)	10.7% (8.8%)	30.1% (31.9%)	23.0% (19.5%)	32.7% (36.3%)
Capital	10.6% (5.3%)	37.2% (7.17%)	21.2% (48.7%)	22.1% (27.4%)	8.9% (11.5%)
Deposits	3.5% (0.9%)	15.0% (14.2%)	58.4% (47.8%)	20.4% (29.2%)	2.7% (8.0%)
Pension funds	-	- (3.5%)	24.8% (12.4%)	5.3% (10.6%)	69.9% (73.5%)
Insurance funds	-	6.2% (3.8%)	7.1% (6.4%)	26.5% (19.9%)	60.2% (69.9%)
Mortgage Bonds	-	- (3.7%)	14.2% (12.9%)	21.2% (19.6%)	64.6% (63.8%)
Mortgage-Backed securities	9.5% (-)	18.8% (23%)	19.9% (28.3%)	17.9% (15.0%)	33.9% (33.7%)
Grant from government	-	- (18.0%)	17.1% (3.5%)	10.9% (4.2%)	72.0% (74.3%)

\* - Availability \*\* - Adequacy

With respect to availability, responses are markedly skewed to the **slightly available** and **not at all available options**. The upper quartile of finance providers reported that funds are non-existent from most of the sources. 72% reported non-availability of government grants, 69.9% and 60.2% reported the same for pension and insurance funds respectively. 64.6% also reported non-availability of funds from mortgage bonds.

Less than half of the respondents reported that they have moderate availability of funds from some sources. 58.4% of the respondents reported that they have **moderately available** funds from the deposit they collect from customers. 43.4% reported the same for equity and 30.1% from term loans.

74.3% of the mortgage finance providers assert that even if funds are available for lending through government grants, they will be inadequate for mortgage lending. This is probably due to the preconceived idea that whatever funds, processes, or interventions are organized or handled entirely by government agencies are usually not efficient and prone to inconsistencies, unnecessary bureaucracies, and corrupt practices. Only about 25% of the respondents feel that raising funds for mortgage lending through mortgage bonds will be adequate. Also, less than 25% of the respondents believe that mortgage-backed securities are adequate for mortgage lending.

## Potential sources of funds

More than 75% of the respondents are in favour of utilizing pooled funds and accumulated deposits for mortgage lending. 66.4% of the respondents suggest utilizing pension funds, 68.1% suggest diverting unclaimed dividends, while 79.6% suggest diverting funds in dormant accounts of commercial banks and other financial institutions into the mortgage sector. 63.4% suggest utilizing funds from insurance companies. Responses show ambivalence on the use of intervention funds from the government to finance mortgages; about 51.3% are in favour of the idea while 48.7% are not for it.

With regard to sourcing for funds through the capital market, finance providers' responses are markedly skewed to the **slightly viable** and **not at all viable** options. On average, only about 35% of the respondents consider utilizing the capital market either as single lenders or through a secondary mortgage facility to raise funds for mortgage lending.

## Strategies for improving the mortgage market

More than 75% of the respondents agree that a review of existing policies and the formulation of relevant ones is necessary to improve the sector. 65.5% suggest that in order to create more funds for mortgage lending, the pension policy should be reviewed to permit workers to use part of their pensions for mortgage repayment if need be, in order to substantially mitigate repayment risk, and 87.6% suggest the formulation of policies to divert an agreed percentage of pension funds to the mortgage sector for lending to customers. 79.6% are in favour of a review of the NHF policy to encourage more contributions to the scheme.

With respect to improving the mortgage market through information and training, 85.6% of the respondents are of the opinion that industry regulators especially the CBN should invest in a comprehensive development of the sector. This could include human capacity development, establishing uniform underwriting standards, and establishing and enforcing uniform financial reporting standards. Also, 61.9% suggest the creation of mortgage insurance services by the public sector, while 85.8% suggest the same for the private sector. All the respondents assert that the CBN and MBAN should organize training for mortgage finance providers in the areas of underwriting, loan servicing, and risk management.

About half of the respondents suggest the creation of a finance enhancing infrastructure to create an enabling environment for mortgage lending. 76.1% of finance providers advocate the creation of property appraisal services by the government, while 85.5% advocate the establishment of a credit bureau information service by the government. All the respondents are in favour of tax advantage for mortgage providers.

#### 4. 4.1.1.3 Government agencies

77 government parastatals concerned with housing (see list in Appendix 1) formed the population for this group. Two questionnaires were administered by e-mail in each of the agencies. Out of the 154 questionnaires administered, only 104 were completed and returned. This gives a response rate of about 67.5%. A summary of the bio-data of the respondents is presented in Table 4.8.

Table 4.9 Bio-data of respondents (Government agencies)

Variable	Frequency	Percentage
<b>Gender</b>		
Male	65	62.5
Female	39	37.5
<b>Total</b>	<b>104</b>	<b>100.0</b>
<b>Age Group</b>		
21 – 30 years	15	14.56
31 – 40 years	55	53.40
41 – 50 years	20	19.42
51 – 60 years	13	12.62
<b>Total</b>	<b>103</b>	<b>100.00</b>
<b>Highest Academic Qualification</b>		
Bachelor's Degree	53	51.0
Associate Degree	10	9.6
Master's Degree	40	38.5
Doctoral Degree	1	1.0
<b>Total</b>	<b>104</b>	<b>100.0</b>
<b>Years of experience</b>		
1 – 5 years	15	14.4
6 – 10 years	33	31.7
11 – 15 years	31	29.8
16 – 20 years	4	3.8
Over 20 years	21	20.2
<b>Total</b>	<b>104</b>	<b>100.0</b>

Over 75% of the government agencies surveyed agree that consumers need to play a role to ensure better service from government agencies. 91.3% contend that it is extremely necessary for consumers to provide comprehensive and up-to-date information when they

apply for land/property registration and documents, which could be used to build a consumer database. All the agencies surveyed unanimously assert that consumers delay the registration of the properties, they present survey documents that do not tally with the records of the registry and they fail to pay the fees for registration promptly. 93.3% of the agencies report that contract documents that are presented by consumers for registration of properties contain ambiguous clauses, which does not make the registration process any easier.

For finance providers, government agencies suggest a reduction in the time taken to process mortgage loans. They also advocate that finance providers should ensure that customers present up-to-date documents and tax clearance certificates.

98.1% of the agencies advocate for private sector insurance companies to offer mortgage insurance services to enhance mortgage finance. In addition to this, 98.1% think that it is appropriate for commercial banks to offer term loans to micro-finance banks and mortgage banks for mortgage finance, and that government can facilitate this by providing protection for the commercial banks in case of losses.

Over 90% of the agencies also suggest that in order to enhance housing finance, the government needs to provide an infrastructure, such as credit bureaus and liquidity facilities, in addition to exempting mortgage banks from some taxes or at least reducing the amount of tax that housing finance providers pay.

With respect to the government agencies themselves, 91% of the respondents suggest that a reduction in the cost, time and number of procedures required for land/property registration would go a long way to encourage the prompt registration of properties.

All the agencies surveyed considered it very necessary for the government to establish a customer care unit where consumers can be educated on the requirement for land/property registration and where complaints about the same can be handled promptly. 93.3% also consider it necessary for the government to establish legislation that favours the acquisition of land and properties.

#### **4.4.1.2 Qualitative analysis**

The responses to the open-ended questions on policy issues regarding different aspects of the mortgage market were analyzed and a summary of the responses is presented in this section. The responses obtained from the questionnaires were uploaded into NVivo 9 software and codes were generated as they emerged from the individual responses. The responses were re-read and similar codes were merged to avoid repetition and to highlight mutually exclusive but exhaustive responses. The analysis reveals that suggestions of consumers relate to legal/regulatory issues, financial issues, and the creation of an infrastructure to aid housing delivery while the

suggestions of the finance providers and the government relates to legal/regulatory issues and financial issues alone.

A summary of consumers' policy suggestions is presented in Table 4.10.

Table 4.10 Consumers' policy preferences

<b>Issue</b>	<b>Policy Suggestion</b>
Legal/regulatory Issues	Reduction of cost associated with land/property transactions
	Elimination/Reduction of delays in obtaining a Certificate of Occupancy (C of O)
	Elimination (or at least) reduction of the bottlenecks, bureaucracies and inefficiencies in land titling and documentation processes
Financial Issues	Reformation of pension law to allow the use of part of pension funds to fund housing either as equity contributions or monthly repayments
	Innovation of viable financial products by mortgage banks that will be affordable for low-income earners
Infrastructure Issues	Reduction of statutory costs of all land transactions
	Policies to make land available and affordable

Consumers suggest that government needs to put in place policies that would help to reduce the exorbitant cost associated with purchasing land/property and registering it. 82.3% suggest that government should embark on initiatives to make more land available at a much cheaper rate than it is at the moment. 51.92% also suggest the reduction of associated costs such as consent fees, stamp duties, registration fees, and capital gains tax. In addition, 85% of the respondents decry the challenges that the existence of the Land Use Act and the required Governor's consent in land transactions constitute.

With respect to finance, 42.41% (a large proportion are from the subsidized formal sector) of the respondents suggest that the finance providers should liaise with the government to allow workers access to pension funds for down payment/equity contribution, or even monthly repayments for housing finance. Consumers also suggest innovative mortgage finance products by finance providers to extend mortgages to more consumers in the informal and subsidized formal sectors.

A summary of the financiers' policy suggestion is presented in Table 4.11.

Table 4.11 Policy preferences of finance providers

<b>Issue</b>	<b>Policy Suggestion</b>
Legal/regulatory Issues	Reduction of cost associated with land/property transactions
	Development of strong property and security rights
	Partial or full deregulation of the mortgage market for mortgage finance that is market driven rather than government subsidized
	Development of a legal and regulatory framework that safeguards lenders
	Redressing the lengthy, rigid and ineffective foreclosure procedure
	Creation of an effective framework for the mortgage market
Financial Issues	Review of existing asset allocation framework of pension funds to channel greater funding to the mortgage sector
	Reformation of the NHF Act to encourage more contribution, especially from the government, commercial banks, insurance companies and other organizations in the private sector
	Enhance the capacity of the capital market to mobilize long-term funds to the mortgage sector
	Creation of a secondary mortgage market
	Monetary policies to reduce interest rate and inflation

With respect to finance, about 90% of the finance providers advocated for a more favourable macroeconomic environment; they suggest that the government, through CBN and other industry regulators, should investigate and implement policies that will reduce inflation and interest rates.

54.32% also suggest that the government should initiate policies that will help to channel funds in dormant accounts of commercial banks and unclaimed dividends into the housing sector either through an NHF scheme or any other appropriate avenue.

They also suggest strengthening the existing pool of funds, the NHF scheme. 85% of the respondents were in favour of this suggestion. 63.87% suggest the creation of a secondary mortgage institution to refinance the mortgage loans presently on the books of PMBs.

34.2% suggest that the government, in conjunction with CBN, should provide the necessary infrastructure for PMBs to enable the PMBs access to the capital market for long-term funds. They also suggest the development of the capital market to attract foreign investors to the housing sector.

The suggestions for enhancing the legal/regulatory environment made by the finance providers include policy reforms to address the slow, lengthy, rigid and ineffective foreclosure and repossession processes, and the creation of an effective framework for an efficient primary mortgage market.

#### 4.12 Policy preferences from government agencies

<b>Issue</b>	<b>Policy Suggestion</b>
Legal/regulatory Issues	Reduction of costs associated with land/property transactions
	Strengthening the statutory verification and certification process involved in title documentation and housing delivery
Financial Issues	Provision of subsidies for low- and middle-income earners
	Provision of intervention funds for finance providers

On the part of government agencies, policy suggestions focused on the reduction of the cost and bureaucracies that pertain to land and property registration, as well as strengthening, automating, and simplifying the verification process involved in title registration and documentation.

Government agencies also suggest that to help housing finance, the government should provide subsidies for the low- and middle-income earners, and intervention funds for finance providers.

Government agencies further suggest the empowering, restructuring, reforming and re-capitalising housing and housing finance-related ministries such as the Federal Housing Authority, the Federal Mortgage Bank of Nigeria, State and Federal Housing Corporations, and other government agencies concerned with housing delivery and finance to effectively fulfil their mandate to the nation.

#### 4.4.2 Discussion of findings

This section discusses the results presented, comparing the results obtained here with previous researches in order to highlight similarities or differences, and to bring out the unique contribution of this project.

#### Consumers

The results suggest that there is a high awareness of the mortgage market among the urban population and customers are very willing to explore the avenue of mortgage banks to source them for housing finance. Compared with the results for commercial banks, customers are more willing to secure mortgages from mortgage banks rather than the

commercial banks. So, there is a strong need for mortgage banks to build their capacity in order to reach out to more people.

Consumers' continual interest in the NHF despite its non-impressive performance over the years suggests that with adequate policies in place, the Fund can fare better. Apart from contributions from workers, it is important to ensure continual contribution to the scheme especially from the commercial banks, which are required to contribute 10% of their loans and advances at an interest rate of 1% above interest payable on current accounts. The requirement that insurance companies should invest a minimum of 20% of their non-life funds and 40% of their life funds in real property development, of which not less than 50% shall be paid to the NHF through FMBN at an interest not exceeding 4%, should also be enforced. In addition to this, if the Federal Government makes ample contribution to the scheme from time to time, there will be more funds for lending to mortgage seekers through the NHF.

To further enhance the success of the scheme, there is a need for an upward review of salaries for workers (especially the low-income earners). The average salary of the low and middle-income earners in Nigeria is hardly enough to qualify them for mortgage loans under the NHF. So, in order to enhance their affordability and eligibility status as contributors to the Fund as well as to facilitate their access to credit facilities for home acquisition through NHF or mortgage banks, a review of salaries is imperative.

The condition that a contributor must possess certified land (backed by a C of O) has been a great deterrent to accessing NHF credit. Acquisition and documentation of land by organizations such as cooperative societies, developers, employers, churches, and other groups financially capable of such on behalf of individual members of such entities should be allowed, and individual members should be permitted to present such documents as valid documents for loan applications from the NHF. This will make it easy for individual contributors to the Fund to access it when necessary.

### **Finance providers**

Non-availability of funds through mortgage bonds and mortgage-backed securities in the Nigerian mortgage sector can be attributed to a number of reasons. The development of the capital market is one. Although the capital market has acquired some depth in recent years, it still lacks considerable breadth especially in terms of the variety of securities available as investment choices.

An important policy issue is how to link the housing sector to the capital market through the securitization of loans originated by individual finance providers, thus creating mortgage-backed securities (MBSs). In addition to developed economies such as the US and UK, mortgage-backed securities have proved to be an effective alternative housing finance option in emerging economies such as Chile, Malaysia and South Africa. This avenue, which is possible only through the creation of a secondary mortgage facility, is

worth experimenting with in Nigeria. Efforts made to create a secondary mortgage facility for the sector has been discussed extensively in section 4.2.4 (pages 208-210).

With a secondary mortgage facility in place however, the next challenge will be to educate Nigerians on the advantages of MBS. It appears that an average Nigerian believes in acquiring properties rather than creating assets. Properties have little value if they cannot be used as an asset, and securitization helps to convert properties to assets. This is where the advantage in MBS lies. The pool of funds for mortgage finance will increase appreciably if existing mortgage loans are securitized and sold as assets.

With concerted efforts being put into establishing a mortgage refinance company, persuading the finance providers and mortgage users to buy into the development is critical at this point to ensure a successful take-off of the scheme when it is completed.

The findings also suggest that finance providers are biased towards funding mortgages through some form of pooled funds and long-term deposit schemes, rather than the capital market. This could be due to the fact that most CEOs of mortgage banks, having been active players in the commercial banking system prior to the present time, have an idea of how much funding could be pooled from deposits. While this may be a viable source of funding, it may not afford mortgage users the opportunity of converting their investment in housing to assets that could be used to raise more funds in the future. If housing finance is funded through pooled funds and deposits alone, investments in housing will largely remain dead assets.

## **Policy Issues**

The policy suggestions made by respondents agree with those of other studies such as Boleat and Walley (2008); Chiquier and Lea (2009); Chiquier *et al.* (2004); FSS2020 (2007); World Bank and IFC (2010); IMF (2011); Oyalowo (2012); Warnock and Warnock (2008); World Bank (2009). In addition, a unique result of this project is that cultural-cognitive factors such as savings habits, debt utilization tendencies, and the debt repayment culture of Nigerians (with respect to both consumers and finance providers) also affect the efficiency of the mortgage sector.

With respect to the cost and time of land/property titling and documentation, Warnock and Warnock (2008) and World Bank (2009), provide evidence that Nigeria is on a low rung of the ladder when compared with developed countries, and even other emerging economies such as Brazil, Chile, Mexico, and South Africa. Reforms to address the time and cost of land/property registration in Nigeria should focus on the removal of any scope for special deals, waivers, and deferments. They should serve to ensure transparency in the process of title registration and documentation and also aim at reducing the number of stages in the entire process.

Other studies, such as those of Boleat and Walley (2008), FSS 2020 (2007), have also emphasized the need to expunge the requirement for the Governor's consent to land acquisition from the Constitution. This is essentially seeking a legislative solution to an administrative problem. The constitutional need for the Governor's consent on land transactions would not have been an issue if that consent could be obtained in a few days and at no cost (or at a meagre cost). This constitutional clause constitutes a constraint because the administrative process required to obtain the Governor's consent is fraught with problems, and constitutes a major setback.

With respect to finance, the results of this project reveal that housing finance providers favour funds from depository sources, such as pooled funds in the NHF scheme, over long-term sources from the capital market. This is similar to what obtains in most emerging countries (Boleat and Walley, 2008; Chiquier and Lea, 2009). Apart from Chile, all other emerging economies studied in this project show a similar trend. Chiquier *et al.* (2004) posit that there are two major reasons for this trend. First, finance providers are reluctant to explore the capital market for housing finance because of the complex legal and regulatory requirements involved, and the infrastructure for these requirements is usually underdeveloped or sometimes completely non-existent in most emerging markets. In addition to this, a lack of uniformity in primary market operations, such as underwriting, documentation, standards of servicing, and even mortgage instruments, constitutes a challenge to assessing finance from the capital market in most emerging economies. These notwithstanding, capital market funding can provide a strong incentive to improve primary market standards.

In the meantime however, policies to channel pooled funds (pension and insurance funds), funds in dormant accounts in commercial banks, and unclaimed dividends, into the mortgage sector is necessary to strengthen the NHF funds. As a long-term measure also, there is the need to learn from mortgage/housing finance systems, such as those in Australia and the UK, that have successfully run on depository schemes. This can provide insight into how to manage the sector better within its present structure and limitations, while effort is being made through policy initiatives and otherwise to deepen access to mortgage finance from the capital market.

Apart from this, policy initiatives that will help to create an enabling environment for the mortgage market in Nigeria also need to address issues such as the establishment of clear property and security rights, establishment of a transparent, efficient and inexpensive titling/property registration process, attracting/generating long-term funds for lending, regulatory and legislative reforms and the development of an effective foreclosure process.

## 4.5 Recommendations and conclusion

This chapter makes recommendations for policy initiatives that can help to create an enabling environment for housing finance and delivery in Nigeria. The chapter also gives a summary and conclusion of the study, and highlights areas for further research.

### 4.5.1 Recommendations

Based on the policy suggestions made by respondents, the following recommendations are proposed to address some of the constraints and barriers, which prevent the Nigerian mortgage market from growing to scale, and to enhance its efficiency. The recommendations that directly relate to the generation, attraction and sustenance of finance will be addressed first as these are the main focuses of this project. Recommendations that relate to other aspects of the sector, such as the establishment of property rights, enhancing the primary mortgage market, as well training and development, will be made as well.

Specifically, five major recommendations are proffered: strengthening the available source of fund – the NHF scheme; capacity building for PMBs; integration of the mortgage market into the capital market; setting up appropriate infrastructures and/or remodelling existing ones to enhance an efficient primary mortgage market; and the introduction of a new legal framework to strengthen property/security rights.

**1. Strengthening the NHF scheme:** The NHF is the only fund dedicated to housing finance in Nigeria at the moment. Although commercial banks give mortgages, they are not targeted at the entire population; only the top 8% (see figure 2.1) can afford mortgages at interest rates as high as 22%-25%. The NHF gives mortgages at a more realistic 6% interest rate. The result of this project has shown that the NHF is grossly inadequate to meet the demand for housing finance. Therefore, the scheme needs to be strengthened, while concerted efforts are made to explore other sources of funds adequate for housing finance. The following are proposed measures that can be put in place to ensure that the capacity of the NHF is increased significantly:

- **Amendment of the NHF Act:** Act Number 3 of 1992 established the NHF, and it requires the employers of all Nigerians and self-employed workers earning at least the minimum wage to deduct 2.5% of their basic salary and pay the same amount into the NHF account. This Act was instituted 21 years ago when the monthly minimum wage was ₦3,000. A series of minimum wage reviews have been carried out since then and the monthly minimum wage is now ₦18,000 (\$118). The amendment of the NHF Act is deemed necessary because the NHF funding base is inadequate for the housing finance needs of the country. Total collection, as at the end of 2012, is a meagre ₦105 billion, as against the pension funds, which have

amassed ₦1.45 trillion in the last eight years following a review of the Pension Act in 2004 which requires a total contribution of 15% of salaries by both employees and employers. The requirement of 2.5% of the basic salary is grossly inadequate to create a pool of funds that will make any significant impact on the rising housing deficit. If a similar review were to be made of the NHF Act, there would be a significant increase in the amount generated through the scheme. In my opinion, the NHF Act should be amended to allow a contribution of 5% of gross salaries to NHF by both employees and employers.

- **Enforcement of contribution to the NHF scheme:** According to the NHF Act, commercial banks and insurance companies are required to remit prescribed percentages of their loanable funds and premium incomes respectively into the Fund. The States and Federal governments are also to contribute to the NHF scheme regularly. These parties have not been making their required contributions to the scheme. Since the scheme is the only pool of funds dedicated to housing finance, enforcing these institutional contributors to play their part in sustaining the scheme is deemed necessary for its continuance and effectiveness. Apart from this, at the moment, only 28 states are collecting and remitting contributions from workers within their state. Eight states have either never participated in or have ceased to continue participation in the scheme. It is imperative to enjoin full participation to deepen the scheme.
- **Integration of pension funds into the NHF scheme:** There are currently 26 PFAs with about ₦1.45 trillion (\$9.5 billion) under management, which amounts to about 12% of the total assets of financial institutions, making them the second largest sector after the banks. Annual contributions are about ₦300 billion (\$2 billion). Government should facilitate reforms that will make it mandatory for a substantial part of these pension funds to be directly invested in mortgage assets. It is also recommended that the NHF scheme be integrated into the pension funds, such that pension funds administrators will contribute an agreed percentage to the NHF, just as the banks and insurance companies are required to. The pension fund size is huge, and based on its long-term nature, it matches housing and mortgage fund needs; thus, the government should create policies that would mandate contributions from pension funds into the NHF scheme.
- **Enact policies to divert funds in dormant accounts of commercial banks and unclaimed dividends to the NHF:** The government and the CBN need to enact policies to direct the estimated ₦1.052 trillion in the dormant accounts of commercial banks and unclaimed dividends of public companies into the housing fund. A policy stating that such funds that have remained unclaimed for over five years should be channelled into housing funds until their rightful owners claim them should be enacted. Currently, such funds that have been in existence for over 25

years are being used for short-term lending, when in fact, they have become long-term in nature.

**2. Capacity building for the PMBs:** Capacity building is necessary in three key areas: capital requirement, efficiency of operations, and expansion of coverage.

- **Capital requirement:** The ongoing recapitalization exercise for mortgage banks is a step in the right direction to achieving this. In 2011, the CBN mandated all operating mortgage institutions to increase their working capital from ₦100 million to ₦5 billion to enable them to operate effectively. The recapitalization exercise, which was originally scheduled to last for a year was reassessed based on the progress made by the banks in compliance with the initiative. In order to give the banks more time and more options, banks that could not meet the ₦5 billion capital requirements were given the option of ₦2.5 billion, which would permit them to operate as state mortgage banks. State mortgage banks would be licensed to operate in only one state of their choice within the country. Banks who reached the ₦5 billion mark would retain their licences to operate in all the states within the country. The sequel to this, the deadline for the recapitalization exercise, was extended from the end of April 2013 to December 31, 2013 to allow more time for the operators to raise capital and/or engage in business combination options that would allow them participate better in the sector.
- **Efficiency of operations:** At the completion of the recapitalization exercise, the activities of mortgage banks would be streamlined to mortgage financing alone. Based on the present capital capacity, the statutory functions of the primary mortgage banks include granting of loans and advances for the purchase or building, improvement or extension of a dwelling or commercial house, acceptance of savings and deposits, management of pension funds/schemes, performing estate management duties, as well as offering project consultancy services for estate development, and engaging in estate development through loan syndication.

Under the new guidelines, which will become effective after recapitalization, mortgage banks would only be allowed to perform mortgage-related duties such as mortgage finance, real estate construction finance, acceptance of savings and term deposits, and acceptance of mortgage-focused demand deposits. These new guidelines clearly streamline the activities of mortgage banks in the provision of mortgage finance and exclude other related activities, such as the provision of estate management duties, etc. Hopefully, this will help mortgage banks become more focused and effective, and should help increase their coverage.

- **Expansion of scope and coverage:** With the activities of PMBs restricted to mortgage financing alone, it is proposed that CBN and other regulatory bodies

should refocus the scope of operations of mortgage banks to enhance the generation of funds through more deposits. This can be achieved in different ways such as allowing PMBs to collect NHF funds directly. Collection of NHF contributions by PMBs will make it easier for contributors to monitor their contributions and this will ultimately encourage more people to join the scheme. It will also offer the PMBs the privilege of aggressively publicizing the scheme, thereby creating more awareness.

This can also be achieved by encouraging government ministries, departments, parastatals and agencies to place funds/deposits with the recapitalized PMBs. It can also be done by restructuring and converting the existing NHF scheme to operate as a mandatory savings scheme to be held by the recapitalized PMBs. This strategy will afford PMBs the opportunity of prospecting for new NHF accounts of organizations for their collective staff, which they will maintain as savings accounts.

**3. Integrating the mortgage market into the capital market:** Non-linkage of housing finance and the mortgage market to the capital market is one of the factors that continue to hinder the generation of long-term funds for housing. The following are proposed to aid the integration of mortgage finance to the capital market:

- **Establishment and sustenance of a secondary mortgage market:** This will provide a viable avenue for PMBs to access the capital markets and other institutional investors for long-term funds for onward lending to consumers. Consequently, the enormous burden on PMBs and other housing finance institutions to carry mortgage loans to maturity will be alleviated. Currently, outstanding mortgage loans remain on the books of the PMBs no matter what the tenure, and this limits their ability to originate more loans. To enhance greater accessibility to long-term housing funds for house ownership among all segments of the Nigerian population, establishing a secondary mortgage market is imperative. While efforts to establish a viable secondary mortgage market are underway, the CBN should issue a 20-25 year bond in collaboration with the Debt Management Office and use the proceeds to refinance eligible mortgages. This will require the standardization of loan instruments and underwriting methods, and measures to mitigate credit risk, e.g. improved foreclosure methods, or credit risk sharing by government. Unbundling of the mortgage value chain will also go a long way to make this happen.
- **Government should develop a framework to enable the Central Bank to swap mortgage assets with treasury bills, and weighting mortgage assets for reserve requirements:** In order to encourage mortgage lending, the risk weighting assigned to mortgage loans for the purpose of capital adequacy computations and

liquidity ratio computations needs to be adjusted. Mortgage loans in the short-term can also be treated like treasury bills and could be swapped for treasury bills subject to limits, in order to make them liquid.

**4. Setting up appropriate infrastructures and/or remodelling existing ones to enhance an efficient primary mortgage market:** This is necessary to increase the stock of 'mortgageable' properties necessary to facilitate the operations of a secondary market. The advantages of a secondary market may not be fully exploited without a well-functioning primary market in place. Specific steps necessary to achieve this include the following:

- **Formalize tenure for existing land/property owners:** As a starting point, the government should, as a matter of urgency, introduce large scale land registration programmes to facilitate the acquisition of titles by existing land/property owners. This may necessitate the reform of land registries, creation of a cadastral land mapping system using Geographical Information Systems (GISs), as well as some legal reforms. Putting these policies and reforms in place would help to significantly build the required high quality primary mortgage assets to jump-start the secondary mortgage operations.
- **Reduction in transaction costs:** Transaction charges and the cumbersome process of registration of titles are the major impediments to the perfection of legal mortgages. The cumulative charges of consent fees, capital gains tax, stamp duties, registration fees, etc., cost as much as 40% of property values in some states of the country, and even about 15% in the cheapest state. While this makes mortgage origination difficult, it makes secondary mortgages almost impossible. Lower transaction costs will encourage more of the populace to register their titles and this will earn more income for the various governments than they currently earn. These charges should not exceed 5% of the value of the property if an effective housing finance system is to be achieved.
- **Conversion of state housing corporations into land companies with a mandate to develop new geographical areas in each state:** State housing corporations should become land companies and be constitutionally and financially empowered to acquire large hectares of land (200 hectares and above) and develop infrastructures such as roads, water and electricity for these areas which they would sell both to individuals and institutional investors.
- **Government should facilitate the automation and eventual integration of all records and processes of local, state and federal government land registries:** Policies to integrate land records in the nation are more or less a long-term initiative. In the meantime, the federal government should offer incentives to other

tiers of government to computerize existing land records and to automate the process of record keeping in all land registries.

#### **5. Introduction of a new legal framework to strengthen property/security rights:**

Measures to strengthen access to finance may not produce the desired result if policies to enhance property and security rights are not put in place. The following recommendations are put forward address this:

- **Abolition of the Land Use Act:** The Land Use Act of 1978 backs Land ownership in Nigeria. This Act vests ownership of all land in the Governor of each state, who has the right and privilege to allocate land through a leasehold system. The lease is generally for 99 years less one day. In reality, this right of occupancy is legalised with a Certificate of Occupancy issued to the beneficiary. This often delays and adds significant costs to the registration process. Expunging this law from the Nigerian Constitution and the expedited passage of housing-related pending and new bills at the National Assembly will facilitate the establishment of institutions, systems, and processes that will strengthen the legal and regulatory environment.
- **Removal of the requirement for the governor's consent on land transactions in the Land Use Act:** While the abolition of the Land Use Act could take a considerably long period to achieve, administrative amendment could be made to the existing law by having state governments delegate an endorsement of consent to Commissioners and Directors of lands at the national level and mandating them to deliver in a maximum of two weeks instead of the one year period that is prevalent in the sector at the moment.
- **Establish an efficient foreclosure system:** This requires the removal of the arrangements for foreclosure proceedings on real estate from general common law provisions and the enactment of foreclosure laws through the sponsorship of a Bill that will enact specific laws that will define the rights and obligations of creditors and lenders in foreclosure proceedings. This will help to establish an effective foreclosure system (devoid of judiciary encumbrances) that will give more guarantees to lenders in cases of default. Apart from this, specialized courts/tribunals that will fix the grounds and timing of challenges and contestations for foreclosure should be established.

A summary of the recommendations made above, with an estimated time frame needed to achieve each deliverable, and the agency or institution responsible for initiating, implementing, or facilitating the policy suggestion is provided in Table 5.1.

Table 4.13 Summary of policy suggestions

Policy Suggestions	Deliverables	Responsibility	Timing/Duration
1. <b>Strengthening the NHF scheme</b>	<ul style="list-style-type: none"> <li>Amendment of the NHF Act</li> <li>Enforcement of contribution to the NHF scheme</li> <li>Integration of pension funds into the NHF scheme</li> <li>Enactment of policies to divert funds in dormant accounts of commercial banks and unclaimed dividends to the NHF</li> </ul>	National Assembly CBN/FMBN CBN/PENCOM CBN/National Assembly	Medium term Short term Medium term Medium term
2. <b>Capacity building for PMBs</b>	<ul style="list-style-type: none"> <li>Recapitalize PMBs</li> <li>Enhance the operational efficiency of PMBs</li> <li>Expand the scope and coverage of PMBs</li> </ul>	CBN FMBN/MBAN CBN/FMBN/MBAN	Short term <sup>6</sup> Medium term Short term
3. <b>Integrating the mortgage market into the capital market</b>	<ul style="list-style-type: none"> <li>Establishment and sustenance of a secondary mortgage market</li> <li>Government should develop a framework to enable the Central Bank to swap mortgage assets of commercial banks for treasury bills, and weighting mortgage asset for reserve requirements</li> </ul>	CBN/ Ministry of Finance/FMBN/SEC  CBN	Long term <sup>7</sup>  Medium term
4. <b>Setting up appropriate infrastructures and/or remodelling existing ones to enhance an efficient primary mortgage market</b>	<ul style="list-style-type: none"> <li>Formalize tenure for existing land/property owners</li> <li>Reduction in transaction costs</li> <li>Conversion of State housing corporations into land companies with a mandate to develop new geographical areas in each state</li> <li>Government should facilitate the automation and eventual integration of all records and processes of local, state and federal government land registries</li> </ul>	State Governors State Governors Individual state governments – Executive/legislature State executive/ commissioner for housing	Long term Medium term Medium term (about 2 years) Long term
5. <b>Introduction of a new legal framework to strengthen property/security rights</b>	<ul style="list-style-type: none"> <li>Abolition of the Land Use Act</li> <li>Removal of the requirement for the governor’s consent on land transactions in the Land Use Act</li> <li>Establish an efficient foreclosure system</li> </ul>	National Assembly National Assembly  National Assembly	Medium term Medium term  Long term

<sup>6</sup> Ongoing<sup>7</sup> Ongoing

## 4.5.2 Conclusion

This project has investigated existing and potential sources of funds for finance providers and consumers, and strategies that could be adopted to secure long-term funds and to enhance the efficiency of the Nigerian mortgage sector from the perspective of the three principal stakeholders in the sector – consumers, finance providers and the government.

The results reveal that despite the fact that at the moment, mortgage finance is not available to a large proportion of low- and middle-income earners, these categories of consumers consider loans from mortgage banks to be the most adequate source of housing finance and appear very willing to explore the mortgage banks (rather than the commercial banks) for housing funds. This suggests that there will be a ready market for mortgage finance providers if they could secure funds that are adequate for long-term lending and design innovative products that will be affordable for this segment of the population. Consumers are also willing to explore government controlled depository funds targeted at specific workforce groups.

The results also show that mortgage finance providers are more willing to secure funds for lending through deposits and NHF funds (in spite of their inadequacy to meet the demand for mortgage finance in Nigeria), rather than from the capital market. This could pose threats to the successful launch of the proposed NMRC. It appears that in addition to the reforms on the legislation and bureaucracy regulating housing finance and housing transactions, serious re-orientation and sensitization of the cultural-cognitive component of the sector is imperative. Both finance providers and consumers need to be educated on the advantages of utilizing the capital market for mortgage financing. This further necessitates the need to explore other housing finance systems/models that are not dominated by the capital market in order to find out how their products and structures are relevant to the Nigerian mortgage sector, the lessons that can be learned from them, and how they could be used to enhance mortgage financing in Nigeria.

Respondents from the three classes of stakeholders also made suggestions for policy and reforms in the following areas: establishment of clear property and security rights; establishment of a transparent, efficient and inexpensive titling/property registration process; attracting/generating long-term funds for lending; regulatory and legislative reforms; and, the development of an effective foreclosure process.

The issue of housing finance is a complex one. There is no single solution that can be proffered to resolve its issues. However, a key strategy employed in many countries is public policy to encourage home ownership through fiscal incentives and better availability of funds. No doubt there has been some improvement in this regard in Nigeria in the past decade, yet there is still so much to be done to make the sector on a par with other emerging economies and developed economies.

Housing finance in Nigeria needs to be a political priority due to the scale of the present problems, and the social and economic significance of the housing sector. Also, problems of housing and housing finance need to be addressed in an integrated and all-encompassing way, by taking into account socio-economic considerations as well as legal, institutional, and financial framework conditions.

To implement the recommendations made in this project, a consensual approach will be needed between the public and private sectors. Considering the high population of the low-income echelon in the nation, the government needs to provide resources to improve the access of this segment of the population to housing finance. With the current level of development and efficiency of housing finance providers, it is unrealistic to expect the private market to provide affordable finance for the non-bankable population. Government's help in initiating programmes to stimulate savings for housing and provide subsidies that will improve the housing solutions for the low-income households would further aid in making housing finance available and affordable.

The policy recommendations made in this project can be implemented faster and with more encouraging results when executed under a public-private partnership. Experience in numerous emerging economies has shown that a sole private and sole public approach to housing finance usually leads to the same unsuccessful end. Harnessing the resources of the government with the will, capacity, intellectual ability, and prowess of the private sector will go a long way in realizing these policy objectives.

Implementing these policies should, however, not stop at the development of appropriate frameworks alone. All agencies and institutions involved should ensure that policy initiatives embarked upon are followed through. They should also ensure that enacted policies are effectively and efficiently enforced. To this end, a functioning institutional framework needs to be in place to avoid divisions and uncertainties regarding institutional responsibilities in initiating, implementing and enforcing policies.

While a perfect legal framework and institutional environment would be ideal for the mortgage sector in Nigeria, with some adjustments, much could be achieved even with the way things are at the moment. Even developed countries do not have perfect systems, yet they have been able to develop effective systems in spite of the imperfections that exist. With some adjustment and workaround, such as those recommended in this thesis, the mortgage sector could experience considerable expansion. While the review of existing laws and enactment of new legislation that the sector needs are underway, short-term reforms that do not require changes in the existing laws could be executed.

In view of increasing urbanization and rapid population growth, the demand for housing finance will continue to grow. There is, therefore, the need for finance providers to build their capacity for lending. The integration of the mortgage market into the capital market is an effective avenue for financial capacity building, and access to much-needed long-term funds. Finance providers need to be properly educated and enlightened on the dynamics of the capital market and on how to harness the opportunities it provides for sourcing long-

term funds for the housing sector. Finance providers also need to develop innovative financial instruments with the necessary safeguards to preserve financial stability, to extend housing finance to a wider section of the population, and close up the widening demand-supply gap.

While the need to address institutional factors that impair the efficiency of the mortgage sector have been emphasized over and over again, it is also important to make concerted efforts to address the cultural-cognitive factors that constitute barriers to the development and efficiency of the mortgage sector.

### **4.5.3 Areas for further research**

Due to the importance of housing and the multi-faceted issues that housing finance involves, policy issues on housing and housing finance cannot be exhaustive. Considering the level of development in the Nigerian mortgage sector in terms of infrastructure, products, and the strength of the legal environment available for a securitized mortgage finance system, further research to examine other forms of housing finance systems that are not based on securitization is necessary.

Other housing finance systems such as the Danish system of covered bonds, the Canadian/Japanese guarantee model, the Australian/UK depository model and the European covered bond model should be closely investigated to see what lessons can be drawn from them for the Nigerian mortgage sector. These systems performed better than the US mortgage system during the subprime crisis (Lea, 2010). The strengths and weaknesses of these housing finance systems should be examined with respect to the type of product(s) they offer, their system of underwriting, sources of funds, and the level of government involvement. Lessons on policy issues to improve the Nigerian market could be drawn.

Further research into innovative financial instruments that can be designed to extend formal housing finance to the burgeoning low- and middle-income population would go a long way to help maximize available funds and extend the scope and coverage of formal housing finance in Nigeria.

There also exist opportunities for research in the area of availability and adequacy of human capital for the mortgage banking sector. In order to operate an efficient mortgage banking sector, a pool of well-trained and adequate staff needs to be available for employment by the mortgage banks. In Nigeria where the commercial banks pay as high as double the salary of mortgage banks, it is difficult for mortgage banks to attract the required expertise to run efficient operations. Where staff are employed and trained, they then seek better paid employment in commercial banks and leave the mortgage banks. It will be therefore necessary for a research to be carried out to ascertain if adequate human capital is available for employment, and how they can be retained in the mortgage banking sector after having been employed and trained.

## **APPENDICES PROJECT 3**

### **Appendix 1**

#### **List of government agencies**

36 State Housing Corporations

36 State Ministries of Housing and Urban Development

Federal Housing Authority (FHA)

Federal Mortgage Bank of Nigeria (FMBN)

Lagos State Development and Property Corporation (LSDPC)

Ogun State Property Investment Company (OPIC)

Central Bank of Nigeria (CBN)

**Appendix 2**  
**QUESTIONNAIRES**  
**Questionnaire 1 - Consumers**

Dear respondent,

I would like to thank you for time taken out of your busy schedule to participate in this survey. I am a graduate student of Cranfield School of Management, undertaking a DBA in mortgage finance focused on enhancing the efficiency of the mortgage market.

As a prerequisite to my final DBA dissertation, I am undertaking a project to devise strategies for enhancing the efficiency of the mortgage market in Nigeria and I believe that your views as a mortgage consumer will generate pertinent information that can serve as fundamental basis for developing appropriate strategies and formulating relevant policies.

Your responses to this survey will be treated confidentially and your identity will be kept anonymous. I am not looking for any particular answer, so answer all questions as honestly as possible and return the completed questionnaires promptly. Also, the data collected are strictly for academic research purpose; your name or any other identifying information will not appear in any study report. All results from this exercise will be reported as statistical summaries.

I offer to send you the final consolidated results of this research if you are interested in receiving them. Participation is strictly voluntary and you may refuse to participate at any time.

Thank you once again for your participation.

Regards,

Femi Johnson

# Enabling Policies that promote efficient mortgage market operations: Consumers' Perspective

## Background Information

**1. Please indicate your gender**

- (i) Male            (ii) Female

**2. Please indicate your age range**

- (i) 21 – 30 years    (ii) 31 – 40 years    (iii) 41 – 50 years    (iv) 51 – 60 years  
(v) Over 60 years

**3. Please indicate your highest academic qualification**

- (i) Secondary School  
(ii) Bachelor's Degree (BSc./BTech/BEng/HND or equivalent)  
(iii) Associate Degree (PGD or equivalent)  
(iv) Master's Degree (MSc./MEng/MBA/MPM or equivalent)  
(v) Doctorates Degree (PhD/DBA or equivalent)

**4. Other qualifications (Please specify)**

## Existing sources of housing finance

**1. From which of the following sources are you likely to source for housing finance?**

• **Mortgage Bank**

- Extremely likely             Very likely             Moderately likely  
 Slightly likely             Not at all likely

• **Commercial Bank**

- Extremely likely             Very likely             Moderately likely  
 Slightly likely             Not at all likely

• **National Housing Trust Fund**

- Extremely likely             Very likely             Moderately likely  
 Slightly likely             Not at all likely

• **Micro-Finance Bank**

- Extremely likely             Very likely             Moderately likely  
 Slightly likely             Not at all likely

• **Developer**

- Extremely likely             Very likely             Moderately likely  
 Slightly likely             Not at all likely

• **Loan from Employer**

- Extremely likely             Very likely             Moderately likely  
 Slightly likely             Not at all likely

• **Government Programmes**

- Extremely likely             Very likely             Moderately likely  
 Slightly likely             Not at all likely

## Enabling Policies that promote efficient mortgage market operations: Consumers' Perspective

### Existing sources of housing finance

- **Family and friends**  
 Extremely likely       Very likely       Moderately likely  
 Slightly likely       Not at all likely

#### 2. How easy is it to obtain housing finance from any of the following sources?

- **Mortgage Bank**  
 Extremely easy       Very easy       Moderately easy  
 Slightly easy       Not at all easy

- **Commercial Bank**  
 Extremely easy       Very easy       Moderately easy  
 Slightly easy       Not at all easy

- **National Housing Trust Fund**  
 Extremely easy       Very easy       Moderately easy  
 Slightly easy       Not at all easy

- **Micro-Finance Bank**  
 Extremely easy       Very easy       Moderately easy  
 Slightly easy       Not at all easy

- **Developer**  
 Extremely easy       Very easy       Moderately easy  
 Slightly easy       Not at all easy

- **Loan from Employer**  
 Extremely easy       Very easy       Moderately easy  
 Slightly easy       Not at all easy

- **Government Programmes**  
 Extremely easy       Very easy       Moderately easy  
 Slightly easy       Not at all easy

- **Family and friends**  
 Extremely easy       Very easy       Moderately easy  
 Slightly easy       Not at all easy

## Enabling Policies that promote efficient mortgage market operations: Consumers' Perspective

### Potential sources of housing finance

3. How appropriate do you think the following housing finance schemes will be if they are set up?

- |   |   |   |   |   |   |  |
|---|---|---|---|---|---|--|
| <ul style="list-style-type: none"> <li>Government financed scheme for civil servants/public sector workers                             <table border="0"> <tr> <td><input type="checkbox"/> Extremely appropriate</td> <td><input type="checkbox"/> Very appropriate</td> <td><input type="checkbox"/> Moderately appropriate</td> </tr> <tr> <td><input type="checkbox"/> Slightly appropriate</td> <td><input type="checkbox"/> Not at all appropriate</td> <td></td> </tr> </table> </li> </ul>                  | <input type="checkbox"/> Extremely appropriate  | <input type="checkbox"/> Very appropriate       | <input type="checkbox"/> Moderately appropriate | <input type="checkbox"/> Slightly appropriate | <input type="checkbox"/> Not at all appropriate |  |
| <input type="checkbox"/> Extremely appropriate  | <input type="checkbox"/> Very appropriate       | <input type="checkbox"/> Moderately appropriate |   |   |   |  |
| <input type="checkbox"/> Slightly appropriate   | <input type="checkbox"/> Not at all appropriate |   |   |   |   |  |
| <ul style="list-style-type: none"> <li>Government financed scheme for private sector workers                             <table border="0"> <tr> <td><input type="checkbox"/> Extremely appropriate</td> <td><input type="checkbox"/> Very appropriate</td> <td><input type="checkbox"/> Moderately appropriate</td> </tr> <tr> <td><input type="checkbox"/> Slightly appropriate</td> <td><input type="checkbox"/> Not at all appropriate</td> <td></td> </tr> </table> </li> </ul>                                | <input type="checkbox"/> Extremely appropriate  | <input type="checkbox"/> Very appropriate       | <input type="checkbox"/> Moderately appropriate | <input type="checkbox"/> Slightly appropriate | <input type="checkbox"/> Not at all appropriate |  |
| <input type="checkbox"/> Extremely appropriate  | <input type="checkbox"/> Very appropriate       | <input type="checkbox"/> Moderately appropriate |   |   |   |  |
| <input type="checkbox"/> Slightly appropriate   | <input type="checkbox"/> Not at all appropriate |   |   |   |   |  |
| <ul style="list-style-type: none"> <li>Government financed scheme for self-employed, retired and non-working class citizens                             <table border="0"> <tr> <td><input type="checkbox"/> Extremely appropriate</td> <td><input type="checkbox"/> Very appropriate</td> <td><input type="checkbox"/> Moderately appropriate</td> </tr> <tr> <td><input type="checkbox"/> Slightly appropriate</td> <td><input type="checkbox"/> Not at all appropriate</td> <td></td> </tr> </table> </li> </ul> | <input type="checkbox"/> Extremely appropriate  | <input type="checkbox"/> Very appropriate       | <input type="checkbox"/> Moderately appropriate | <input type="checkbox"/> Slightly appropriate | <input type="checkbox"/> Not at all appropriate |  |
| <input type="checkbox"/> Extremely appropriate  | <input type="checkbox"/> Very appropriate       | <input type="checkbox"/> Moderately appropriate |   |   |   |  |
| <input type="checkbox"/> Slightly appropriate   | <input type="checkbox"/> Not at all appropriate |   |   |   |   |  |
| <ul style="list-style-type: none"> <li>Federal subsidy for the unemployed                             <table border="0"> <tr> <td><input type="checkbox"/> Extremely appropriate</td> <td><input type="checkbox"/> Very appropriate</td> <td><input type="checkbox"/> Moderately appropriate</td> </tr> <tr> <td><input type="checkbox"/> Slightly appropriate</td> <td><input type="checkbox"/> Not at all appropriate</td> <td></td> </tr> </table> </li> </ul>   | <input type="checkbox"/> Extremely appropriate  | <input type="checkbox"/> Very appropriate       | <input type="checkbox"/> Moderately appropriate | <input type="checkbox"/> Slightly appropriate | <input type="checkbox"/> Not at all appropriate |  |
| <input type="checkbox"/> Extremely appropriate  | <input type="checkbox"/> Very appropriate       | <input type="checkbox"/> Moderately appropriate |   |   |   |  |
| <input type="checkbox"/> Slightly appropriate   | <input type="checkbox"/> Not at all appropriate |   |   |   |   |  |
| <ul style="list-style-type: none"> <li>Interest free lending systems such as Islamic banking                             <table border="0"> <tr> <td><input type="checkbox"/> Extremely appropriate</td> <td><input type="checkbox"/> Very appropriate</td> <td><input type="checkbox"/> Moderately appropriate</td> </tr> <tr> <td><input type="checkbox"/> Slightly appropriate</td> <td><input type="checkbox"/> Not at all appropriate</td> <td></td> </tr> </table> </li> </ul>                                | <input type="checkbox"/> Extremely appropriate  | <input type="checkbox"/> Very appropriate       | <input type="checkbox"/> Moderately appropriate | <input type="checkbox"/> Slightly appropriate | <input type="checkbox"/> Not at all appropriate |  |
| <input type="checkbox"/> Extremely appropriate  | <input type="checkbox"/> Very appropriate       | <input type="checkbox"/> Moderately appropriate |   |   |   |  |
| <input type="checkbox"/> Slightly appropriate   | <input type="checkbox"/> Not at all appropriate |   |   |   |   |  |
| <ul style="list-style-type: none"> <li>Government administered pension funds                             <table border="0"> <tr> <td><input type="checkbox"/> Extremely appropriate</td> <td><input type="checkbox"/> Very appropriate</td> <td><input type="checkbox"/> Moderately appropriate</td> </tr> <tr> <td><input type="checkbox"/> Slightly appropriate</td> <td><input type="checkbox"/> Not at all appropriate</td> <td></td> </tr> </table> </li> </ul>  | <input type="checkbox"/> Extremely appropriate  | <input type="checkbox"/> Very appropriate       | <input type="checkbox"/> Moderately appropriate | <input type="checkbox"/> Slightly appropriate | <input type="checkbox"/> Not at all appropriate |  |
| <input type="checkbox"/> Extremely appropriate  | <input type="checkbox"/> Very appropriate       | <input type="checkbox"/> Moderately appropriate |   |   |   |  |
| <input type="checkbox"/> Slightly appropriate   | <input type="checkbox"/> Not at all appropriate |   |   |   |   |  |
| <ul style="list-style-type: none"> <li>Private sector administered pension funds                             <table border="0"> <tr> <td><input type="checkbox"/> Extremely appropriate</td> <td><input type="checkbox"/> Very appropriate</td> <td><input type="checkbox"/> Moderately appropriate</td> </tr> <tr> <td><input type="checkbox"/> Slightly appropriate</td> <td><input type="checkbox"/> Not at all appropriate</td> <td></td> </tr> </table> </li> </ul>  | <input type="checkbox"/> Extremely appropriate  | <input type="checkbox"/> Very appropriate       | <input type="checkbox"/> Moderately appropriate | <input type="checkbox"/> Slightly appropriate | <input type="checkbox"/> Not at all appropriate |  |
| <input type="checkbox"/> Extremely appropriate  | <input type="checkbox"/> Very appropriate       | <input type="checkbox"/> Moderately appropriate |   |   |   |  |
| <input type="checkbox"/> Slightly appropriate   | <input type="checkbox"/> Not at all appropriate |   |   |   |   |  |
| <ul style="list-style-type: none"> <li>Housing specific co-operative societies                             <table border="0"> <tr> <td><input type="checkbox"/> Extremely appropriate</td> <td><input type="checkbox"/> Very appropriate</td> <td><input type="checkbox"/> Moderately appropriate</td> </tr> <tr> <td><input type="checkbox"/> Slightly appropriate</td> <td><input type="checkbox"/> Not at all appropriate</td> <td></td> </tr> </table> </li> </ul>  | <input type="checkbox"/> Extremely appropriate  | <input type="checkbox"/> Very appropriate       | <input type="checkbox"/> Moderately appropriate | <input type="checkbox"/> Slightly appropriate | <input type="checkbox"/> Not at all appropriate |  |
| <input type="checkbox"/> Extremely appropriate  | <input type="checkbox"/> Very appropriate       | <input type="checkbox"/> Moderately appropriate |   |   |   |  |
| <input type="checkbox"/> Slightly appropriate   | <input type="checkbox"/> Not at all appropriate |   |   |   |   |  |
| <ul style="list-style-type: none"> <li>Housing finance by insurance companies                             <table border="0"> <tr> <td><input type="checkbox"/> Extremely appropriate</td> <td><input type="checkbox"/> Very appropriate</td> <td><input type="checkbox"/> Moderately appropriate</td> </tr> <tr> <td><input type="checkbox"/> Slightly appropriate</td> <td><input type="checkbox"/> Not at all appropriate</td> <td></td> </tr> </table> </li> </ul>   | <input type="checkbox"/> Extremely appropriate  | <input type="checkbox"/> Very appropriate       | <input type="checkbox"/> Moderately appropriate | <input type="checkbox"/> Slightly appropriate | <input type="checkbox"/> Not at all appropriate |  |
| <input type="checkbox"/> Extremely appropriate  | <input type="checkbox"/> Very appropriate       | <input type="checkbox"/> Moderately appropriate |   |   |   |  |
| <input type="checkbox"/> Slightly appropriate   | <input type="checkbox"/> Not at all appropriate |   |   |   |   |  |

## Enabling Policies that promote efficient mortgage market operations: Consumers' Perspective

4. In addition to the existing sources, how willing would you be to access housing credit from any of the following schemes if they were available?

- Government financed scheme for civil servants/public sector workers

Extremely willing       Very willing       Moderately willing  
 Slightly willing       Not at all willing

- Government financed scheme for private sector workers

Extremely willing       Very willing       Moderately willing  
 Slightly willing       Not at all willing

- Government financed scheme for self-employed, retired and non-working class citizens

Extremely willing       Very willing       Moderately willing  
 Slightly willing       Not at all willing

- Federal subsidy for the unemployed

Extremely willing       Very willing       Moderately willing  
 Slightly willing       Not at all willing

- Interest free lending systems such as Islamic banking

Extremely willing       Very willing       Moderately willing  
 Slightly willing       Not at all willing

- Government administered pension funds

Extremely willing       Very willing       Moderately willing  
 Slightly willing       Not at all willing

- Private sector administered pension funds

Extremely willing       Very willing       Moderately willing  
 Slightly willing       Not at all willing

- Housing specific co-operative societies

Extremely willing       Very willing       Moderately willing  
 Slightly willing       Not at all willing

- Housing finance by insurance companies

Extremely willing       Very willing       Moderately willing  
 Slightly willing       Not at all willing





Others

## Questionnaire 2 – Financiers

Dear respondent,

I would like to thank you for time taken out of your busy schedule to participate in this survey. I am a graduate student of Cranfield School of Management, undertaking a DBA in mortgage finance focused on enhancing the efficiency of the mortgage market.

As a prerequisite to my final DBA dissertation, I am undertaking a project to devise strategies for enhancing the efficiency of the mortgage market in Nigeria and I believe that your views as a mortgage finance provider will generate pertinent information that can serve as a fundamental basis for developing appropriate strategies and formulating relevant policies.

Your responses to this survey will be treated confidentially and your identity will be kept anonymous. I am not looking for any particular answer, so answer all questions as honestly as possible and return the completed questionnaires promptly. Also, the data collected are strictly for academic research purpose; your name or any other identifying information will not appear in any study report. All results from this exercise will be reported as statistical summaries.

I offer to send you the final consolidated results of this research if you are interested in receiving them. Participation is strictly voluntary and you may refuse to participate at any time.

Thank you once again for your participation.

Regards,

Femi Johnson

## Enabling Policies that promote efficient Mortgage market operations: Financiers' Perspective

### Background Information

1. **Please indicate your gender**  
(i) Male      (ii) Female
2. **Please indicate your age range**  
(i) 21 – 30 years   (ii) 31 – 40 years   (iii) 41 – 50 years   (iv) 51 – 60 years   (v) Over 60 years
3. **Please indicate your highest academic qualification**  
(i) Bachelor's Degree (BSc./BTech/BEng/HND or equivalent)  
(ii) Associate Degree (PGD or equivalent)  
(iii) Master's Degree (MSc./MEng/MBA/MPM or equivalent)  
(iv) Doctorates Degree (PhD/DBA or equivalent)
4. **Other qualifications (Please specify)**
5. **Please indicate how long you have been involved in the housing sector?**  
(i) 1 – 5 years   (ii) 6 – 10 years   (iii) 11 – 15 years   (iv) 16 – 20 years   (v) Over 20 years
6. **Please indicate your profession**  
(i) Architect      (ii) Banker      (iii) Civil/Structural Engineer  
(iv) Estate Surveyor   (v) Legal Practitioner   (vi) Real Estate Consultant  
(vii) Town Planner      (viii) Quantity Surveyor  
(ix) Others (Please Specify)

### Sources of funds for mortgage finance

#### 1. Please indicate your current sources of funds and the extent of availability

##### 1a. Equity

- |  |   |   |
|--|---|---|
| <input type="checkbox"/> Extremely available | <input type="checkbox"/> Very available       | <input type="checkbox"/> Moderately available |
| <input type="checkbox"/> Slightly available  | <input type="checkbox"/> Not at all available |   |

##### 1b. Term loans

- |  |   |   |
|--|---|---|
| <input type="checkbox"/> Extremely available | <input type="checkbox"/> Very available       | <input type="checkbox"/> Moderately available |
| <input type="checkbox"/> Slightly available  | <input type="checkbox"/> Not at all available |   |

##### 1c. Deposits

- |  |   |   |
|--|---|---|
| <input type="checkbox"/> Extremely available | <input type="checkbox"/> Very available       | <input type="checkbox"/> Moderately available |
| <input type="checkbox"/> Slightly available  | <input type="checkbox"/> Not at all available |   |

##### 1d. Pension funds

- |  |   |   |
|--|---|---|
| <input type="checkbox"/> Extremely available | <input type="checkbox"/> Very available       | <input type="checkbox"/> Moderately available |
| <input type="checkbox"/> Slightly available  | <input type="checkbox"/> Not at all available |   |

##### 1e. Insurance funds

- |  |   |   |
|--|---|---|
| <input type="checkbox"/> Extremely available | <input type="checkbox"/> Very available       | <input type="checkbox"/> Moderately available |
| <input type="checkbox"/> Slightly available  | <input type="checkbox"/> Not at all available |   |

## Enabling Policies that promote efficient Mortgage market operations: Financiers' Perspective

### Sources of funds for mortgage finance

1f. Mortgage bonds	<input type="checkbox"/> Extremely available	<input type="checkbox"/> Very available	<input type="checkbox"/> Moderately available
	<input type="checkbox"/> Slightly available	<input type="checkbox"/> Not at all available	
1g. Mortgage-backed securities	<input checked="" type="checkbox"/> Extremely available	<input type="checkbox"/> Very available	<input type="checkbox"/> Moderately available
	<input type="checkbox"/> Slightly available	<input type="checkbox"/> Not at all available	
1h. Shareholders' funds	<input type="checkbox"/> Extremely available	<input type="checkbox"/> Very available	<input type="checkbox"/> Moderately available
	<input type="checkbox"/> Slightly available	<input type="checkbox"/> Not at all available	
1i. Grant from government	<input type="checkbox"/> Extremely available	<input type="checkbox"/> Very available	<input type="checkbox"/> Moderately available
	<input type="checkbox"/> Slightly available	<input type="checkbox"/> Not at all available	
2. How adequate is/are your sources of funds for long-term lending?			
2a. Equity	<input type="checkbox"/> Extremely adequate	<input type="checkbox"/> Very adequate	<input type="checkbox"/> Moderately adequate
	<input type="checkbox"/> Slightly adequate	<input type="checkbox"/> Not at all adequate	
2b. Term loans	<input type="checkbox"/> Extremely adequate	<input type="checkbox"/> Very adequate	<input type="checkbox"/> Moderately adequate
	<input type="checkbox"/> Slightly adequate	<input type="checkbox"/> Not at all adequate	
2c. Deposits	<input type="checkbox"/> Extremely adequate	<input type="checkbox"/> Very adequate	<input type="checkbox"/> Moderately adequate
	<input type="checkbox"/> Slightly adequate	<input type="checkbox"/> Not at all adequate	
2d. Pension funds	<input type="checkbox"/> Extremely adequate	<input type="checkbox"/> Very adequate	<input type="checkbox"/> Moderately adequate
	<input type="checkbox"/> Slightly adequate	<input type="checkbox"/> Not at all adequate	
2e. Insurance funds	<input type="checkbox"/> Extremely adequate	<input type="checkbox"/> Very adequate	<input type="checkbox"/> Moderately adequate
	<input type="checkbox"/> Slightly adequate	<input type="checkbox"/> Not at all adequate	
2f. Mortgage bonds	<input type="checkbox"/> Extremely adequate	<input type="checkbox"/> Very adequate	<input type="checkbox"/> Moderately adequate
	<input type="checkbox"/> Slightly adequate	<input type="checkbox"/> Not at all adequate	
2g. Mortgage-backed securities	<input type="checkbox"/> Extremely adequate	<input type="checkbox"/> Very adequate	<input type="checkbox"/> Moderately adequate
	<input type="checkbox"/> Slightly adequate	<input type="checkbox"/> Not at all adequate	
2h. Shareholders' funds	<input type="checkbox"/> Extremely adequate	<input type="checkbox"/> Very adequate	<input type="checkbox"/> Moderately adequate
	<input type="checkbox"/> Slightly adequate	<input type="checkbox"/> Not at all adequate	

## Enabling Policies that promote efficient Mortgage market operations: Financiers' Perspective

### Sources of funds for mortgage finance

- 2i. Grant from government
- |   |  |  |
|---|--|--|
| <input type="checkbox"/> Extremely adequate | <input type="checkbox"/> Very adequate       | <input type="checkbox"/> Moderately adequate |
| <input type="checkbox"/> Slightly adequate  | <input type="checkbox"/> Not at all adequate |  |

3. How adequate are the following options for attracting funds from the capital market for mortgage lending?

### Single lender assessing the capital market

- Placement of full faith and credit bonds
 

<input type="checkbox"/> Extremely adequate	<input type="checkbox"/> Very adequate	<input type="checkbox"/> Moderately adequate
<input type="checkbox"/> Slightly adequate	<input type="checkbox"/> Not at all adequate	
- Placement of bonds formally secured by mortgage loans
 

<input type="checkbox"/> Extremely adequate	<input type="checkbox"/> Very adequate	<input type="checkbox"/> Moderately adequate
<input type="checkbox"/> Slightly adequate	<input type="checkbox"/> Not at all adequate	
- Open sale of full faith and credit bonds
 

<input type="checkbox"/> Extremely adequate	<input type="checkbox"/> Very adequate	<input type="checkbox"/> Moderately adequate
<input type="checkbox"/> Slightly adequate	<input type="checkbox"/> Not at all adequate	
- Open sale of securitized bonds
 

<input type="checkbox"/> Extremely adequate	<input type="checkbox"/> Very adequate	<input type="checkbox"/> Moderately adequate
<input type="checkbox"/> Slightly adequate	<input type="checkbox"/> Not at all adequate	

### Assessing the capital market through a secondary facility

- Facility refinances, with full recourse loans that remain on the lenders' books; pass through securities for a loan pool are sold in the market
 

<input type="checkbox"/> Extremely adequate	<input type="checkbox"/> Very adequate	<input type="checkbox"/> Moderately adequate
<input type="checkbox"/> Slightly adequate	<input type="checkbox"/> Not at all adequate	
- Facility refinances, with full recourse loans that remain on the lenders' books; bonds based generally on these assets are sold in the market
 

<input type="checkbox"/> Extremely adequate	<input type="checkbox"/> Very adequate	<input type="checkbox"/> Moderately adequate
<input type="checkbox"/> Slightly adequate	<input type="checkbox"/> Not at all adequate	
- Facility purchases loans with full recourse; bonds based generally on these assets are sold in the market
 

<input type="checkbox"/> Extremely adequate	<input type="checkbox"/> Very adequate	<input type="checkbox"/> Moderately adequate
<input type="checkbox"/> Slightly adequate	<input type="checkbox"/> Not at all adequate	

- Facility purchases loans without recourse; securitized bonds sold in the market
 

<input type="checkbox"/> Extremely adequate	<input type="checkbox"/> Very adequate	<input type="checkbox"/> Moderately adequate
<input type="checkbox"/> Slightly adequate	<input type="checkbox"/> Not at all adequate	

## Enabling Policies that promote efficient Mortgage market operations: Financiers' Perspective

### 4. How viable are the following avenues for generating long-term funds for mortgage lending

- Funds in Dormant Accounts of commercial banks and other financial institutions
 

<input type="checkbox"/> Extremely viable	<input type="checkbox"/> Very viable	<input type="checkbox"/> Moderately viable
<input type="checkbox"/> Slightly viable	<input type="checkbox"/> Not at all viable	
- Pension funds
 

<input type="checkbox"/> Extremely viable	<input type="checkbox"/> Very viable	<input type="checkbox"/> Moderately viable
<input type="checkbox"/> Slightly viable	<input type="checkbox"/> Not at all viable e	
- Unclaimed Dividends
 

<input type="checkbox"/> Extremely viable	<input type="checkbox"/> Very viable	<input type="checkbox"/> Moderately viable
<input type="checkbox"/> Slightly viable	<input type="checkbox"/> Not at all viable	
- Government Intervention Funding
 

<input type="checkbox"/> Extremely viable	<input type="checkbox"/> Very viable	<input type="checkbox"/> Moderately viable
<input type="checkbox"/> Slightly viable	<input type="checkbox"/> Not at all viable	

### 5. How serious are the following types of risk to mortgage lending?

- Credit Risk
 

<input type="checkbox"/> Extremely severe	<input type="checkbox"/> Very Severe	<input type="checkbox"/> Moderately severe
<input type="checkbox"/> Slightly severe	<input type="checkbox"/> Not at all severe	
- Interest Rate Risk
 

<input type="checkbox"/> Extremely severe	<input type="checkbox"/> Very Severe	<input type="checkbox"/> Moderately severe
<input type="checkbox"/> Slightly severe	<input type="checkbox"/> Not at all severe	
- Liquidity Risk
 

<input type="checkbox"/> Extremely severe	<input type="checkbox"/> Very Severe	<input type="checkbox"/> Moderately severe
<input type="checkbox"/> Slightly severe	<input type="checkbox"/> Not at all severe	
- Prepayment Risk
 

<input type="checkbox"/> Extremely severe	<input type="checkbox"/> Very Severe	<input type="checkbox"/> Moderately severe
<input type="checkbox"/> Slightly severe	<input type="checkbox"/> Not at all severe	

## Strategies for Improving the Mortgage market

### 6. How viable are the following strategies for improving the mortgage market?

#### Policy formulation/review

- Government should formulate a policy to enable workers to use part of their pensions for mortgage repayment
 

<input type="checkbox"/> Extremely necessary	<input type="checkbox"/> Very necessary	<input type="checkbox"/> Moderately necessary
<input type="checkbox"/> Slightly necessary	<input type="checkbox"/> Not at all necessary	
- Government should review the NHF policy to encourage more contributions to the scheme
 

<input type="checkbox"/> Extremely necessary	<input type="checkbox"/> Very necessary	<input type="checkbox"/> Moderately necessary
<input type="checkbox"/> Slightly necessary	<input type="checkbox"/> Not at all necessary	
- Government should formulate policy to divert an agreed percentage of pension funds to the mortgage sector
 

<input type="checkbox"/> Extremely necessary	<input type="checkbox"/> Very necessary	<input type="checkbox"/> Moderately necessary
<input type="checkbox"/> Slightly necessary	<input type="checkbox"/> Not at all necessary	

## Enabling Policies that promote efficient Mortgage market operations: Financiers' Perspective

### Strategies for Improving the Mortgage market

#### Information and training

- CBN and other industry regulators should provide comprehensive information development on the mortgage market

Extremely necessary       Very necessary       Moderately necessary  
 Slightly necessary       Not at all necessary

- CBN and other industry regulators should ensure that information on the mortgagor's rights is widely promulgated with consumer protection agencies addressing the same for non-bank lenders

Extremely necessary       Very necessary       Moderately necessary  
 Slightly necessary       Not at all necessary

- CBN and other trade associations such as MBAN should provide information and training on loan instruments designed to operate in emerging markets

Extremely necessary       Very necessary       Moderately necessary  
 Slightly necessary       Not at all necessary

- CBN and other trade associations such as MBAN should offer training for loan officers on loan underwriting, servicing and risk management

Extremely necessary       Very necessary       Moderately necessary  
 Slightly necessary       Not at all necessary

#### Expansion of Market Coverage

- Government should create public sector agencies to offer mortgage insurance services

Extremely necessary       Very necessary       Moderately necessary  
 Slightly necessary       Not at all necessary

- Government should encourage private sector insurance companies to offer mortgage insurance services

Extremely necessary       Very necessary       Moderately necessary  
 Slightly necessary       Not at all necessary

- Government should encourage commercial banks to give long-term loans to mortgage banks for housing finance by providing protection against losses

Extremely necessary       Very necessary       Moderately necessary  
 Slightly necessary       Not at all necessary

#### Improving the Efficiency of the mortgage sector

- Government should create property appraisal services

Extremely necessary       Very necessary       Moderately necessary  
 Slightly necessary       Not at all necessary

## Enabling Policies that promote efficient Mortgage market operations: Financiers' Perspective

### Strategies for Improving the Mortgage market

- Government should create a credit bureau information service

Extremely necessary       Very necessary       Moderately necessary  
 Slightly necessary       Not at all necessary

- Government in conjunction with PMBs, should set up a secondary mortgage facility/company

Extremely necessary       Very necessary       Moderately necessary  
 Slightly necessary       Not at all necessary

- CBN should permit lower capital adequacy requirements on mortgage loans

Extremely necessary       Very necessary       Moderately necessary  
 Slightly necessary       Not at all necessary

- Government should give lenders tax advantages for mortgage loans

Extremely necessary       Very necessary       Moderately necessary  
 Slightly necessary       Not at all necessary

## Enabling Policies that promote efficient mortgage market operations: Financiers' Perspective

### Policy Recommendations

**7. What policy measures are necessary to enhance the availability of long-term funds for mortgage lending and to improve the efficiency of the mortgage sector at large. (You can attach additional sheets if the space provided is not enough)**

### Institutional Policies

(Policies about the legal and regulatory environment)


**Financial Policies**

**(Policies relating to sources of funds and mortgage products)**


**Infrastructural Policies**

**(Policies relating to physical, institutional and financial infrastructures)**


**Others**


## Questionnaire 3 – Government

Dear respondent,

I would like to thank you for time taken out of your busy schedule to participate in this survey. I am a graduate student of Cranfield School of Management, undertaking a DBA in mortgage finance focused on enhancing the efficiency of the mortgage market.

As a prerequisite to my final DBA dissertation, I am undertaking a project to devise strategies for enhancing the efficiency of the mortgage market in Nigeria and I believe that your views as an employee of a government agency involved in the mortgage and housing sector will generate pertinent information that can serve as a fundamental basis for developing appropriate strategies and formulating relevant policies.

Your responses to this survey will be treated confidentially and your identity will be kept anonymous. I am not looking for any particular answer, so answer all questions as honestly as possible and return the completed questionnaires promptly. Also, the data collected are strictly for academic research purpose; your name or any other identifying information will not appear in any study report. All results from this exercise will be reported as statistical summaries.

I offer to send you the final consolidated results of this research if you are interested in receiving them. Participation is strictly voluntary and you may refuse to participate at any time.

Thank you once again for your participation.

Regards,

Femi Johnson

## Enabling Policies that promote efficient Mortgage market operations: Governments' Perspective

### Background Information

1. **Please indicate your gender**  
(i) Male      (ii) Female
2. **Please indicate your age range**  
(i) 21 – 30 years   (ii) 31 – 40 years   (iii) 41 – 50 years   (iv) 51 – 60 years   (v) Over 60 years
3. **Please indicate your highest academic qualification**  
(i) Bachelor's Degree (BSc./BTech/BEng/HND or equivalent)  
(ii) Associate Degree (PGD or equivalent)  
(iii) Master's Degree (MSc./MEng/MBA/MPM or equivalent)  
(iv) Doctorates Degree (PhD/DBA or equivalent)
4. **Other qualifications (Please specify)**
5. **Please indicate how long you have been involved in the housing sector?**  
(i) 1 – 5 years   (ii) 6 – 10 years   (iii) 11 – 15 years   (iv) 16 – 20 years   (v) Over 20 years
6. **Please indicate your profession**  
(i) Architect      (ii) Banker      (iii) Civil/Structural Engineer  
(iv) Estate Surveyor   (v) Legal Practitioner   (vi) Real Estate Consultant  
(vii) Town Planner      (viii) Quantity Surveyor  
(ix) Other (Please Specify)
7. **Please indicate the government agency, parastatal or ministry you work with**

### Enhancing efficiency of government agencies handling mortgage/housing issues

1. **Based on the present bottlenecks in land/property registry and documentations, what can consumers' do to help the government serve them better?**

Consumers should provide comprehensive information during transactions in order to build an up-to-date credit information database

- |  |   |   |
|--|---|---|
| <input type="checkbox"/> Extremely necessary | <input type="checkbox"/> Very necessary       | <input type="checkbox"/> Moderately necessary |
| <input type="checkbox"/> Slightly necessary  | <input type="checkbox"/> Not at all necessary |   |

Consumers should promptly register land/property

- |  |   |   |
|--|---|---|
| <input type="checkbox"/> Extremely necessary | <input type="checkbox"/> Very necessary       | <input type="checkbox"/> Moderately necessary |
| <input type="checkbox"/> Slightly necessary  | <input type="checkbox"/> Not at all necessary |   |

Consumers should ensure that their survey documents tally with those of the official land/property registry

- |  |   |   |
|--|---|---|
| <input type="checkbox"/> Extremely necessary | <input type="checkbox"/> Very necessary       | <input type="checkbox"/> Moderately necessary |
| <input type="checkbox"/> Slightly necessary  | <input type="checkbox"/> Not at all necessary |   |

Consumers should pay the necessary fee for registration and processing promptly

- |  |   |   |
|--|---|---|
| <input type="checkbox"/> Extremely necessary | <input type="checkbox"/> Very necessary       | <input type="checkbox"/> Moderately necessary |
| <input type="checkbox"/> Slightly necessary  | <input type="checkbox"/> Not at all necessary |   |

Consumers should ensure that they have up-to-date tax clearance certificates before applying for property/land registration

- |  |   |   |
|--|---|---|
| <input type="checkbox"/> Extremely necessary | <input type="checkbox"/> Very necessary | <input type="checkbox"/> Moderately necessary |
|--|---|---|

<input type="checkbox"/> Slightly necessary	<input type="checkbox"/> Not at all necessary
<b>Consumers should ensure that their deeds of assignment or sale/purchase contract documents are without ambiguous clauses</b>	
<input type="checkbox"/> Extremely necessary	<input type="checkbox"/> Very necessary
<input type="checkbox"/> Slightly necessary	<input type="checkbox"/> Not at all necessary
<b>2. What can mortgage finance providers do to help government agencies discharge their duties better and more efficiently?</b>	
<b>Finance providers should reduce processing time for mortgage facilities</b>	
<input type="checkbox"/> Extremely necessary	<input type="checkbox"/> Very necessary
<input type="checkbox"/> Slightly necessary	<input type="checkbox"/> Not at all necessary
<b>Finance providers should ensure that customers submit correct and up-to-date documents for legal mortgage processing</b>	
<input type="checkbox"/> Extremely necessary	<input type="checkbox"/> Very necessary
<input type="checkbox"/> Slightly necessary	<input type="checkbox"/> Not at all necessary
<b>Finance providers should ensure that customers present up-to-date tax clearance certificates when applying for mortgage loans</b>	
<input type="checkbox"/> Extremely necessary	<input type="checkbox"/> Very necessary
<input type="checkbox"/> Slightly necessary	<input type="checkbox"/> Not at all necessary
<b>3. How can the government help to enhance the efficiency of the mortgage market?</b>	
<b>Government should reduce the fees on land/property registration</b>	
<input type="checkbox"/> Extremely necessary	<input type="checkbox"/> Very necessary
<input type="checkbox"/> Slightly necessary	<input type="checkbox"/> Not at all necessary
<b>Government should reduce the time it takes to complete land/property registration</b>	
<input type="checkbox"/> Extremely necessary	<input type="checkbox"/> Very necessary
<input type="checkbox"/> Slightly necessary	<input type="checkbox"/> Not at all necessary
<b>Government should reduce the number of procedures required for land/property registration</b>	
<input type="checkbox"/> Extremely necessary	<input type="checkbox"/> Very necessary
<input type="checkbox"/> Slightly necessary	<input type="checkbox"/> Not at all necessary
<b>Government should reduce the tax related requirements for land/property registration</b>	
<input type="checkbox"/> Extremely necessary	<input type="checkbox"/> Very necessary
<input type="checkbox"/> Slightly necessary	<input type="checkbox"/> Not at all necessary
<b>Government should ensure transparency in land/property registration procedures</b>	
<input type="checkbox"/> Extremely necessary	<input type="checkbox"/> Very necessary
<input type="checkbox"/> Slightly necessary	<input type="checkbox"/> Not at all necessary
<b>Government should put in place more favourable legislation for land/property acquisition and registration</b>	
<input type="checkbox"/> Extremely necessary	<input type="checkbox"/> Very necessary
<input type="checkbox"/> Slightly necessary	<input type="checkbox"/> Not at all necessary

## Enabling Policies that promote efficient Mortgage market operations: Governments' Perspective

### Enhancing availability of mortgage finance

Government should create an information office that educates people on their requirement for land/property registration and handles complaints about the same issues

- Extremely necessary       Very necessary       Moderately necessary  
 Slightly necessary       Not at all necessary

4. How appropriate are the following measures for facilitating the provision of mortgage finance

CBN and other industry regulators should provide comprehensive information development on the market

- Extremely appropriate       Very appropriate       Moderately appropriate  
 Slightly appropriate       Not at all appropriate

CBN and other industry regulators should ensure that information on mortgagor's rights is widely promulgated with consumer protection agencies addressing same for non-bank lenders

- Extremely appropriate       Very appropriate       Moderately appropriate  
 Slightly appropriate       Not at all appropriate

Government should create public sector agencies to offer mortgage insurance services

- Extremely appropriate       Very appropriate       Moderately appropriate  
 Slightly appropriate       Not at all appropriate

Government should encourage private sector insurance companies to offer mortgage insurance services

- Extremely appropriate       Very appropriate       Moderately appropriate  
 Slightly appropriate       Not at all appropriate

Government should encourage commercial banks to give term loans to micro-finance institutions and mortgage banks for housing micro-finance and mortgage finance by providing protection against losses

- Extremely appropriate       Very appropriate       Moderately appropriate  
 Slightly appropriate       Not at all appropriate

<p><b>Government should create a credit bureau information service</b></p> <p><input type="checkbox"/> Extremely appropriate      <input type="checkbox"/> Very appropriate      <input type="checkbox"/> Moderately appropriate</p> <p><input type="checkbox"/> Slightly appropriate      <input type="checkbox"/> Not at all appropriate</p>
<p><b>Government in conjunction with mortgage banks, should set up a secondary mortgage facility</b></p> <p><input type="checkbox"/> Extremely appropriate      <input type="checkbox"/> Very appropriate      <input type="checkbox"/> Moderately appropriate</p> <p><input type="checkbox"/> Slightly appropriate      <input type="checkbox"/> Not at all appropriate</p>
<p><b>CBN should permit lower capital adequacy requirements on mortgage banks and mortgage loans of commercial banks</b></p> <p><input type="checkbox"/> Extremely appropriate      <input type="checkbox"/> Very appropriate      <input type="checkbox"/> Moderately appropriate</p> <p><input type="checkbox"/> Slightly appropriate      <input type="checkbox"/> Not at all appropriate</p>
<p><b>Government should give lenders a tax advantage for mortgage loans</b></p> <p><input type="checkbox"/> Extremely appropriate      <input type="checkbox"/> Very appropriate      <input type="checkbox"/> Moderately appropriate</p> <p><input type="checkbox"/> Slightly appropriate      <input type="checkbox"/> Not at all appropriate</p>
<b>Policy Recommendations</b>
<p><b>7. What policy measures are necessary to enhance the availability of long term funds for mortgage lending and to improve the efficiency of the mortgage sector at large.</b></p> <p><b>(You can attach additional sheet if the space provided is not enough)</b></p>
<b>Institutional Policies</b>
<b>(Policies about the legal and regulatory environment)</b>





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