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THE MACROECONOMIC TRILLEMA AND MONETARY POLICY IN NIGERIA

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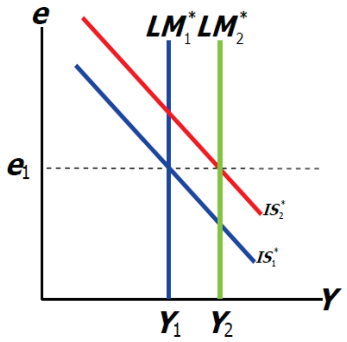
1. INTRODUCTION

The choice of a monetary policy regime is often influenced by a mix of underlying economic fundamentals and political characteristics. Stiglitz (2002) was right in suggesting that sound economics depends on excellent politics; the appropriate choice being cast against the backdrop of competing and often diametrical objectives, public interest and economic fundamentals, which in turn are a product of increasing financial globalization, competitiveness and the degree of openness.

In the last 10 years, Nigeria's external reserves position has improved remarkably, accompanied by relatively high capital inflows, especially, of portfolio investment. During the period, the country made significant in-roads into global capital markets with sovereign bonds and private issues by financial institutions. These developments reflect, in part, the global trend toward greater integration of commerce and finance often referred to as 'financial integration'. It is seen as a measure of 'openness'.



Increased openness or financial integration has produced positive results, albeit with significant risks particularly, for economies with ill-equipped financial markets or weak intermediation capacity. As current and capital accounts are being liberalized, global trade and financial markets are rapidly expanding. The associated flows have increased and become an important source of vulnerabilities in small open economies.

Increased openness offers many advantages through trade and the associated social and cultural exchanges, but also carries with it certain costs including generating own shocks to the domestic policy environment. For monetary policy, such complications can be quite severe. This is because, increased capital freedom could easily undermine policy independence or trigger exchange rate instability - free mobility of capital would require either more flexibility of the exchange rate (which could lead to instability of the exchange rate) or if the central bank chooses to defend the exchange rate at all cost, it could only do so successfully at a very high cost! In effect, free capital mobility complicates the optimization problem facing the central bank. Aiming to simultaneously achieve low inflation, low interest rate and a stable exchange rate is almost an impossible task in an environment of free capital mobility for small open economies.

More often than not, the monetary authorities are mandated and expected to achieve all the three policy goals, a development which has become even more difficult given current developments regarding the capital accounts. This challenge is referred to in the literature variously as the 'monetary policy trilema' 'impossible trinity' 'unholy trinity', etc. It is the monetary policy maker's nightmare!

The Central Bank of Nigeria, like others, is not immune to this challenge. Conducting monetary policy to achieve all three objectives dictated by its mandate had never been more challenging than it was in recent years, thanks to more capital flows. The situation presents the Bank with tough monetary policy choices. As the economy becomes more open to capital movement, hard choices such as stabilizing the exchange rate or keeping interest rate low; inflation or exchange rate as the nominal anchor for monetary policy or a move towards restricting the capital account or maintaining its ability to undertake monetary policy are critical policy considerations. The difficulty of simultaneously achieving these objectives has been well documented in the extant literature rooted in the Mundell-Flemming model.

Mundell (1963) first identified the impossibility of achieving the three policy goals at the same time when he demonstrated the effect of a small open economy's choice of exchange rate regime and capital mobility (account) framework on its monetary policy independence. Monetary policy independence, the central bank's ability to lower interest rates and/

or increase money supply (example by quantitative easing), to stimulate the economy when required is key to the central bank's mandate of price stability. Independently and parallel to Mundell, Flemming (1962) developed a model of the same policy choice faced by small open economies.

Other economists such as Obstfeld and Taylor (1998) described the problem of choice in which individual countries may choose two of the three goals based on their own experiences and economic growth needs as the 'Macroeconomic trilemma'. The term trilemma is derived from the well-known word dilemma and is at once intuitive and catchy. According to Mankiw (2010) it describes a situation in which someone faces a key choice among deadly three options, each of which comes with dire inevitable consequences. Fischer (2001) described the choice among the three macroeconomic policies as the 'Impossible Trinity'.

The key contention is that of the three policy choices – a stable exchange rate (by having in place a fixed exchange regime), low interest rate and a sovereign monetary policy (by adding monetary policy to other economic policy tools) – policy makers in open economies can only attain two at any one time.

In this presentation, we will attempt an exploration of how the macroeconomic trilemma influences monetary policy choices and actions in practical terms. Following this introduction, the rest of the paper is structured as follows. Section 2 examines in greater details key conceptual issues. . After this, we will review the historical epochs of the trilemma, followed by contemporary country experiences in managing the trilemma. Section five examines the challenge of the trilemma in Nigeria, while in the final section; we present the conclusions of the paper.

2. CONCEPTUAL BASIS OF THE TRILEMMA

Nominal rigidities, particularly, price and wage inflexibility, in the post-WW II era made it difficult to maintain external balance without abandoning the social and 'politically correct' goals of jobs for all and unrestricted labour rights. This was because the activities of labour unions made wages sticky downwards and in so doing, stimulates inflation when full employment is public policy. Lindblom (1949) tells us that continuous pressure on the exchange rate naturally follows in this situation and policy actions to maintain stable exchange rate will ultimately engender countercyclical deflation and reflation.

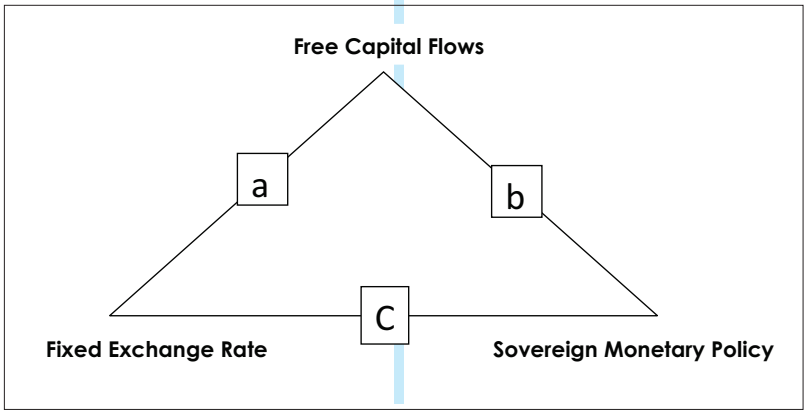
Using an extension of the Investment/Savings-Liquidity-Preference/Money (IS-LM) model by including the balance of payments (BoP), the Mundell-Flemming model provides the conceptual framework for analyzing the 'Macroeconomic Trilemma'. It is an open economy representation of the IS-LM curve and portrays the short-run relationship between an open economy's nominal exchange rate, interest rate, and output. The model enables us to demonstrate that an economy cannot simultaneously maintain a fixed exchange rate, free capital movement, and an independent monetary policy.

The Mundell triangle aptly depicts the ideal policy environment in which these three macroeconomic goals co-exist (Figure 1).

Consider the three sides, a, b and c of the triangle; it is only possible to have only two of the policy goals. Side a offers the possibility of a fixed exchange rate with free capital flows; side b offers another possibility of free capital flows and monetary policy independence (i.e. sovereign monetary policy); while side c offers the combination of fixed exchange rate and monetary policy independence.

Recall that the investment-savings function, IS curve is downward sloping because it represents the locus of points of equilibrium in the real (i.e. non-financial) economy where total spending (consumer spending + planned private investment + government purchases + net exports) is equal to total output (equivalent to real income, Y). The lower the domestic interest rate, the higher be the demand for credit and hence, higher investment and output. Similarly, the higher the rate of domestic interest rate, the higher the level

Figure 1
The Mundell Triangle



of bank accounts (savings) balances and therefore, the lower the level of investment and output.

Algebraically, the Investment-Savings (IS) relationship is represented by

$Y = C(Y-T(Y)) + I(r) + G + NX(Y)$

Where:

Y represents aggregate income;

C(Y-T(Y)) represents private consumer expenditure as an increasing function of disposable income;

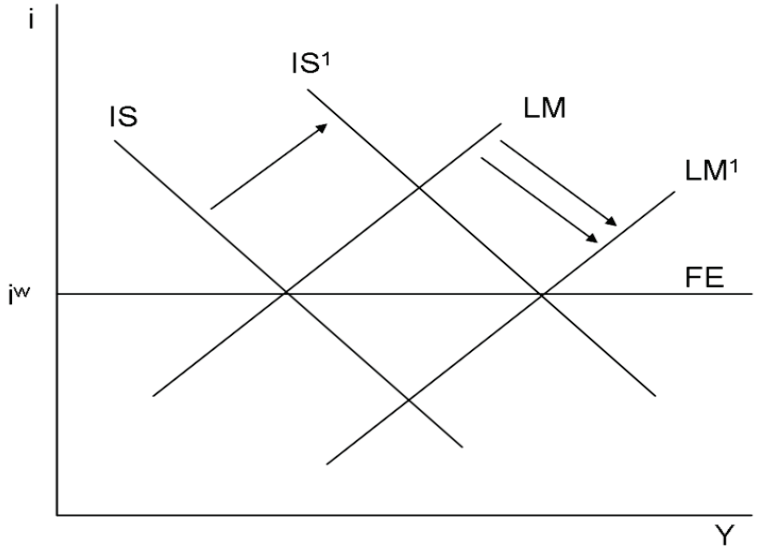
I(r) represent private fixed investment as a decreasing function of the real interest rate;

G represents government (fiscal) expenditure on both consumption and investment goods and services; and

NX(Y) represents net exports as a decreasing function of income.

On the other hand, the Liquidity Preference theory i.e. the demand for money theory shows the Money Supply (LM) curve, which depicts the locus of interest rates and levels of real income at which money market is at equilibrium. The liquidity preference or demand for money (i.e. to hold cash balances instead of securities) is determined by the Transactions, Precautionary and Speculative demands for money. Transactions and precautionary demands for cash balances increase with income and as they increase, the interest rate in the money market increases. Speculative demand for cash balances is penalised by a rise in interest rate; and decreases with an increase in the rate of interest. The supply of money is determined by Deposit Money Banks (DMBs) through their credit creation and the central bank through its monetary policy. The LM curve is upward sloping because the demand for money is inversely related to interest rate, while the supply is assumed to be interest inelastic. Mathematically, the LM curve can be stated as

Figure 2
IS-LM-BoP Model



$M/P = L(i, Y)$

Where:

M/P represents real money supply; P represents the price level (inflation rate); L represents the real demand for money (a function of the interest rate i and the level of real income Y)

In figure 2, i on the vertical axis represent domestic real interest rate, while Y on the horizontal axis represents real output in an economy. The slope of the BoP curve, FE, depends on the degree of financial integration of the country. Where there is capital control, the FE curve will slope upwards; where perfect capital mobility exists, the FE curve is horizontal, as in figure 2 above, at a level of the domestic interest rate equal to the level of the world interest rate. But where there is less than perfect capital mobility, the slopes of both the IS curve and the FE curves will depend on the exchange rate. Bear in mind that the graph is a three-dimensional space involving the three macroeconomic aggregates: interest rate, income, and the exchange rate.

In the context of the Mundell-Flemming model depicted in figure 2, there are two possible and distinct exchange rate regimes which a small open economy like Nigeria can adopt: a fixed or flexible exchange rate regime. Each choice has implications for monetary policy. We would assume that the nominal domestic money supply is exogenously determined within the model.

Under a Fixed Exchange Rate Regime

The central bank under a fixed exchange rate regime announces a foreign exchange rate e (the parity rate) for the domestic currency. At the announced rate e, the Bank, offers to sell and buy any amount of the domestic currency required in the foreign exchange market. Under the circumstance, the exchange rate is exogenously determined but the net foreign exchange flow, the BoP, is endogenously derived. When the demand for the domestic currency (in the foreign exchange market) exceeds supply, the central bank would buy foreign currency using the domestic currency to mitigate the pressure in the market. If the demand for foreign currency exceeds supply, the central bank would buy the domestic

currency, using foreign currency in order to eliminate the pressure in the market. In both instances, the target is to keep the exchange rate at the pre-announced level. It should be noted that at the announced exchange rate target, there is an associated BoP position, either a surplus or deficit.

If the exchange rate target results in a consistent BoP surplus, the money supply in the domestic economy will rise, necessitating the need for the central bank to sterilise the excess liquidity by reducing its holdings of domestic securities (bonds). A consistent BoP deficit will call for the opposite action (i.e. increasing its holdings of domestic bonds) by the central bank. These actions will suffice in themselves if there is no financial integration, meaning that there is capital control (the capital account of the country is closed). In a situation of free capital mobility, a sterilisation exercise will trigger an offsetting of international capital flows.

An increase in government expenditure, G, under a fixed exchange rate regime would shift the IS curve to the right to IS1 which would cause a rise in the domestic interest rate. Given free capital mobility, an increase in the domestic interest rate would attract capital inflow and stimulate an appreciation of the domestic currency (exchange rate). In response, the central bank would have to increase the supply of the domestic currency in order for the market to maintain the exchange rate at the announced level. To achieve that, the central bank would sell the domestic currency (i.e. buying foreign currency with domestic currency). The increase in supply of the domestic currency would shift the LM curve downwards to the right of LM1 to bring down the interest rate and release the pressure on the exchange rate. However, this action would increase the level of income.

Where the government contracts its fiscal programmes by reducing expenditure, G, the IS curve will shift downwards to the left while the LM curve will shift downwards to the left to restore the exchange rate at the announced level and interest rate at the equilibrium level. This action would lead to a fall in the level of output.

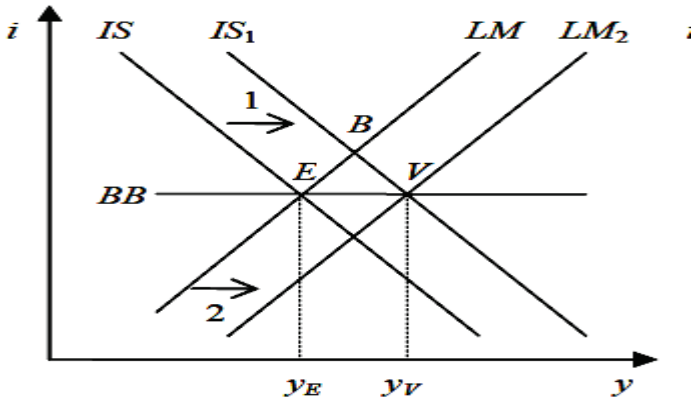
International capital flows (inflows and outflows) can be precipitated by a change in global interest rates. When such change in flows does occur, the monetary authorities intervene in the foreign exchange market to maintain the exchange rate at the pre-announced level. An increase in global interest rates shifts the BoP curve, FE, upwards and cause capital to flow outwards in search of higher returns. The outward flow of capital exerts pressure in the upward direction on the domestic currency, requiring the central bank to intervene by buying the domestic currency with foreign currency in order to maintain the exchange rate at the pre-announced level. By decreasing money supply, the LM curve shifts upwards to the left until it intersects the IS and BoP curves at a level of interest where the domestic interest rate equals the world interest rates. Where global interest rates fall below the domestic interest rate, the reverse developments and policy responses will apply.

When a small open economy maintains a fixed exchange rate regime and free capital mobility, it cannot simultaneously maintain monetary policy independence because it will be unable to drive local interest rates away from the world interest rates. This is because the arbitrage available in open capital markets when a small open economy is financially integrated globally and the simple interest parity of a credible fixed exchange rate arrangement becomes impossible. It is imperative to note that changes in capital flows keep the LM curve dormant, and the outcomes are determined by the IS-BoP interaction.

A Flexible Exchange Rate Regime

The exchange rate e under a flexible exchange rate framework is market determined. Free capital mobility is also assumed and net payment flows

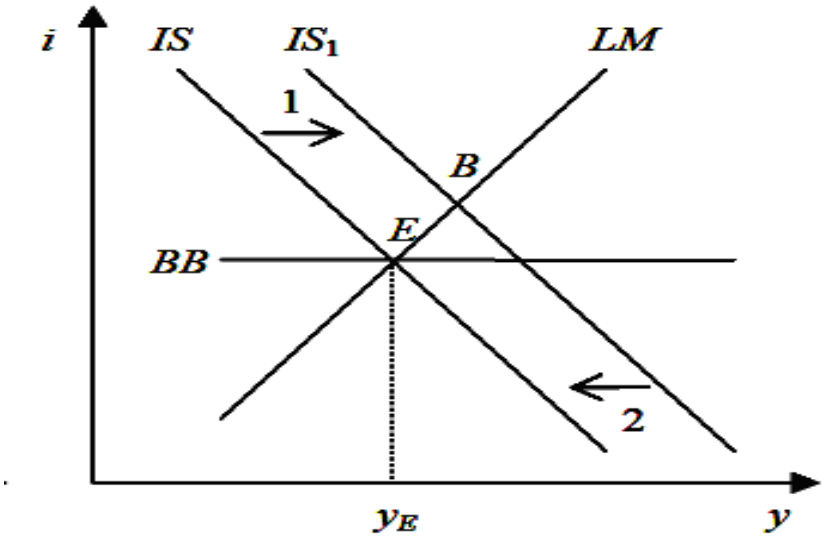
Figure 3:
An Increase in Government Spending under a Fixed Exchange Rate



into or out of the country equals zero, meaning that the BoP curve represents zero Balance of Payments.
Thus, an increase in global interest rates shifts the BoP curve upwards by the same margin, and stays there, causing capital to flow outwards in search of opportunities elsewhere (i.e. capital agglomeration). The capital outflow exerts pressure on the domestic currency in the downward direction (towards depreciation) which will boost net exports, NX. An increase in NX under the influence of exchange rate change will cause the IS curve to shift outwards to the right to intersect the BoP and the unchanged LM curves where the global interest rate equals the domestic interest rate. A decline in global interest rates would generate a contrary development and outcome.

When government expenditure, G, increases, under a flexible exchange rate regime with perfect capital mobility, it causes the IS curve to shift outwards to the right. The shift results in both local interest rates and income (GDP) to rise. The increase in local interest rate causes increased capital inflows, and the inflows make the local currency stronger compared with foreign currencies. On the other hand, the higher GDP increases spending on imports, tending to make the currency weaker. Assuming the BoP curve is not as steep as the LM curve (i.e., assuming that capital mobility is relatively strong), the former effect will dominate and the currency will become stronger. The stronger exchange rate also makes foreign goods cheaper compared with local goods. This encourages greater imports and discourages exports, so net exports become lower.
As a result of this change in exchange rate, the IS curve shifts back toward its original location. The stronger currency also shifts the BoP curve upward, as higher levels of interest rate would now be consistent with a zero balance of payments surplus in the presence of the stronger currency exchange rate. The LM curve is not at all affected in the short run. The net effect of all this is that, if there is perfect capital mobility, the level of income of the local economy is unchanged from its original position but goes up if capital is less than perfectly mobile. A decrease in government expenditure reverses the process.
An increase in money supply will shift the LM curve to the right and reduce domestic interest rates compared with global interest rates. The increase in domestic money supply exerts downward pressure on the domestic currency, relative to foreign currencies, because of the outflow of capital in response to a decline in the domestic interest rate. A depreciation of the domestic currency makes domestic goods and services cheaper to non-residents thus increasing net exports, NX. Increased net exports will cause the IS and the BoP curves to shift to the right. The BoP curve will shift to the right because with the decline in domestic interest rates and the depreciation of the domestic currency, the level of output would have to increase to make the BoP balance zero. This is realized by the rightward shift of all the three curves, LM, IS and BoP.
Under a flexible exchange rate regime with capital mobility, independent monetary policy cannot be achieved also as was the case under the fixed exchange rate regime. According to Aizenman (2011), to achieve monetary policy independence in a small open economy, financial integration has to be traded off to achieve stable exchange rate stability (i.e. credible fixed exchange rate regime).

Figure 4
An Increase in Government Spending under a Floating Exchange Rate



3. A HISTORICAL EVOLUTION OF THE MACROECONOMIC TRILEMMA

There have been different stages in the global management of the macroeconomic trilemma. The economic argument for free movement of capital is essentially that it can increase economic efficiency (Bernanke,

2005). Under a regime of open capital accounts, savings will flow to the most productive investment opportunities, without regard to their location and greater competition for capital will deepen the financial market in all countries. Governments that borrow from efficient global financial markets will be compelled to maintain debt sustainability and domestic banks will be forced to adjust to or be weakened by foreign financial institutions.

These merits, however, have been controverted (Stiglitz, 1974). Since the East Asian financial crisis of 1997/98, the political, social and economic costs of international capital movements have become widely known than the benefits. Similarly, the game of a fixed exchange rate regime has been disputed (Kenen, 2000). The arguments are that if the regime imposes very tight constraints on monetary policy and no single country can successfully maintain a fixed exchange rate, without every other country doing the same. It is actually argued that the benefits of a fixed exchange rate regime cannot be attained without free capital mobility that allows for the flow of money across national boundaries. It is also argued that the world is not an optimum currency area; therefore, national economies are vulnerable to asymmetric shocks, and many cannot cope with them without changing their exchange rates. Thus, it is neither wise nor realistic to achieve fixed exchange rates globally. Kenen argued that when price stability is the principal objective of monetary policy, using a symmetrical inflation-rate target may be the least expensive and most sensible way to confer credibility on monetary policy.

Before 1914, the major trading powers pegged their currencies' prices in terms of gold, and thus, implicitly, maintained a fixed rate of exchange against other countries. Under the gold standard system, the trilemma was managed by adopting the fixed exchange rate and free capital mobility regimes, forfeiting monetary policy independence. In some instances, this choice posed a challenge to the attainment of domestic macroeconomic stability. By the dawn of the 20th century, securities such as bill of exchange and major international currencies were widely used in business transactions in many countries across the world. High finance transactions such as bonds and equity were quite common as capital moved freely, internationally. As financial centres emerged in different countries, financial trading spread into well integrated networks of global finance.

The gold standard worked best in a decentralised world where BoP adjustment policies were automatic (Mundell, 2000). In the period before the WW1, tensions emerged when the central banks of the major economies became dominant and the efficiency and stability of the gold standard became subject to their discretion. When the US Federal Reserve was created in 1913, it centralised money creation in a large open economy and dominated international finance. Before long, the US had about half of global monetary gold, making the dollar higher than gold. By the early 1930s, Britain and some other countries abandoned the gold standard, pegged exchange rate and free capital mobility. Labour unions emerged as a social and economic force to challenge the dominance of capital in industrial economies. Britain and other countries, however, returned to the international gold standard later in the 1930s with limited rekindling of international capital flows. Weaknesses in the new system helped to propagate the global depression which followed the contraction of output growth in the US in 1929.

Towards the end of the WW2, in 1944, the Bretton Woods system was created as an international standard for exchanging national currencies. The International Monetary Fund, IMF, was created to monitor the exchange rate of its member countries and lend reserve currencies to those who had trade deficits.

One US dollar was set to 35 oz. of gold (bullion) and other countries set the parity of their currencies to the dollar on the understanding that the US dollar would be fully backed by gold. Members agreed to buy and sell US dollars so as keep their currencies within 1 per cent of the fixed dollar exchange rate. Under this system, the trilemma was resolved by adopting a fixed exchange rate or adjustable peg) and monetary policy independence due to strict limitations on capital mobility. Indeed, members were encouraged to institute capital controls to maintain external balance when faced with the danger of destabilising 'hot' money flows.

The Bretton Woods system of international monetary regime faced challenges almost immediately it was established because the IMF was not adequately funded to discharge its obligation under the system. When its resources were quickly exhausted in the first few years, the burden of global monetary stabilisation and lending was assumed by the United States. By running BoP deficits, the US became the source of global liquidity growth. Countries running BoP surpluses had to buy dollars to stabilise their exchange rates. Up to about 1958, the

dollar was the only convertible and reserve currency. The size of the US deficits was limited during this time; there was dollar scarcity and many European countries happily acquired dollars as reserve currency. From 1958, the size of the US payment deficit grew larger and larger until the system collapsed.

A number of European currencies became convertible and the countries started being concerned about the glut of the dollar; they started reducing their holding of the US currency, fearing that the dollars in their hold could not be redeemed in gold. On August 15, 1971, the US suspended the convertibility of dollar to gold. 18 months later, advanced economy countries floated their currencies independently. The Bretton Woods system thus came to an end (Gowa, 1983).

In the post Bretton Woods era, adoption of a flexible exchange rate regime is the norm among advanced industrialised countries. Capital mobility among advanced economies and in some emerging market economies have grown very large and rapidly enabling them to conduct independent monetary policy (Obstfeld, Shambaugh, and Taylor 2005).

Different countries adopt different strategies in choosing their monetary policy options. The United States, Japan, the EU and Canada chose monetary policy independence and free capital mobility, while floating their currencies (thus forfeiting exchange rate stability). On its part, China maintains closed capital account in order to achieve monetary policy independence and exchange rate stability. According to Mankiw (2010), Switzerland represents a third path by ceding monetary policy to the European Central Bank (ECB) to achieve free capital mobility and stable exchange rate regime.
In this era, any country that had tried to choose all three objectives has had a crises. It has been the case with Russia, Mexico, Argentina, and the European crisis following the reunification of East and West Germany and the East Asian countries (Puckelwald, 2012). Despite the clarity and simplicity of the choice, policy makers and academics continue to live in denial. Probably because there are insufficient empirical studies showing the limits of policy. However, 'public interest' advocates are often not persuaded by the evidence presented by empirics; because advocacy is their vocation!

4. CONTEMPORARY COUNTRY EXPERIENCES IN MANAGING THE TRILEMMA

International capital mobility has proved to be the most controversial of the policy choices. Bhagwati (1998) advocates free multilateral trade argue against free international capital flows or financial integration, because, in their view, it has been associated with deterioration in economic efficiency, measured by output and employment growth. However, many developing countries that are destabilised by financial integration (Aizenman, Chinn and Ito, 2008) need foreign savings (capital inflow) to grow their economies and lift their populations out of poverty. Different countries have, therefore, adopted different strategies in choosing among the three inconsistent macroeconomic policy goals.

The monetisation of economic activity is a recent phenomenon in many countries and is still an on-going phenomenon. Of the currencies, only the US dollar, British pound sterling, euro, Japanese yen and Swiss Franc are readily accepted globally. The currencies of many other countries, including Nigeria are not convertible and even if they were, they would have little or no demand because their economies are small and weak and cannot support the currencies. This scenario emerged since the end of the Bretton Woods exchange rate system. Emerging market and developing country economies that are commonly vulnerable to international economic disturbances have, therefore, contrived different configurations of the trilemma, The aim of such countries is to optimise or 'do the best they can in their circumstances', given the policy trilemma.

In the immediate aftermath of the end of the Bretton Woods system and up to the 1980s, most developing countries adopted a strategy of fixed exchange rates, monetary policy independence and closed capital accounts. Even those among them that had considerable US dollar reserves, like the oil exporters, feared capital flight by domestic economic agents, and so maintained closed capital accounts.

It is important to remember that at that time, the communist bloc countries traded amongst themselves, dealing with balance of payments adjustments in a different ways such as counter trade, barter, industrial cooperation and bilateral clearing agreements. Large non-industrialised countries of the period such as India, Indonesia and Brazil operated planned economic systems and so were not exactly open economies. Despite maintaining closed capital accounts, many of the countries borrowed heavily in the 1990s from private and public sources in the major financial markets which was organised into the

Paris and London Club of creditor countries.

The debt overhang was proof of the inefficiency of closing capital markets, although it can be argued that the sovereign debt crisis in the euro zone since 2010 is proof that open markets can also be inefficient. Throughout the period, one challenge faced by many developing countries was exchange rate misalignment mainly through overvaluation of domestic currency which was possible under a fixed exchange rate regime.

After the period of fixed exchange rate and monetary policy independence, there was a move towards more financial integration. To manage international capital flows, developing and newly industrialised countries maintained sizeable convertible currency reserves. Private capital market operators responded to markets that had substantial reserves because they had the capacity to bear capital reversals. The period coincided with the peak of economic globalization from the mid-1980s. Newly industrialised countries of Asia and China led the way in holding large foreign reserves, mostly in US dollars. The resulting global imbalances provided impetus for low inflation in the United States and the creation of innovative financial products such as derivatives.

From another approach, Calvo (1998) suggested that international reserves reduced both the probability of a sudden stop and the depth of the resulting output collapse. Also, Aizenman and Lee (2007) linked the large increase in reserves holding to the deepening financial integration of developing countries; evidence that international reserve hoarding served as a means of self-insurance against exposure to sudden capital reversals.

Many of the newly industrializing countries in addition to making their currencies convertible, opened their stock exchanges to foreign investors. Interestingly, they maintained an effective currency peg by fixing their currency relative to the US dollar. This made it possible for speculators to attack the currencies and spread crisis through contagion and panic ("herding") across world financial centres. In the 1990s, three "waves" of regional currency crises was experienced: the ERM crises in Europe from 1992-3 which forced the United Kingdom, Spain and Italy to exit the European exchange rate mechanism; the Latin American crises of 1994-5, sparked by the devaluation of the Mexican peso and affected Argentina, Chile and others; and the Asian crises, again sparked by the devaluation of the Thai baht and went on to affect other South East Asian countries. In contrast, advanced industrialised countries broadly moved towards stabilized exchange rates and high capital mobility with limited monetary independence.

Since 2000, developing and emerging market countries have converged towards managed exchange rate flexibility, monetary autonomy, and financial integration backed by the accumulation of unprecedentedly large international reserve holdings (Aizenman, Chinn and Ito, 2008). The global financial crisis of 2007 forced these countries to adjust to the liquidity crisis which followed, causing the real exchange rate (RER) and monetary policy to take the brunt. In Nigeria, the banking system tottered and the stock market melted under the evidence.

5. THE CHALLENGE OF THE MACROECONOMIC TRILEMMA IN NIGERIA

Section 2 of the Central Bank of Nigeria (CBN) Act 2007 lists the objects of the CBN: ensuring monetary and price stability; issuance of legal tender currency; maintenance of external reserves in safeguarding the international value of the legal tender currency; promotion of a sound financial system, acting as banker and providing economic and financial advice to the Federal Government. For most central banks, achieving price stability which entails; stable exchange rate, low and stable inflation and operating an optimum interest rate regime remains the success criteria for economic management.

The Key Questions for Nigerian Policy Makers and the Counter Factual Issues

The key issues in achieving macroeconomic policy in Nigeria include:

- If Inflation concerns remain high, what should monetary policy do with exchange rate and interest rate
- What mechanisms of exchange rate management would be 'appropriate' to ensure stable rates and should we target the Nominal or real exchange rate
- How do we "control" interest rates in the face of rising Government deficits (Federal and States) and growing risks facing the banking system
- Given the inflation rate of 8.20 per cent as at January 2015, and the objective of exchange rate stability, should the CBN be loosening monetary policy at this time
- Given the World Bank and the IMF's caution against the "excessive" growth in credit, and the dangers it poses to

the banking sector, how do we reconcile this with the recent clamour for a reduction in interest rates?

- What should be the role of Development Banks in a time like this in directing subsidized credit to certain sectors of the economy
- Do we have enough instruments to simultaneously ensure a sound financial system, low inflation and interest rate, as well as maintain a stable exchange rate
- How do we avoid a real effective exchange rate appreciation and misalignment so that we do not repeat the mistake of the 1970s?

- **Trend in Nigeria's Inflation, Exchange and Interest Rates**

The Nigerian experience of the "impossible trinity" can be explained from three different epochs which are discernible from following charts.

Figure 6

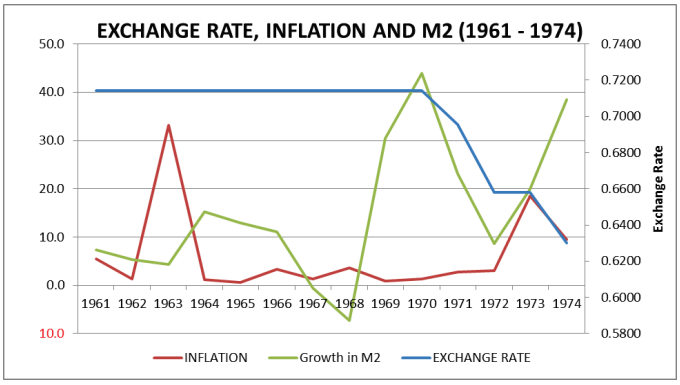


Figure 7

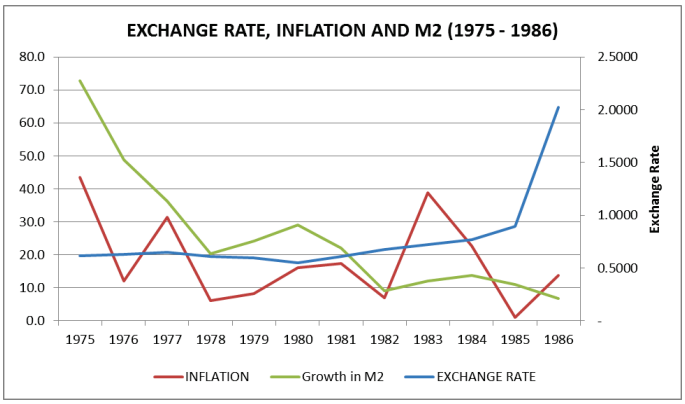


Figure 8

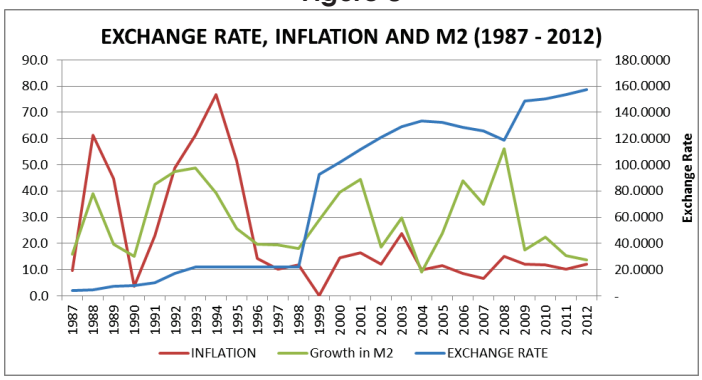


Figure 9

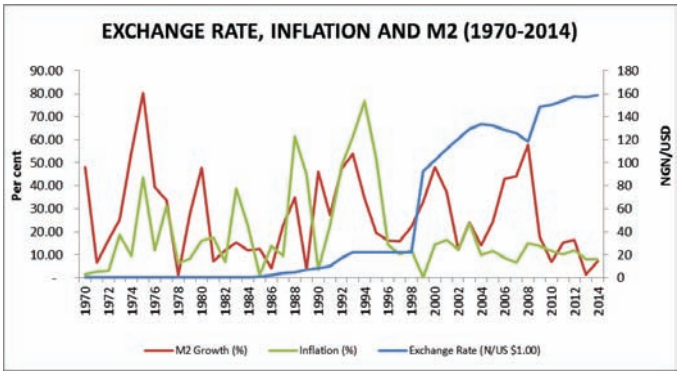
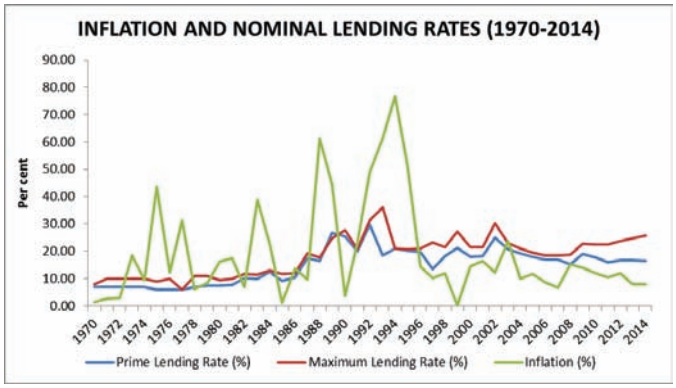


Figure 10



Can Nigeria Achieve the Macroeconomic Trilemma?

According to Krugman (1999), "the point is that you can't have it all: A country must pick two out of three. It can fix its exchange rate but only by maintaining controls on capital flows (like China today); it can leave capital movement free but retain monetary autonomy, but only by letting the exchange rate fluctuate (like Britain – or Canada); or it can choose to leave capital free and stabilize the currency, but only by abandoning any ability to adjust interest rates to fight inflation or recession (like Argentina)".

In Nigeria, like in any other country, achieving the trinity has remained a herculean task. However, every country strives to manage the prices by sacrificing one out of the three from time to time and this depends on developments within and outside the economy. The Monetary Policy Committee (MPC) meets bi-monthly to take decision on these variables after a thorough examination and analysis of the prevailing economic development and underlying fundamentals. The MPC determines the focus of monetary policy especially in the context of ensuring price stability as entrenched in Section 12 of the CBN Act 2007, while the management of exchange rate was under the control the Board of the Bank.

The major consideration of the CBN is that a low nominal interest rate regime is not only inconsistent with a high inflation environment but also not feasible. There is the need to create compensation for owners of capital so as to hedge against an erosion of the purchasing power induced by high inflation. Further, in periods of high inflation, the MPC will be desirous of achieving low and stable inflation (price stability) and, therefore, would unavoidably raise the monetary policy rate (a rate that determines other interest rate in the economy) to signal a tight monetary policy stance. Tight monetary policy stance would automatically influence market interest rates in an upward direction to curtail aggregate demand by reducing consumption and investment spending leading ultimately to a decline in inflation. Over time, the low inflation outcome will expectedly elicit a lower interest rate regime after all adjustments have taken place.

It is important to state that a low interest rate regime in an environment of high inflation will elicit an inefficient use/allocation of financial resources, as "sub-optimal "investments which do not promote economic growth will be undertaken. This is because; there is no incentive to save as it is better to consume all current income. In an open economy such as Nigeria, a high domestic price level relative to those of the trading partners accompanied by a highly appreciated domestic currency vis-à-vis trading partners 'currencies will:

- Reduce the country's competitiveness in the international market
- Discourage exports (in Nigeria's case, non-oil exports)
- Encourage imports
- Discourage capital flows including foreign private investment, portfolio and other inflows
- Encourage capital outflows
- Encourage foreign exchange arbitraging and emergence of a thriving parallel market for foreign exchange and
- Deplete external reserves.

Thus, in order to ameliorate such adverse developments, the policymakers desirous of bringing sanity to the economic system will deploy the instruments available to them, such as pursuit of an interest rate policy that significantly moderate inflation, encourage domestic savings, encourage capital inflows and mitigate capital outflows.

6. CONCLUSION

This paper traced the origin and examined the theoretical underpinning of the Trilemma. It explored the practical challenges of realizing the trinity amidst the growing financial market openness in a small open economy like Nigeria. A major consideration of the CBN is that a low nominal interest rate regime is not only inconsistent with high inflation environment but also not feasible. It is important to state that a low interest rate regime in an environment of high inflation will elicit an inefficient use/allocation of financial resources, as "sub-optimal "investments which do not promote economic growth will be undertaken. Overall, monetary policy making would continue to involve trade-offs. Over the long term, it is expected that progress with complimentary factors such as fiscal discipline, infrastructure and financial stability would improve the effectiveness of monetary policy in Nigeria.

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GROSS DOMESTIC PRODUCT REBASING AND THE IMPACT ON NIGERIA'S INVESTMENT ENVIRONMENT

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1. INTRODUCTION

Gross Domestic Product (GDP[1]) measures the size and activities in a country at a particular point in time. Many socio-economic indicators depends on its level; and its rate of change, corrected for price movement, is often used to evaluate the extent to which the activities and health of a country has improved over time.

Given its significance, it is important that its values are accurately captured. Therefore, countries continuously attempt incorporating economic dynamics such as evolutions of new sector, product, pricing, technology and consumer behavior into their GDP figures. In this process, GDP rebasing is critical. This may involve replacing the existing price and quantity structure used to measure GDP with a more recent price structure; updating weights used in aggregating individual quantities; and incorporating methodological and conceptual improvements.

It has been recommended by the UN Statistical Commission (UNSC) that countries rebase their GDP every five years. However, Nigeria had been using 1990 base year until recently that it rebased to 2010. The recent rebasing has attracted many contradictory views; especially now that it has contributed immensely to the country's achieving its goal of being one of the top 20 economies in the world by 2020 with a GDP of USD900bn.

The heightened attention it has attracted suggests a need for a more structured argument for the exercise and this paper is contributing to this. The paper looks at the impact of the rebasing on an important economic variable – investment. This is because investment is necessary for capital accumulation and economic growth. Specifically, this study examines the impact of GDP rebasing on Nigeria's investment environment.

In addition to this introduction section, section 2 considers GDP rebasing and the Nigerian case, section 3 is on the Nigerian Financial System Strategy (FSS) 2020, section 4 is on investment types, drivers and the Nigerian environment, section 5 offers some lessons for Nigeria and section 6 is the summary and conclusion.

2. GDP rebasing in Nigeria

The United Nations defined rebasing as "the process of replacing present price structure (base year) to compile volume measures of GDP with a new or more recent base year." GDP rebasing is usually carried out at an average interval of five (5) years in order to ensure that national accounts statistics present the most accurate reflection of the economy. When done, it usually incorporates new economic activities which have not been captured in the previous computational framework.

In April 2014, Nigeria rebased its GDP and changed its base year to 2010 from 1990. As a result, Nigeria is now regarded as a medium income economy. The rebasing exercise helped incorporate the informal sector into the national accounts and this showed a great increase in activities of the service sector of the Nigerian economy.

Table 1 shows that rebasing of Nigerian GDP has led to a change in total nominal GDP ranging from 59.5% (2010) and 89.22% (2013 forecast). Disaggregating these percentage changes further, table 2 depicts that the service sector is responsible for the majority of the changes documented from the rebasing exercise. Specifically, the service sector grew by about 240% between the 1990 base year values and that of 2010.

Table 1: Comparison between old and new GDP series

Total Nominal GDP	2010	2011	2012	2013f
Old Series (N'm)	33,984,754.13	37,409,860.61	40,544,099.94	42,396,765.71
New Series (N'm)	54,204,795.12	63,258,579.00	71,186,534.89	80,222,128.32
% Change	59.50	69.10	75.58	89.22

Source: NBS (2014)[2]

Being a paper presented at the CBN 19th seminar for finance correspondents and business editors held at Hotel Seventeen, Lafiya road, Kaduna between 17th June and 20th June, 2014.

[1]GDP is the market value of all final goods and services produced within a country in a given period.

[2]NBS (2014). Measuring better: Frequently asked questions on the rebasing / re-benchmarking of Nigeria's Gross Domestic Product (GDP)

The rebasing has enabled the service sector in Nigeria to be better covered and it has shown that economic activities such as wholesale and retail trade, information and communication, real estate services, human health and social services, professional, scientific and technical services have gained importance in Nigeria. Besides, the service sector is expected to grow fastest and ahead of sectors such as industry and agriculture. Therefore, while Nigeria is becoming slightly more diversified, the country is heading towards a more service-oriented economy.

3. THE NIGERIAN FINANCIAL SYSTEM STRATEGY (FSS) 2020

Nigeria has the goal of becoming one of the top 20 economies in the world by 2020 with a GDP of USD900bn. Therefore, the FSS 2020 was developed to aid this goal. The vision of the strategy is to make Nigeria the safest and fastest-growing financial system amongst emerging economies. It is made to strengthen the Nigerian domestic financial markets; enhance their integration with external financial markets; and engineer Nigeria's evolution into an international financial centre (IFC). Some of the goals and recommendations of the strategy include:

- Integrate the informal financial sector into the formal financial sector;
- Enhance integration with external financial markets.
- Ensuring the progressive unification of trade and commercial laws amongst ECOWAS and African Union (AU) countries;
- Creating an environment that attracts global financial services firms and enables Nigerian financial institutions to export their products and services.
- Foster a culture of securities innovation and development; and encourage liquid and efficient secondary markets for trading in securities;
- Promote a strong knowledge-based capital market.
- Facilitate the development of a more robust, vibrant and deep money market;
- Increase the volume of debt instruments issued by corporations, relative to government treasury bills issued in the market;
- Create a sustained macroeconomic environment that will make exchange rate management to be predictable.
- Create business friendly environments for SMEs; and revolutionalise their access to finance
- Achieving Low and Sustainable Single Digit Inflation (Monetary Policy-Related);
- Promotion of financial sector soundness
- Create a legal and regulatory platform that supports electronic business transactions within the financial services industry, and enforces compliance with standards.

In terms of performance so far, highest levels of achievement might have been recorded in the areas of predictable exchange rate, single digit inflation and financial (banking) soundness. At the other extreme end however, achievements in the areas of integrating informal financial sector, achieving a strong knowledge-based capital market and creating enabling environment and finance for SMEs can still be described as low. Also, in the other remaining areas, the levels of achievement can still be described as marginal and requiring much effort.

4. INVESTMENT – TYPES, DRIVERS AND THE NIGERIAN ENVIRONMENT

Investment is an asset or item purchased with the hope that it will generate income or appreciates in the future. In the economics, investment entails additions to the economy's capital stock. It involves the purchase of goods that are not consumed today but are used in the future to create wealth. It is the accumulation of newly produced physical entities, such as factories, machinery, buildings, and inventories. In finance however, investment is putting money into an asset with the expectation of capital appreciation, dividends, and/or interest earnings. This may include investment in bonds, shares, options and other financial assets.

Investment can also be classified into domestic and foreign investments. The components of

Table 2: Percentage Change in the GDP between the Old and New Series by Sectors

	2010	2011	2012	2013f
Agriculture	25.97	24.4	18.67	19.82
Industry	-10.65	6.31	15.6	34.46
Services	239.68	237.63	239.56	240.49
Total Nominal GDP	59.5	69.1	75.58	89.22

Source: NBS (2014)

domestic investments are private domestic investment and public domestic investment, the latter being investments by government and public enterprises on social and economic infrastructures, real estate and tangible assets. Equally, foreign investment can be foreign direct investment (FDI) or Foreign Portfolio Investment (FPI). While the former is investment in tangible assets by foreigners, the latter is their investments in shares, bonds, securities etc.

All these forms of investments are complementary and necessary for economic growth and development of a nation. Hence, countries and researchers pay attention to factors affecting them. Important[3] determinants of investments that have been found in both the theoretical and empirical literature include interest rates, growth in output, tax rate, development in the financial sector, trade openness and government debt.

Higher interest rate imply higher cost of capital and this tends to reduce domestic investment; however, it may also serve as an indication of return on the investments of foreigners thereby aiding foreign inflows. Increase in GDP is expected to increase domestic investment through what is known as the accelerator principle; it also encourages market-seeking FDI since higher GDP imply higher market size. Higher taxation discourages investment while development in the financial sector is expected to aid both financial and foreign portfolio investment. Further, economies that are more opened to external trade have also been found to enjoy higher foreign investment inflow. Conversely, government debt often crowds out private investment and reduces investment generally as high fiscal deficit increase the possibility of raising taxes.

Coming to investment in Nigeria, figure 1 shows that domestic investment has been moving closely with GDP[4] trend in Nigeria and it lies above both the foreign direct investment (FDI) and foreign portfolio investment (FPI). Also, the values of FDI have been above those of FPI until recently. However, while FPI appears to depict similar trend with GDP, there are periods when the movements in FDI deviates from those of GDP. These trends may have implications for the effect of rebasing on the types of investment attracted. This is because it is often preferable to attract FDI than FPI; as the latter is more volatile and can be distorting.

Beyond the mere quantity of investment and its drivers, it is also important to consider the entire investment environment in which firms operate in Nigeria. This can be defined as the environment in which firms of all types have opportunities and incentives to invest productively, create jobs and expand. This environment can be affected by macroeconomic, governance, infrastructure and some other micro factors such as human resources, access to finance, among others.

Several notable efforts have been made to address some of these indicators of investment environment; especially at the broad macroeconomic level. The results of these have manifested in a relatively more stable macroeconomic and financial environment. For instance, the country has been able to sustain its high growth rate for about a decade, inflation rate has been brought to single digit, wide fluctuations in exchange rate have been avoided so far and a stronger banking sector has evolved.

The above notwithstanding, achievements at the governance, infrastructure and other micro levels have been far less impressive. Problems in this area of Nigerian investment environment still include:

- Poor infrastructure
- Weak institutional framework,
- Extensive regulation, business registration and certification process
- Low disposable incomes of workers,
- Uncoordinated government policies among the three tiers of government
- Multiple taxation,
- Rent-seeking behavior, especially among public officials
- Barriers to entry and competition,

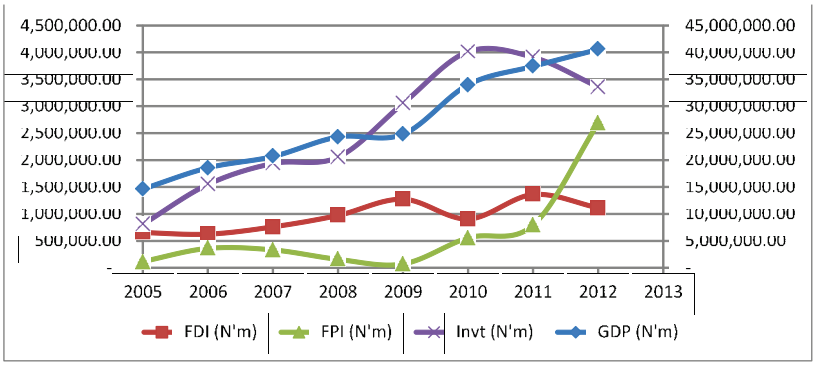

Figure 1: Trends of Investments and GDP in Nigeria
Source: CBN Statistical Bulletin, 2012

[3] *There are many more determinants; but we have selected few that can be impacted upon by higher GDP value*
[4] *Note that while GDP is plotted along the right axis, other series are plotted on the left axis.*

- Ineffective bankruptcy laws and procedures
- Weak corporate governance
- Poor access to finance
- Security challenges

All these constitute a drag in the competitiveness of Nigeria. For instance, table 3 shows that Nigeria ranks as number 120 out of 148 in the Global Competitiveness Index (GCI) of 2013/2014. It is also shown that the country has fallen from its 115 position of 2012/2013 ranking. Now that Nigeria has overtaken South Africa as the largest economy in Africa, it is important for the country to also employ strategies that will make it overtake South Africa' 53rd position in the GCI.

5. LESSONS FOR NIGERIA

In examining the impact of GDP rebasing on the Nigerian investment environment, it is important to evaluate how GDP rebasing will generally affect the determinants of investment and also analyze some stylized facts from countries that have also rebased their GDP. Among the effects of the rebasing are that Nigeria's GDP has increased in absolute term and some sectors have emerged as relatively important when considering their contributions to total output. Table 4 shows examples of some likely effects of rebasing.

Table 3: Nigeria's Ranking in the Global Competitiveness Index 2012-2014

Country/Economy	GCI 2013-2014 Rank	GCI 2012-2013 Rank	Change
Mauritius	45	54	9
South Africa	53	52	-1
Botswana	74	79	5
Kenya	96	106	10
Ghana	114	103	-11
Egypt	118	107	-11
Nigeria	**120**	**115**	**-5**

Source: The Global Competitiveness Index (World Economic Forum – WEF)

Table 4: Impact of rebasing on investment

SN	Factor	Impact of rebasing	Impact on investment
1	Interest rates,	Rebasing has the tendency to increase money supply; thereby lowering interest rate	Lower interest rate implies increase in domestic investment; but may also lead to a reduction in foreign capital inflow
2	Output and its growth	Rebasing makes output level appear bigger	Market-seeking FDI will flow into Nigeria
3	Tax rate	Rebasing implies government needs to increase its tax revenue as tax/GDP ratio appears small	Increase taxation implies less investment. Except when tax revenue is efficiently invested in the development of infrastructures to
4	Financial development	In line with the country's FSS 2020, investment in financial infrastructure will boost the impact of rebasing on foreign capital inflows	When larger market attracts foreign investors, development in Nigeria's financial infrastructure will facilitate exchange and contribute positively to investment. However, rebasing implies that the size and depth of Nigerian financial market become smaller (ratios of money supply and market capitalisation to GDP will fall)
5	Trade openness	Rebasing will imply low openness as measured by (Export+Import)/GDP	If foreign investors look at this ratio, then low openness will discourage foreign investment
6	Government debt	Rebasing implies government debt is low; hence, government can borrow more.	Increased borrowing of government may crowd out private investment. It may also serve as incentives for foreigners to investment in sovereign bonds and hence encour age inflow of foreign capital.

Source: Author's compilation

The table suggests that rebasing can either be a blessing or a curse for investment; depending on how well it is managed. However, the fact that it may boost investment in the aggregate is reinforced because more attention is likely to be accorded to some investment opportunities that may present themselves as a result of the newly-emerging sub-sectors such as wholesale and retail trade, information and communication, real estate services, human health and social services, professional, scientific and technical services. The newly rebased figures may also influence government attention in some sector. This can lead to higher public investment provided attention to other sectors is not reduced. It will also be informative to consider some cross-country evidence on the status of investment in the post-rebasing period.

I. Uganda rebased its GDP in 2001: FDI inflows in Uganda went up from $151,486,150(2.6% of GDP) in 2001 to $1,721,169,095 (8.6% of GDP) in 2012. Gross capital formation grew from 19.3% of GDP in 2001 to 24.5% of GDP in 2012.

ii. Malaysia rebased its GDP in 2005: FDI inflows in Malaysia went from $3,924,786,634 (2.7% of GDP) in 2005 to $15,119,371,104 (5.22% of GDP) in 2011. Gross capital

formation remained relatively the same at about 23% of GDP through the period 2005 to 2011.

iii. Brazil rebased its GDP around 2005: FDI inflows went from $15,459,981,604 (1.8% of GDP) in 2005 to $71,538,657,409 (2.9% of GDP) in 2011. Gross capital formation went up from 16.2% of GDP to 19.7% of GDP within the period.

iv. Nicaragua rebased its GDP around 1998: FDI inflows fell in the years following the exercise. It went from $218,200,000 (4.7% of GDP) in 1998 to $150,200,000 (2.8% of GDP) by 2001. Gross capital formation also fell from 34.3% to 26.8% over the period.

The evidence above is mixed but there is a higher tendency for investment as a ratio of GDP to rise following the rebasing of a country's GDP. However, such investment rise is more likely to occur in foreign investment than domestic investment.

6. SUMMARY AND CONCLUSION

The recent rebasing of Nigeria GDP from 1990 to 2010 has pushed the country towards achieving its goal of being one of the top 20 economies in the world by 2020. It has also generated a lot of debate; especially on its appropriateness, timing and effect on welfare of Nigerians. This paper attempts to contribute to this debate by examining the impact of GDP rebasing on Nigeria's investment environment. It is shown that rebasing of Nigerian GDP has led to a change in total nominal GDP in a range above 60%. Majority of this increase is generated by the service sector; implying that Nigeria is heading towards a more service-oriented economy.

The investment environment in Nigeria is shaped by some macroeconomic, governance, infrastructure and other micro factors. While some successes have been recorded in the macroeconomic environment, much still have to be done to other factors as they grossly limit the competitiveness of the country. Theoretically, rebasing may boost investment in Nigeria; especially foreign investment. If new funds are channeled to the newly emerging service sector by domestic investors and if foreign investment is well integrated with domestic investment, then rebasing may also raise domestic investment. Evidence from countries that have rebased and the trends of investment data in Nigeria however suggest that rebasing will have higher impact on foreign portfolio investment than foreign direct investment and domestic investment.

The foregoing therefore suggests that rebasing has the tendency to exert a positive impact on investment but a deeper analysis will be required to isolate factors that can contribute to these impacts. This will be necessary so that Nigerian size can be converted to its benefits. Even though there are countries that have rebased and experienced higher foreign inflow, Nigeria has to work on improving its competitiveness and removing the identified problems to investment. It has to exploit the new opportunity presented in the service sector; but this has to be done without jettisoning its industrialization goal. This is because in the end, industrialisation is necessary for sustainable growth. More importantly is the growth in the manufacturing sector[6].

In addition to probable increase in investment in these sub-sectors, investments in labour-intensive industries will be high-yielding for the country and help solve its paradox of high growth and high unemployment. Also, the temptation to over-borrow should be guided against by the government as this is likely to crowd-out private investment and further shrink the already limited financing access that the country's small and medium scale industry obtain. Although both FDI and FPI are important, efforts should be made to attract more of the former as it is less volatile.

[5] The reader should note that these case studies are descriptive and may reflect the impacts of other phenomenon apart from rebasing

[6] The manufacturing sector has been found to possess high backward and forward linkages with the rest of the economy.

GDP REBASING AND IMPLICATIONS FOR FSS 2020

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1.0 INTRODUCTION:

It is incontrovertible that a resilient economy founded upon a reliable financial system, is attainable upon the creation and management of a sound and progressive economic statistics and indicators such as the Gross Domestic Products (GDP) and other scholars parameters. It is equally from that a healthy economy is driven largely by a properly consummated and appropriately nurtured financial system complimented by a well-designed GDP. It is therefore important that we understand what is a GDP and why do we need to maintain a strategic GDP. How does one compute and / or rebase a GDP in order to understand and clearly establish its implications, on all economic programs. In creating a very quick understanding to our topic, we have looked at the several available definitions and would wish to adopt the one which says GDP can be defined as "the total market value of all final goods and services produced in a country in a given year, equal to total consumer, investments and government spending plans, the values of exports minus the values of imports".

GDP are statistical figures used to determine the economic strength of a nation indicated above, we might therefore need to remind ourselves as follows:

(i) That GDP does not give the income distribution in a country and that we should therefore not mistake GDP with other parameters per capita such a income and the standard of living. The truth is that a country with a high GDP can still have a low standard of economy or even its citizens being poor and vise-versa;

(ii) In the same way, per capita figures should not be confused with the minimum or average wage in a country since per-capita is the ratio of the GDP to the population while average range is determined by government based on other conditions in the country. Per capita does not represent what individuals earn and should not be interpreted or used as the personal income figure. For instance, the minimum wage in Nigeria is currently fixed at about N17,000 (approximately $110) compared to the per capita income of $2,688 based on the new GDP figure. GDP can be computed using any of the popular three methods; namely:

(a) Production or Value Added Approach:
In this method, GDP is computed as the gross value of output less the value of intermediate consumptions and can be represented as follows:

$$GDP (P) = V (G) – V (IC)$$

Where V (G) = Gross value of output and

V (IC) = value of intermediate consumptions

(b) Income approach:
Uses the compensation of employees, gross operating surplus, gross mixed income, taxes and subsidies on production and inputs, GDP is therefore computed under this approach as follows:

GDP (I) = G+Gs+Gi + T – (subsidies on production – subsidies on imports)
Where
Cp = Compensation of employees
Gs = Gross operating surplus
Gi = Gross mixed income
T = Taxes

(c) The Expenditure Approach:
Uses consumption, investments, government spending, total export and total imports to compute the GDP as equal to:

$$GDP(\Sigma) = C + I + G + (e-m)$$

Where
C = Total consumption
I = Investments
G = Government spending
e = Exports
m = Imports

Whichever approach we adopt, the values established must be equal

2.0 UNDESTANDING GDP REBASING:

Rebasing is the process of replacing the old base year used to compute where measures of GDP with a new one that reflects current economic activities and price structure. Rebasing is used to account for the new current snapshot of the economy as well

as improve the coverage of economic activities included in the GDP compilation framework. When we rebase, we attempt to reconcile the different estimates of GDP and provide the new methodological and conceptual reviews for improvements.

Rebasing GDP for any country is a strategic planning initiative that is almost mandatory and should be undertaken, preferably, in not more than five years intervals.

Rebasing GDP has several associated and inherent benefits which include but not limited to the following:

(a) Give the appropriate size of the economy and its position in global assessment;
(b) Gives better identification of structure and size of the economy;
(c) Superior investment choices for investors with bigger and well classified economy;
(d) Internal GDP per capita;
(e) Better decision and policy making with reliable data;
(f) More diversified economy;
(g) Fast-tracked achievement of sector targets transformational agenda;
(h) Improved planning processes as a result of the availability of reliable and more accurate data and information.

2.1 Specific Rationale For Rebasing Nigeria Gdp:

There are several other reasons beyond realizing the associated benefits on why rebasing our GDP is the right way to go and during otherwise at a time like this will amount to doing unpardonable wrong thing.

2.1.1 We need to document the unprecedented surge of Foreign Direct Investments (FDI) and trade developments to Nigeria, must especially in 2012 and beyond;

2.1.2 We need to recognize, appreciate and celebrate the major international brands that have entered into Nigeria financial landscape in the lands few years. Such brands include the Shoprite, KFC, Manitoba, SPEAR, to mention a few;

2.1.3 We have embarked on rebasing the country GDP to fulfill the need for evidenced based policy and decision making methodology;

2.1.4 We need to rebase our GDP in order to create and generate reliable data and information required for efficient and effective policy making and implementation;

2.1.5 We need to rebase our GDP to recognize and document the changes in the consumption pattern of Nigerian and Nigerians and therefore create the appropriate look and feel, for the rational economy;

2.1.6 We need to rebase our GDP to fulfill all righteousness for managing an effective strategic planning and management framework for our economy;

2.1.7 We need to rebase in order to live up to the prediction and expectation of global institutions and scholars on the actual structure of Nigeria, economy and the potentials available in Nigeria to become a world leader, shortly;

2.1.8 As a result of the rebasing exercise, our economy has become more diversified and not any longer relenting on a partaker sector as it used to be.

3.0 LESSONS LEARNED IN REBASING OUR GDP:

The all-time important exercise was undertaken last in 1990 and the country had lived with the 24 years old data, as the planning data and information for our country's economic activities, despite the landmark achievements in some sectors that have grown multiple leaps and several other new ones that have emerged over the years.

Nigeria GDP initial figure of N42.4 Trillion (269.5 Billion USD) had changed by not less than 89% to come to its new figure of N80.2 Trillion (approximately 510 Billion USD). The rebasing exercise through undertaken by NIBS (Nigeria Bureau of Statistics) involve several other organizations, such as the Ministry of Finance, the Central Bank of Nigeria and others too numerous to mention. The outcomes of the exercise were validated by local experts comprising of internationally recognized scholars which include Professors Olu Ajakaye, Akpan Ekpo, Ganiyu Garba, Ayo Teriba, Yemi Fajingbesi, Doyin Salami and Adeola Adenikiju. The results were also per reviewed and approved by the IMF, the World Bank and the African Development Bank (ADB).

Consequent to the outcomes of the rebasing, Nigerian now occupy the 26th largest economy position in the world with peer countries such as Argentina occupying //25, Austria //27 and South Africa //28.

It is equally gratifying to note that our per capital figures rose from 1,555USD to an all-time figure of 2,688USD and now ranked 121st position in the world, rising from its previous 135th position. Even despite our high GDP figure and

bigger per capita figure, our per capita figure still come fourth behind the South Africa's because of their relatively small population. South Africa now ranked //69 in the world with a per capita of 7,507USD.
In the old order, the economic classifications consist of thirty-two (32) sectors only enlisted from the 1990 figures, whereas the new classifications consist of other new economic activities with a total of 42 sectors identified with significant departure from the old results. For example, agriculture now declined from 33% to 22% and services increased significantly from its original 26% to 51% of the GDP.

In the rebased GDP, we have now identified other sectors such as oil and gas with new contribution of about 16%, manufacturing with about 7%, teleos constitute about 9% and entertainment sector made over 1% contribution to the new GDP.

It is consequently believed that as a result of the larger GDP some of the economic statistics which are derived as ratio of the GDP will decline. Such parameters expected to decline include:
Debt to GDP will decline from 19% to about 11% while tax revenue to GDP nation has also dropped from its initial 20% to about 12%. These declines will enhance the integrity of the economy and the nation and position us better, among our peers.

From the results of the rebasing exercise, we have noticed significant changes in nominal GDP in other areas such as industry which declined from about 41% to about 26%, Telecommunications and Information Technology which increased significantly from 0.8% to almost 9%.

Table 1: Selected countries that have undertaken rebasing exercises and the magnitude of the changes.

Ghana	1993	2006	13	62.8
Guatemala	1958	2001	43	-10.7
Honduras	1978	2000	22	19.2
Lesotho	1995	2004	9	-4.4
Morocco	1988	1998	10	11.7
Nicaragua	1980	1994	14	70.0
Niger	1987	2006	19	2.5
Nigeria	1990	2013	23	89.22
Paraguay	1982	1994	12	-11.6
Sierra Leone	2001	2006	5	25.6
Tanzania	2001	2007	6	10
Tunisia	1990	1997	7	9.8
Uganda	1997/1998	2002	5	10.5
Venezuela	1984	1997	13	-3.2

Table 1-contd: Selected countries that have undertaken rebasing exercises and the magnitude of the changes.

Ghana	1993	2006	13	62.8
Guatemala	1958	2001	43	-10.7
Honduras	1978	2000	22	19.2
Lesotho	1995	2004	9	-4.4
Morocco	1988	1998	10	11.7
Nicaragua	1980	1994	14	70.0
Niger	1987	2006	19	2.5
Nigeria	1990	2013	23	89.22
Paraguay	1982	1994	12	-11.6
Sierra Leone	2001	2006	5	25.6
Tanzania	2001	2007	6	10
Tunisia	1990	1997	7	9.8
Uganda	1997/1998	2002	5	10.5
Venezuela	1984	1997	13	-3.2

FINANCIAL SYSTEM STRATEGY (FSS2020) STORY AND THE RATIONALE FOR THE PROGRAM

4.1 OVERVIEW OF FSS2020

Following series of reform programs carried out by the Government between 2003 and 2004, it became imperative that the financial system of the country needed to be fast-tracked to ensure enhanced economic growth and development. The Central Bank of Nigeria put together a number of local and international Consultants to realize this aim of Government. Consequently, Financial System Strategy, FSS2020 Program was put in place which produced a report that would take Nigeria to the promised land come year 2020.

The Financial System Strategy (FSS) 2020 is a national reform program aimed at developing and transforming Nigeria's financial sector into a growth catalyst to fast track the achievement of the Vision 20:2020 and engineer Nigeria's evolution into an International Financial Centre. The strategic objectives of FSS2020 are therefore to strengthen and deepen the domestic financial markets, enhance the integration of domestic financial markets with the external financial markets and supporting the real sector. The CBN launched the Financial System Strategy (FSS) 2020 in August 2006 to fast track the achievement of the country's vision 2020.

The FSS 2020 is based on the recognition of the linkage between financial

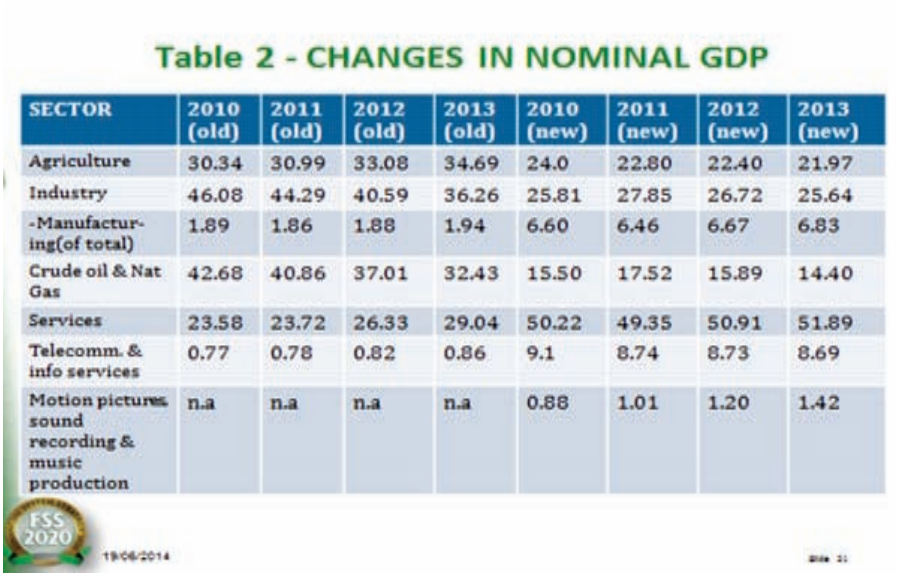


Table 2 - CHANGES IN NOMINAL GDP

SECTOR	2010 (old)	2011 (old)	2012 (old)	2013 (old)	2010 (new)	2011 (new)	2012 (new)	2013 (new)
Agriculture	30.34	30.99	33.08	34.69	24.0	22.80	22.40	21.97
Industry	46.08	44.29	40.59	36.26	25.81	27.85	26.72	25.64
-Manufacturing(of total)	1.89	1.86	1.88	1.94	6.60	6.46	6.67	6.83
Crude oil & Nat Gas	42.68	40.86	37.01	32.43	15.50	17.52	15.89	14.40
Services	23.58	23.72	26.33	29.04	50.22	49.35	50.91	51.89
Telecomm. & info services	0.77	0.78	0.82	0.86	9.1	8.74	8.73	8.69
Motion pictures, sound recording & music production	n.a	n.a	n.a	n.a	0.88	1.01	1.20	1.42

deepening/growth and economic developments. The vision of the FSS 2020 is to make the Nigerian Financial sector the fastest growing financial system among the emerging economies while the mission is to drive rapid and sustainable economic growth primarily in Nigeria and Africa.

From the on-set, FSS2020, an integral part of the national vision was designed and developed with strategic objectives that will enable the Nigerian Economy become one of the world safest and fastest growing economies by the year 2020.

This is in furtherance to the vision propelled by Goldman Sachs research team in their 2005 research efforts where they predicted that Nigeria as one of two possible African countries has potentials to join the league of the next 11 of the world powers on or before 2025.

4.2 WHY FSS2020?

1) Need to sustain the macroeconomic stability
Need to deepen the Banking and Financial system beginning with clear understanding of the concept of money and money as a legal tender currency
2) Evolving appropriate regulations and laws to power the new economy
Create new avenues for the funding of critical infrastructure such as power, roads, telecommunication, water supply and distribution, etc.
3) Addressing the shortage of qualified and experienced manpower
4) Enhancing corporate governance regime across the financial system etc.

4.4 THE INITIAL OVERARCHING STRATEGY

The Financial System Strategy 2020 blueprint will be used in achieving these goals: developing and transforming Nigeria's financial sector into a growth catalyst and engineering Nigeria's evolution into an international financial centre.

4.5 STRATEGY REFINEMENT PROJECTS

The decision to review the current strategy of FSS2020 was taken at the inaugural meeting of the reconstituted Program Supervisory Board (PSB) held on Friday December 14, 2012. The Justifications were:

The PSB considered the current strategy and took a decision to review it in tandem with international best practices and provision which stipulates that business strategy, for efficient results should be reviewed in periods ranging from 3-5 years. The current strategy which was crafted about 2006- 2007 was therefore due for review in line with current realities and to make up for global changes occasioned by global economic recession and other conditions.

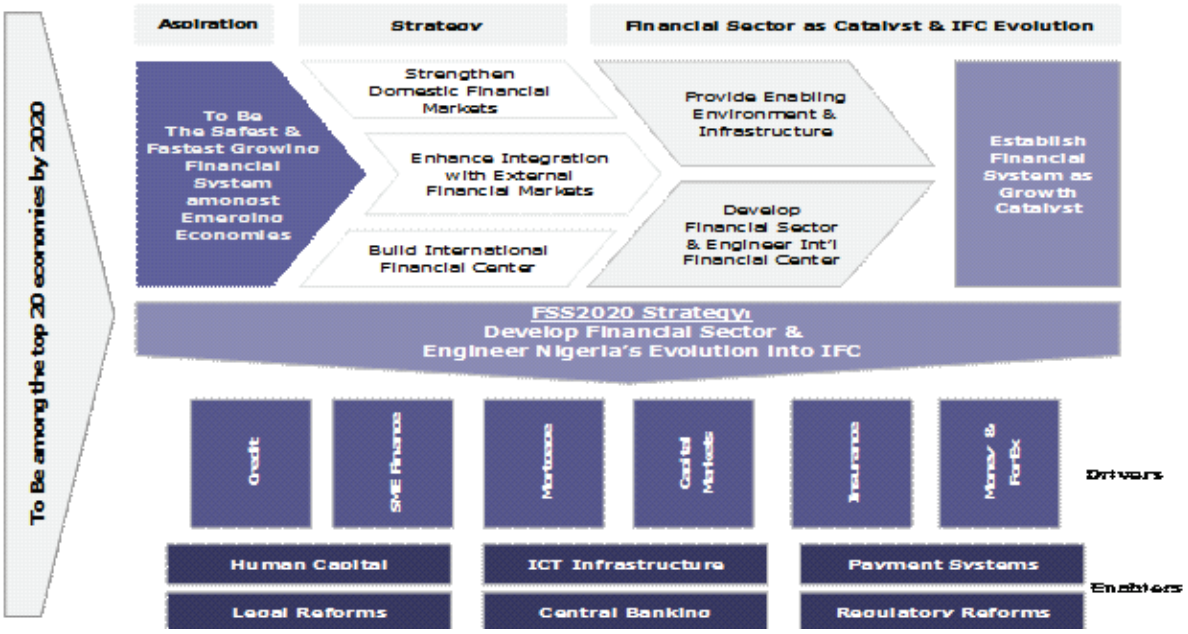
The lean result (slow execution of initiatives and relatively poor commitment of stakeholders necessitated the review of the strategy.
To align our plan with strategy and budget, in attendance with international best practice

4.6 FSS2020 REVISED STRATEGIC DESTINATION:

Our Vision- (Refined Strategic Destination):By 20, to be the

4.3 FSS2020 AND NV20: 2020

FSS2020	NATIONAL VISION 20:2020
The Strategic Objectives of FSS2020 are as follows- 1) Strengthen and deepen the domestic financial market 2) Integration of the domestic financial market with the external financial market 3) Promote sustainable economic development	The Strategic Objectives of NV20:2020 are as follows- 1) Optimizing Key sources of economic growth 2) Guaranteeing the productivity and wellbeing of the people. 3) Fostering Sustainable social and economic development.



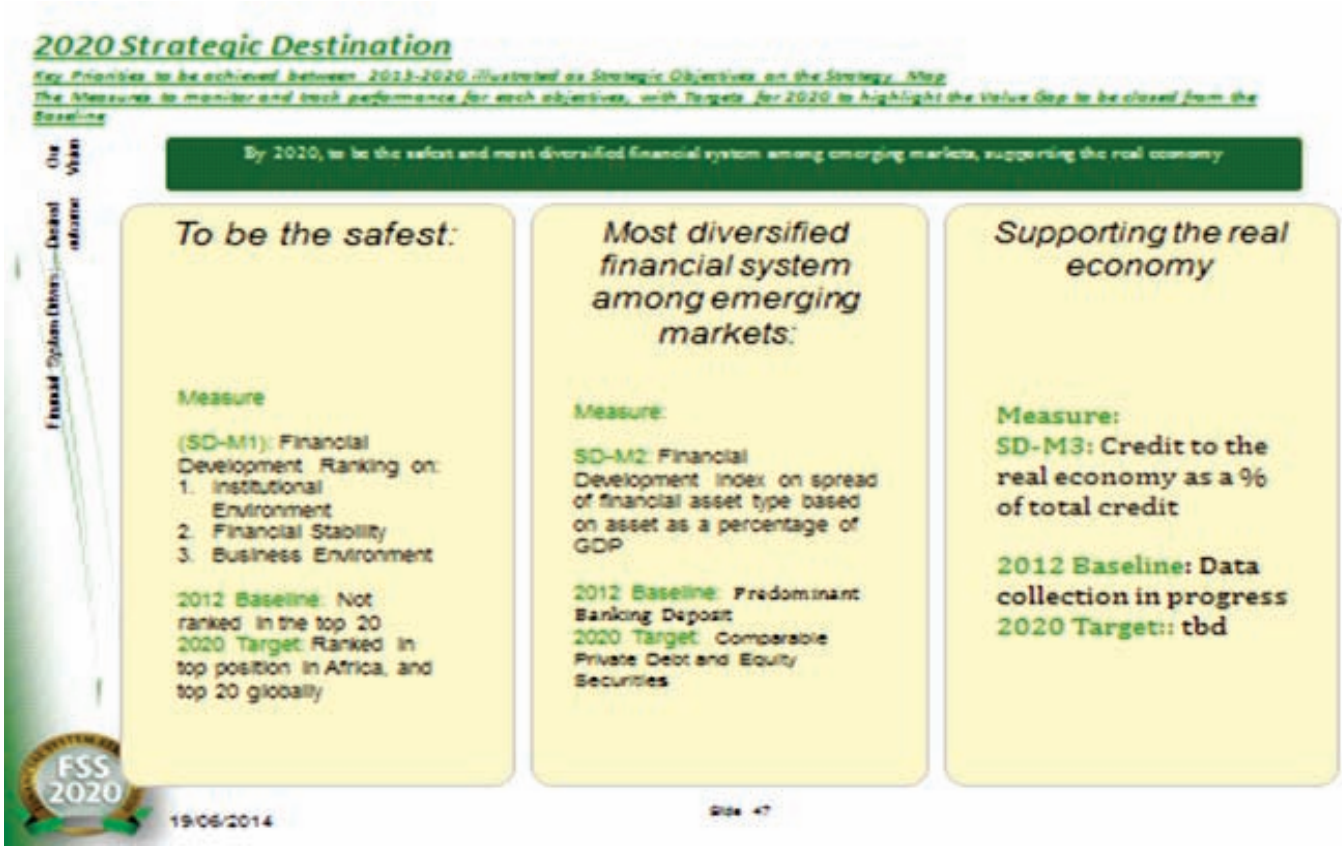
safest and most diversified financial system among emerging markets, supporting the real economy

§ By 2020, to be the safest and most diversified financial system among emerging markets, supporting the real economy

Key Elements of the Vision

- **"Safest** – The Nigerian financial system will be modeled to provide unparalleled safety, in order to mitigate the perception usually associated with emerging economies. Our financial system will be re-configured with shock-recovery capabilities and sensitivity"

- **"Emerging markets** – We intend to conquer and use the key emerging markets as our initial benchmark. Emerging markets will be as defined by World Bank and IMF e.g. the BRICs"



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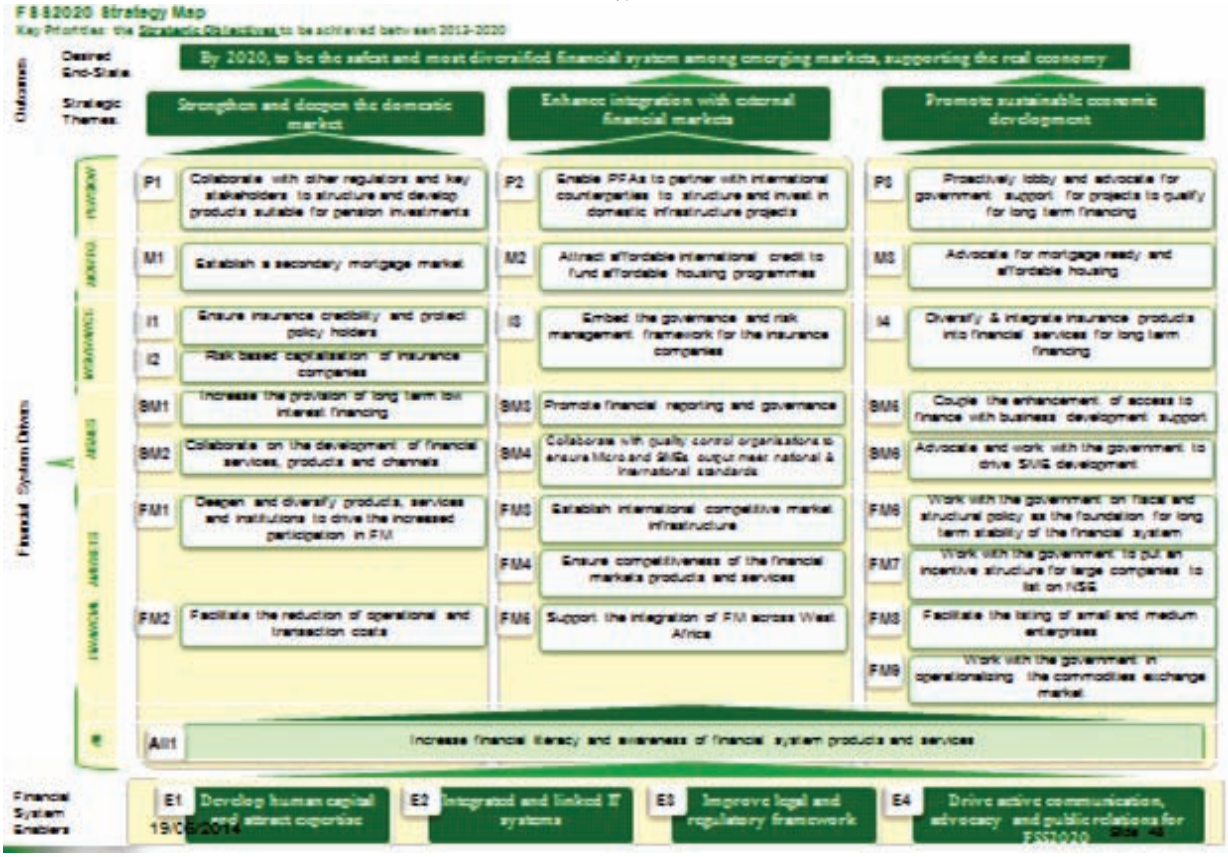
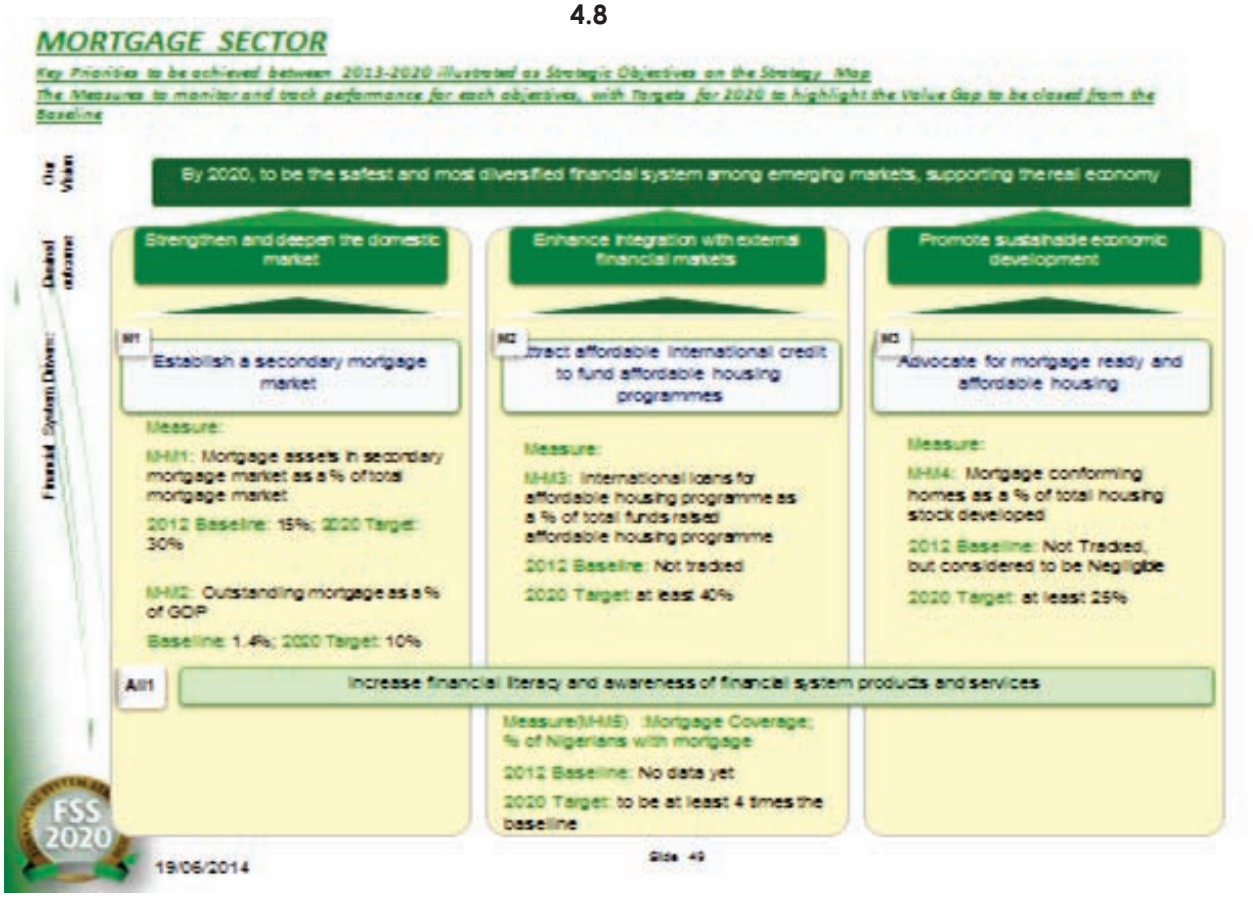

FSS2020 Strategy Map
Desired End-State
By 2020, to be the safest and most diversified financial system among emerging markets, supporting the real economy
Strategic Themes
Strengthen and deepen the domestic market
Enhance integration with external financial markets
Promote sustainable economic development
Financial System Drivers
P1 Collaborate with other regulators and key stakeholders to structure and develop products suitable for pension investments
P2 Enable PFAs to partner with international counterparties to structure and invest in domestic infrastructure projects
P3 Proactively lobby and advocate for government support for projects to qualify for long term financing
M1 Establish a secondary mortgage market
M2 Attract affordable international credit to fund affordable housing programmes
M3 Advocate for mortgage ready and affordable housing
I1 Ensure insurance credibility and protect policy holders
I2 Risk based capitalisation of insurance companies
I3 Embed the governance and risk management framework for the insurance companies
I4 Diversify & integrate insurance products into financial services for long term financing
BM1 Increase the provision of long term bill interest financing
BM2 Collaborate on the development of financial services, products and channels
BM3 Promote financial reporting and governance
BM4 Collaborate with quality control organizations to ensure Micro and SMEs output meet national & international standards
BM6 Couple the enhancement of access to finance with business development support
BM8 Advocate and work with the government to drive SME development
FM1 Deepen and diversify products, services and institutions to drive the increased participation in FM
FM2 Facilitate the reduction of operational and transaction costs
FM3 Establish international competitive market infrastructure
FM4 Ensure competitiveness of the financial markets products and services
FM5 Support the integration of FM across West Africa
FM6 Work with the government on fiscal and structural policy as the foundation for long term stability of the financial system
FM7 Work with the government to put an incentive structure for large companies to list on NSE
FM8 Facilitate the listing of small and medium enterprises
FM9 Work with the government in operationalizing the commodities exchange market
All1 Increase financial literacy and awareness of financial system products and services
Financial System Enablers
E1 Develop human capital and attract expertise
E2 Integrated and linked IT systems
E3 Improve legal and regulatory framework
E4 Drive active communication, advocacy and public relations for FSS2020
19/06/2014

4.8


MORTGAGE SECTOR
Key Priorities to be achieved between 2013-2020 illustrated as Strategic Objectives on the Strategy Map
The Measures to monitor and track performance for each objectives, with Targets for 2020 to highlight the Value Gap to be closed from the Baseline
Our Vision
By 2020, to be the safest and most diversified financial system among emerging markets, supporting the real economy
Desired Outcome
Financial System Drivers
Strengthen and deepen the domestic market
Enhance integration with external financial markets
Promote sustainable economic development
M1
Establish a secondary mortgage market
Measure:
MM1: Mortgage assets in secondary mortgage market as a % of total mortgage market
2012 Baseline: 15%; 2020 Target: 30%
MM2: Outstanding mortgage as a % of GDP
Baseline: 1.4%; 2020 Target: 10%
M2
Attract affordable international credit to fund affordable housing programmes
Measure:
MM3: International loans for affordable housing programme as a % of total funds raised affordable housing programme
2012 Baseline: Not tracked
2020 Target: at least 40%
M3
Advocate for mortgage ready and affordable housing
Measure:
MM4: Mortgage conforming homes as a % of total housing stock developed
2012 Baseline: Not Tracked, but considered to be Negligible
2020 Target: at least 25%
All1
Increase financial literacy and awareness of financial system products and services
Measure(MM5): Mortgage Coverage; % of Nigerians with mortgage
2012 Baseline: No data yet
2020 Target: to be at least 4 times the baseline
FSS 2020
19/06/2014
Slide 49

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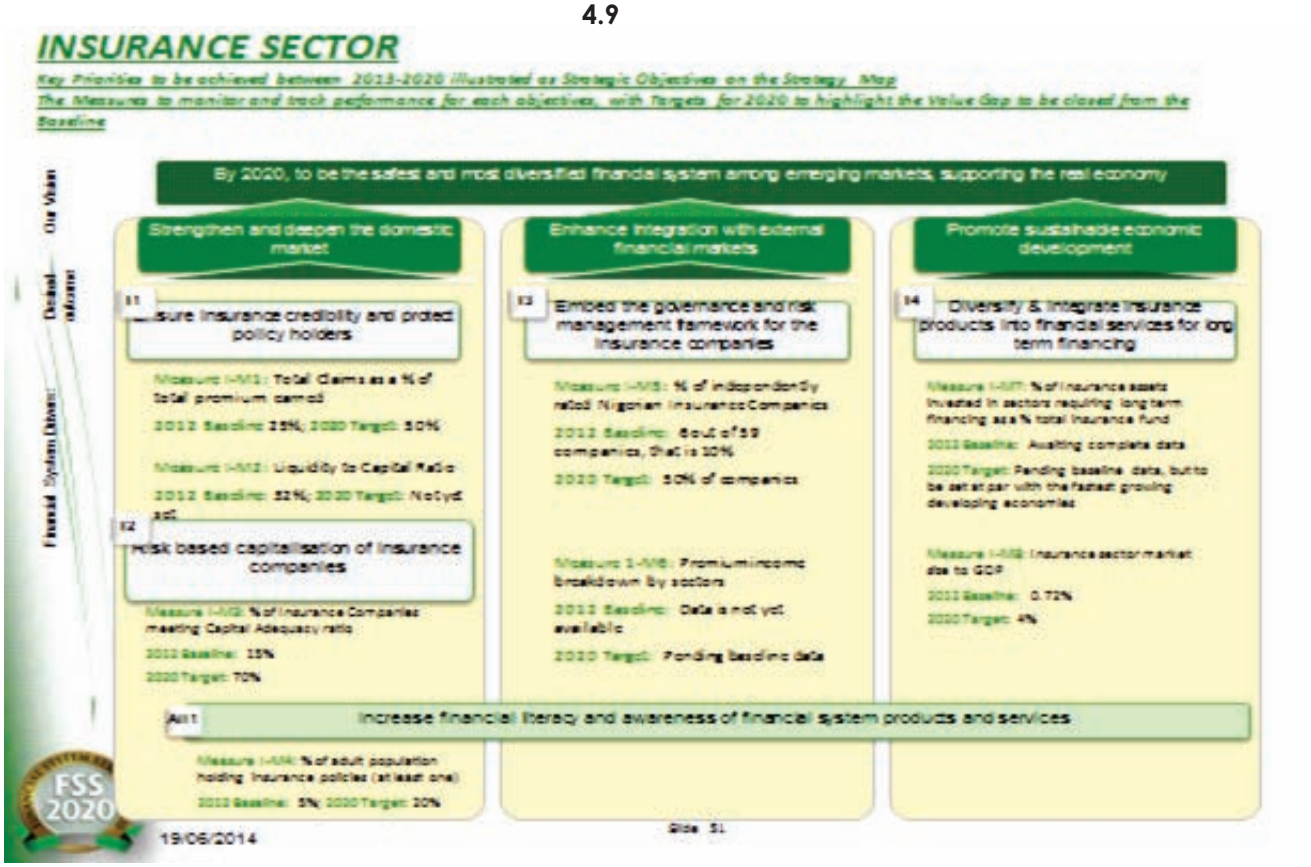
INSURANCE SECTOR
Key Priorities to be achieved between 2013-2020 illustrated as Strategic Objectives on the Strategy Map
The Measures to monitor and track performance for each objectives, with Targets for 2020 to highlight the Value Gap to be closed from the Baseline
Our Vision
By 2020, to be the safest and most diversified financial system among emerging markets, supporting the real economy
Desired outcome
Financial System Drivers
Strengthen and deepen the domestic market
Enhance integration with external financial markets
Promote sustainable economic development
I1
Ensure insurance credibility and protect policy holders
I3
Embed the governance and risk management framework for the insurance companies
I4
Diversify & integrate insurance products into financial services for long term financing
I2
Risk based capitalisation of insurance companies
All1
Increase financial literacy and awareness of financial system products and services
FSS 2020
19/06/2014
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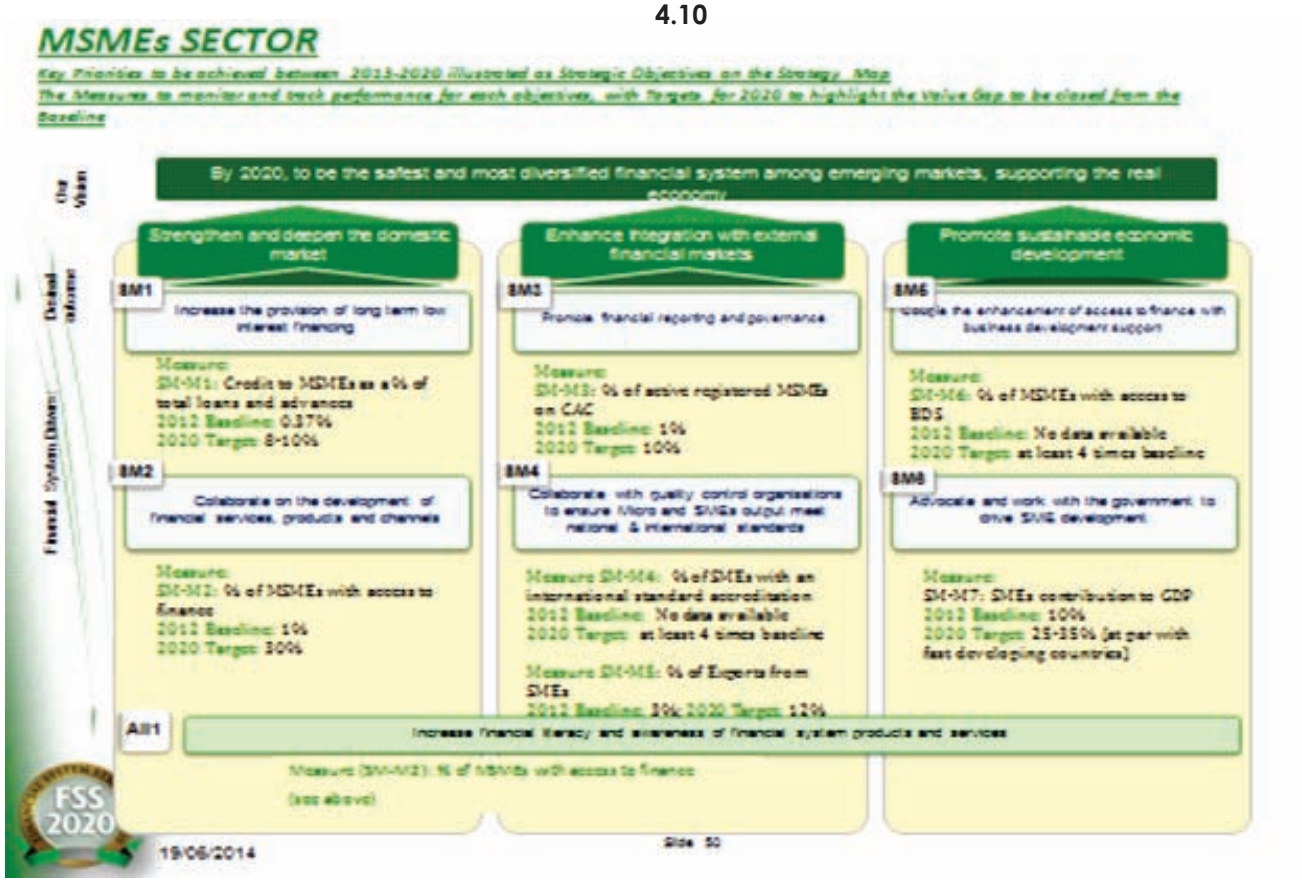
MSMEs SECTOR
Key Priorities to be achieved between 2013-2020 illustrated as Strategic Objectives on the Strategy Map
The Measures to monitor and track performance for each objectives, with Targets for 2020 to highlight the Value Gap to be closed from the Baseline
Our Vision
By 2020, to be the safest and most diversified financial system among emerging markets, supporting the real economy
Desired outcome
Financial System Drivers
Strengthen and deepen the domestic market
Enhance integration with external financial markets
Promote sustainable economic development
SM1
Increase the provision of long term low interest financing
SM3
Promote financial reporting and governance
SM6
Couple the enhancement of access to finance with business development support
SM2
Collaborate on the development of financial services, products and channels
SM4
Collaborate with quality control organisations to ensure Micro and SMEs output meet national & international standards
SM8
Advocate and work with the government to drive SME development
All1
Increase financial literacy and awareness of financial system products and services
FSS 2020
19/06/2014
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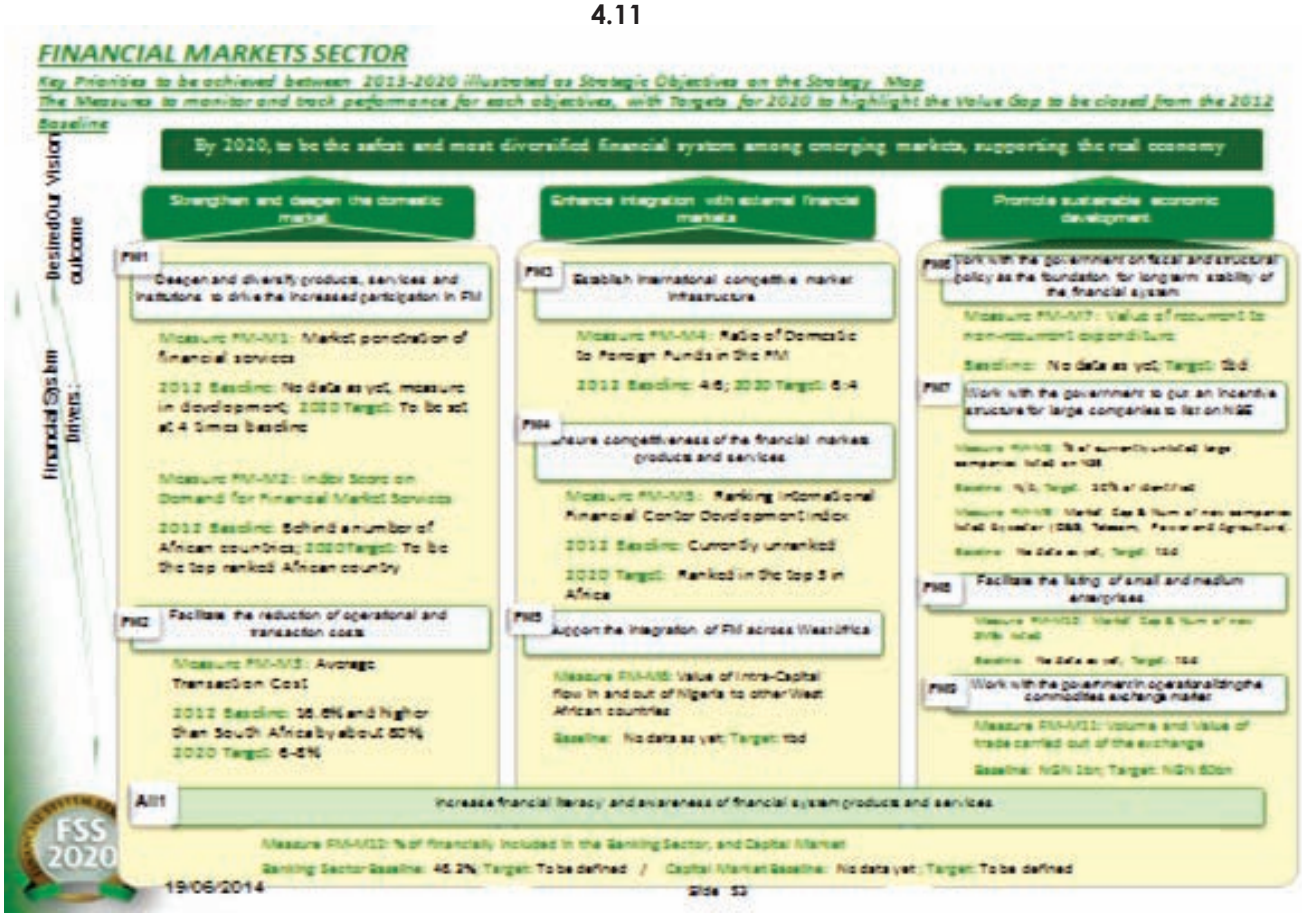
FINANCIAL MARKETS SECTOR
Key Priorities to be achieved between 2013-2020 illustrated as Strategic Objectives on the Strategy Map
The Measures to monitor and track performance for each objectives, with Targets for 2020 to highlight the Value Gap to be closed from the 2012 Baseline
Desired Our Vision outcome
By 2020, to be the safest and most diversified financial system among emerging markets, supporting the real economy
Financial System Drivers:
Strengthen and deepen the domestic market
Enhance integration with external financial markets
Promote sustainable economic development
FM1
Deepen and diversify products, services and institutions to drive the increased participation in FM
Measure FM-M1: Market penetration of financial services
2012 Baseline: No data as yet, measure in development; 2020 Target: To be set at 4 times baseline
Measure FM-M2: Index Score on Demand for Financial Market Services
2012 Baseline: Behind a number of African countries; 2020 Target: To be the top ranked African country
FM2
Facilitate the reduction of operational and transaction costs
Measure FM-M3: Average Transaction Cost
2012 Baseline: 16.6% and higher than South Africa by about 60%
2020 Target: 6-8%
FM3
Establish international competitive market infrastructure
Measure FM-M4: Ratio of Domestic to Foreign Funds in the FM
2012 Baseline: 4:6; 2020 Target: 6:4
FM4
Measure competitiveness of the financial markets products and services
Measure FM-M5: Ranking International Financial Center Development Index
2012 Baseline: Currently unranked
2020 Target: Ranked in the top 5 in Africa
FM5
Support the integration of FM across West Africa
Measure FM-M6: Value of Intra-Capital flow in and out of Nigeria to other West African countries
Baseline: No data as yet; Target: tbd
FM6
Work with the government on fiscal and structural policy as the foundation for long term stability of the financial system
Measure FM-M7: Value of recurrent to non-recurrent expenditure
Baseline: No data as yet; Target: tbd
FM7
Work with the government to put an incentive structure for large companies to list on NSE
FM8
Facilitate the listing of small and medium enterprises
FM9
Work with the government in operationalizing the commodities exchange market
Measure FM-M10: Volume and Value of trade carried out of the exchange
Baseline: NGN 1bn; Target: NGN 60bn
ALL1
Increase financial literacy and awareness of financial system products and services
Measure FM-M11: % of financially included in the Banking Sector, and Capital Market
Banking Sector Baseline: 46.3%; Target: To be defined / Capital Market Baseline: No data yet; Target: To be defined
FSS 2020
19/06/2014
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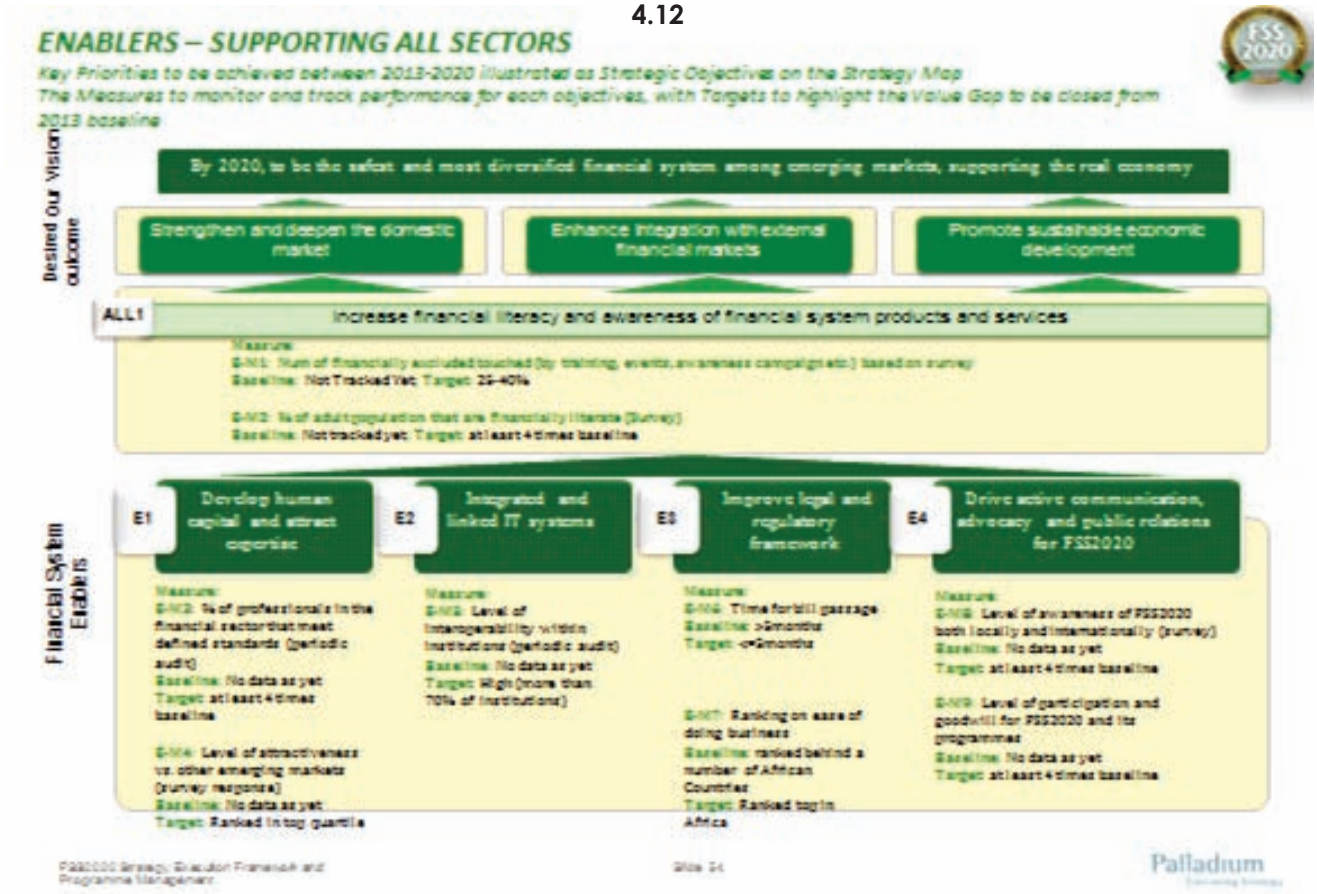
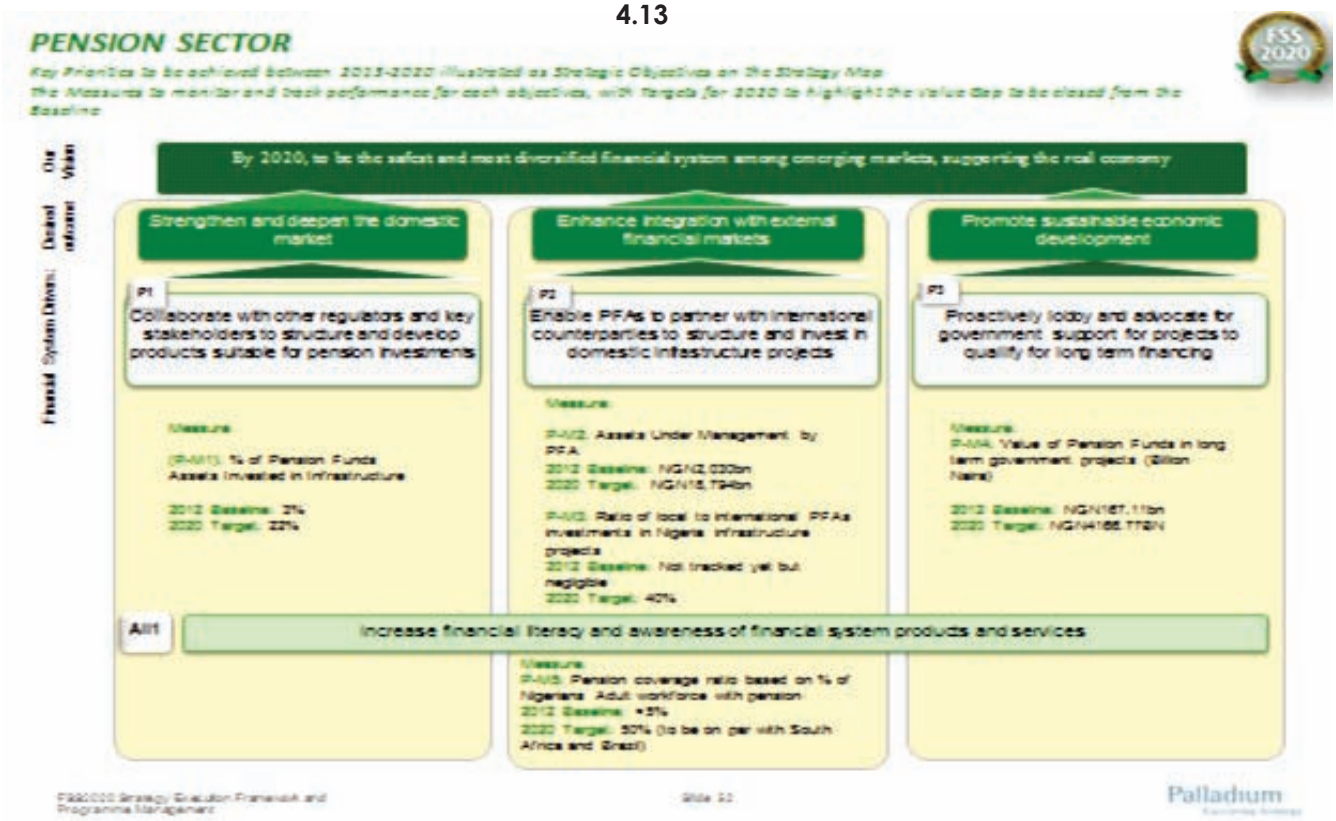

ENABLERS – SUPPORTING ALL SECTORS
Key Priorities to be achieved between 2013-2020 illustrated as Strategic Objectives on the Strategy Map
The Measures to monitor and track performance for each objectives, with Targets to highlight the Value Gap to be closed from 2013 baseline
FSS 2020
Desired Our Vision outcome
By 2020, to be the safest and most diversified financial system among emerging markets, supporting the real economy
Strengthen and deepen the domestic market
Enhance integration with external financial markets
Promote sustainable economic development
ALL1
Increase financial literacy and awareness of financial system products and services
Measure:
E-M1: Num of financially excluded touched (by training, events, awareness campaigns etc.) based on survey
Baseline: Not Tracked Yet; Target: 20-40%
E-M2: % of adult population that are financially literate (Survey)
Baseline: Not tracked yet; Target: at least 4 times baseline
Financial System Enablers
E1
Develop human capital and attract expertise
Measure:
E-M3: % of professionals in the financial sector that meet defined standards (periodic audit)
Baseline: No data as yet
Target: at least 4 times baseline
E-M4: Level of attractiveness vs. other emerging markets (survey response)
Baseline: No data as yet
Target: Ranked in top quartile
E2
Integrated and linked IT systems
Measure:
E-M5: Level of interoperability within institutions (periodic audit)
Baseline: No data as yet
Target: High (more than 70% of institutions)
E3
Improve legal and regulatory framework
Measure:
E-M6: Time for bill passage
Baseline: >24months
Target: <6months
E-M7: Ranking on ease of doing business
Baseline: ranked behind a number of African Countries
Target: Ranked top in Africa
E4
Drive active communication, advocacy and public relations for FSS2020
Measure:
E-M8: Level of awareness of FSS2020 both locally and internationally (survey)
Baseline: No data as yet
Target: at least 4 times baseline
E-M9: Level of participation and goodwill for FSS2020 and its programmes
Baseline: No data as yet
Target: at least 4 times baseline
FSS2020 Strategy, Execution Framework and Programme Management
Slide 34
Palladium

4.13



5.0 TRANSFORMATIONAL PROGRAMS (Tps)

Transformational Programs can generally be defined as the strategic initiatives designed to assist in the actualization of certain designed strategic objectives. The FSS2020 original overarching strategy threw up more than 740 initiatives across its sectors and sector enablers. Up until March 2013, when the original overarching strategy was listed for review, about 33% of the planned values of the initial initiatives were attained. Several factors were identified as being responsible for the slow delivery of the programs including the fact that the initiatives were too many to be effectively managed. The strategy refinement exercise made the initiatives to be consolidated into a smaller and more manageable program portfolio consisting of 24 transformational program instead of the large 740, started with the TPs are meant to be consolidated and / or owned by the implementing institutions and several other agencies of government, identified to be capable of making the benefits attainable.

Table 4 below shows the summary of the new programs and their owner institutions:

	CODE	NAME	STATUS	OWNER
Mortgage	TP1	Mortgage Refinancing Company	MRC set up and running	MoF/CBN
	TP2	SPV- for the Development of Affordable Housing Clusters	NEW	SEC
	TP3	Mortgage Asset Registry System	NEW	FMLHUD
MSME	TP4	National Collateral Registry	ONGOING	CBN
	TP5	MSME Corporate Governance & Business Standards	NEW	SMEDAN
	TP6	SPV for SME Production & Investment Clusters	NEW	SMEDAN

FINANCIAL MARKET	TP7	Long Term Financing Product Development	NEW	SEC
	TP8	Payments System	ONGOING	CBN
	TP9	Consumer Credit Scoring System	ONGOING	(CBN)/Bankers Committee
	TP10	NIFC – Nigeria International Financial Centre	ONGOING	CBN/ (FSS2020 PSB)
	TP11	Framework and structure for commodities	NEW	ASCE/ SEC
	TP12	Advocacy & Incentives to Expand Capital Market Listing	NEW	NSE
	TP24	Risk Based Supervision framework – system adoption	ONGOING	CBN
PENSION	TP13	Align Stakeholders To Accelerate Contributions To Pension Funds	NEW	PENCOM
	TP14	Enabling Infrastructure Investments	NEW	PENCOM
INSURANCE	TP15	Mass Insurance Encouragement	NEW	NAICOM
	TP16	Insurance Market Conduct Framework	NEW	NAICOM
	TP17	Framework - Coordination For Insurance Regulatory Enforcement	NEW	NAICOM
ENABLERS	TP18	FSS2020 Engagement & Awareness	NEW	FSS2020 PMO
	TP19	Enabling Financial System legal & regulatory frameworks	MIX	CBN / MoJ
	TP20	Attracting talent to Nigeria	NEW	CIBN (And other professional bodies)
	TP21	Develop qualified professionals	NEW	CIBN
	TP22	Design & implement an interoperability framework	ONGOING	NITDA
	TP23	Cross-sector coordination for Financial Literacy and inclusion	ONGOING	CBN/ SEC

At the inception in 2006, several projects were created in line with the initial overarching strategy. A total of almost 750 initiatives spread across the sectors and the enablers were planned to be implemented by all institutions.

6.0 IMPLICATIONS OF GDP REBASING TO FSS2020

Leading Economist have argued that the country may experience slower rate of economic growth because of the larger GDP and that if Nigeria is to continue to achieve its desired 6-7% growth rate after rebasing, it means that the country will have to post a much bigger level of economic output far greater than we are currently doing. Nigeria economic output may continue to suffer consistent significant dysfunctional patterns which may undermine the growth trajectory in the long term.

It is however gratifying to note that the predictions stated above had since occurred because the growth rate target had consequently been reviewed a little lower to about 5.5% from its original predicted rate of between 6-7%.

The implications of GDP rebasing with therefore be evaluated on all aspects for FSS2020 including but not limited to:

a) The designed strategic destination
b) The financial service sectors and their strategic enablers areas

In FSS2020, we believe implementing the FSS2020 Transformational Programs will positively influence the economic output and ultimately meet and exceed the desired economic growth rate target of 6-7%.

6.1 Implication of GDP Rebasing on Strategic Destination:

The rebasing of the GDP will affect the strategic destination objectives from the point of view of safety, diversification of the system particularly among emerging markets and the way and manner it will support the real economy, going forward. Accordingly, the safety, for instance will be affected by the financial development ranking especially through environmental import assessment, financial stability and the business environment, across all the sectors.

The diversification of the financial system among emerging markets will be enhanced by the development advices on the spread and growth of Asset types that will continually increase, as a total percentage of the GDP.

The support for the real economy will receive boost because credit to the real sector measured as a percentage of the total credit, will increase and grow steadily.

6.2 Implications on Financial System Sectors:

6.2.1 Mortgage Sector:

The rebasing of the GDP will create consistent growth for the mortgage markets as follows:
a) Mortgage assets in the secondary mortgage markets will increase substantially as a percentage of the total mortgage market, particularly with the establishment of the NMRC and strengthening of FMBN;

b) International credit in the form of loans for affordable housing program will increase, as a percentage of the total funds raised for housing program, in the country;

c) The acceptability and advocacy for mortgage newly and affordable housing – mortgage conforming homes as a percentage of the total housing stocks will increase and the housing gaps, will reduce or eliminate.

6.2.2 MSME Sector:

By the rebasing of the GDP, the MSME sector will be influenced as follows:

a) It will create opportunity to increase the provision of long term low interest financing credit to MSME, and increase the percentage of MSMEs with access to finance;

b) It will promote financial reporting and governance and make them more organized and more reliable;

c) It will enhance collaboration of our MSME, with international standards and best practice organizations and consequently improve the quality of their outputs;

d) The SME contribution to GDP will be further enhanced since the rebasing will create opportunity to advocate and work more closely with government to drive MSME development.

6.2.3 Financial Markets Sector:

The rebasing of the GDP has potential to help to,
a) Deepen and diversify services and institutions to drive increased participation on FM – market penetration of financial services and index score on demand for FM services;

b) To facilitate the reduction of operations and transaction costs which now stands at about17% on the average to not more than 8% one or before year 2020;

c) To establish international competitive market infrastructure when the ratio of domestic to foreign funds in the FM would have increased;

d) It will ensure greater support for the integration of FM services across West Africa since the value of intra-capital flow in and out of Nigeria, into the region will be boosted considerably;

e) The rebasing will assist to work with government to develop appropriate fiscal and statement policies as the foundation for long term stability of the financial system;

f) It will also assist government to introduce incentive structure for small, medium and large sized companies to list on the NIE platform to reduce the percentage of unlisted companies on the stock exchange;

g) It will also fast-track the operationalization of the commodities exchange market when the value and value of trade undertaken by the exchange is boosted.

6.2.4 Pension Sector:

The rebased GDP will create positive effects in the Pension Sector as follows:

a) It will help to improve collaboration among regulators and other key stakeholders to structure and develop suitable investible products and therefore increase the percentage of pension funds' assets across all sectors and most especially in infrastructure;

b) It will give opportunity for PFA, to attract and collaborate with their international counterparts to structure and invest in domestic projects;

c) It will obviously create greater confidence and advocacy for government support to pension scheme supported projects to qualify for long-term financing.

6.2.5 Insurance Sector:

The Insurance Sector will benefit tremendously from the rebased GDP since:

a) The risk-based capitalization of insurance companies will increase and that will translate to increase in total claims as a percentage of the total premium earned;

b) It will also help to diversify and integrate products into the financial services for long term financing. By so doing, the percentage of insurance assets invested in sectors rejoining long term financing as a percentage of the total insurance fund and insurance sector market since in GDP, will increase substantially and consistently.

In absolute general term therefore, the rebasing of the GDP possess greater potentials to that will positively affect all the sectors of the economy and other areas such as the Human Capital Development, ICT, Legal and Regulatory framework and assist in no small way to improve communication and public advocacy.

In conclusion, we have enormous benefits to harness by the privileges inherent in the rebasing of our GDP which when properly harnessed will help to fast-track the growth of the economy and the development of our people.

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FINANCIAL SYSTEM STABILITY AND THE PAYMENTS SYSTEM

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ABSTRACT

This article is focused on reviewing the relationship between payments system and financial stability. It explores the risks within the payments system and how they impact on financial system stability. Emerging issues in the payments system were highlighted and implications for the financial system stability were examined. The article also proposes sets of payments system indicators that may be adopted within the financial system stability analysis and policy making.

1.0 INTRODUCTION

Development of national economies is predicated on factors, chief among which is the soundness of the financial system and its capacity to withstand shocks from various sources. The interaction between the financial system and the economy stems from the services it provides to economic agents. The functions, including the mobilization of savings, resource allocation through intermediation, investments and dispersal of risks are enabled through the various components of the financial system. The operations and stability of its components i.e. institutions, financial markets and financial market infrastructure, determines the soundness of the financial System.

Financial Market Infrastructure are facilities and arrangements used by institutions operating within the financial market to conduct business amongst themselves and offer services to economic agents. Any failure or disruptions in the financial market infrastructure therefore could trigger shocks within the financial system. The payments system is an active and essential component of the financial market infrastructure facilitating the flows of funds through settlement arrangement within the financial system. In order words, the final execution of trades within the financial market is evidenced and established by final settlement of transactions through the payments system.

It is therefore essential to examine the role of the payments system and its contribution within the precinct of evolving appropriate policies for the enhancement of financial system stability and the management of crises within the financial system. This paper therefore seeks to review the payments system and its functionalities within the financial system and the economy as whole and highlight salient issues for consideration within policy constructions for effective management of the financial system.

The second section of this paper will review the concepts of financial system stability and payments system risks. Payments System risk is reviewed in section three, which is followed by an examination of the linkages between financial system stability and the payments system in the fourth section. Section five focuses on the Nigerian experience while emerging payments system issues and impact on financial system are examined in the sixth section. Section seven proposes payments system indicators for financial system stability, followed by conclusion.

2.0 REVIEW OF CONCEPT

The reverberations of the global financial crises of 2007 have elevated discussions in properly scoping financial system stability. The stability of the financial system can be viewed from perspectives of its components, its expected functions and its effect on the economy. Essentially, the financial system reflects the stability of its components and the distortions within the components may be amplified by the system as a whole. Instability in asset prices in financial markets, diminution in risk asset values precipitating capital inadequacy among financial institutions and failures in settlement of financial instruments by the financial market infrastructure are capable of sending shock into and disrupting the financial system. Therefore instability in the components of financial system typifies the financial system's instability.

Similarly, the failure of the financial system to play its roles in the economy can be considered financial instability. In this regard, when the financial system is constrained in facilitating savings

mobilization, resource allocation, investment and wealth creation, financial system instability can be adduced.

Schinasi (2004), emphasized the need to define financial system stability within the continuum rather than a static condition. According to Schinasi (2004), "a financial system is in a range of stability whenever it is capable of facilitating (rather than impeding) the performance of an economy, and of dissipating, financial imbalances that arise endogenously or as a result of significant adverse and unanticipated events".

Santosoh W. & Batunanggar S. (2007) identified five interrelated pillars upon which financial system stability rests as including; "(i) stable macroeconomic conditions; (ii) sound regulation and supervision of financial institutions; (iii) Sound and efficient financial institutions and markets; (iv) safe and reliable financial infrastructure; and (v) effective financial safety nets".

The financial system can also be considered stable when it engenders public trust with regards to the safety of depositors fund and facilitate access to credit for stimulating wealth creation.

Frederick Mishkin suggested a definition from the standpoint of instability. He stated that financial instability "occurs when shocks to the financial system interfere with information flow so that the financial system can no longer do its job of channeling funds to those with productive investment opportunities." Mishkin's definition suggests that the arrangement for channeling funds is critical to financial system stability. Funds flow through the payments and settlement systems within the financial market infrastructure. It is therefore pertinent to consider the concept of the payments system.

The Payments System according to the Bank for International Settlement (BIS) "is a set of instruments, procedures, and rules for the transfer of funds between or among participants; the system includes the participants and the entity operating the arrangement. A payment system is typically based on an agreement between or among participants and the operator, and the transfer of funds is effected using an agreed-upon operational infrastructure."

Payments system encompasses the technological, legal, regulatory and institutional arrangements that facilitate the transfer of value among economic to facilitate trade and investment within an economy and across borders.

3.0 PAYMENTS SYSTEM AND ITS RISK

The payments system is generally exposed to the following categories of risk: Liquidity risk; Credit risk; Settlement risk; Operational Risk; Legal and Reputational risk. Liquidity risks, is the temporal inability of a payments system participants (largely banks) to meet their settlement obligations. This risk may precipitate into a credit risk if the challenge persists beyond reasonable period by which time the obligations have accumulated and intraday and overnight liquidity support for purposes of settlement has become a permanent and growing liability in the books of the banks. The unchecked accumulation of credit risk may exacerbate other problems and translate into a solvency problem which could result to the eventual failure of the institution within the payments and settlement system. Such eventuality constrains other participants in the payments system who are either exposed to the participant or expects inflows from such participant to default on their obligations, thereby spiraling a contagion across participant in the payments and settlement system. In similar vein, operational hiccups arising from technology, processes or human failures could also inhibit the process of settlement and create chains of default which could paralyse financial institutions and financial markets. The issue of the Bank of England RTGS failure in 2014 is a case in point. The Central Bank of Nigeria's RTGS had occasioned similar operational challenge. Legal risks arising from court ruling and injunctions may impede settlement and create panic in the financial markets. A pronouncement of bankruptcy on a financial institution could instantly make its issued instruments relied on by other financial institutions for settlement of obligations, valueless.

4.0 LITERATURE REVIEW ON THE LINKAGE BETWEEN FINANCIAL SYSTEM STABILITY

The payments system is intricately interwoven with financial the financial system. Pavel Racocha (2004) succinctly elaborated on the connectedness thus, "payment system functioning has many direct links to financial sector analysis and to traditional macroeconomic analysis. The links with financial sector analysis include in particular issues connected with the possible effects of systemic risks, which play an indispensable role in the area of financial stability. A payment system potentially influences macroeconomic analysis in the study of the transmission mechanism, as the institutional set-up of the

payment system can influence monetary transmission. On the other hand, the payment system is strongly influenced by macroeconomic developments, as macroeconomic instability can cause shocks to the payment system through materialisation of risks (credit risk, foreign exchange risk, etc…)."

The elevation of macroprudential policy within the financial stability framework in recent times further underscores the argument above. The impact of the payments system on financial stability stems from its importance within the economy. Monetary and macroeconomic policies rely on the payments system for its transmission across the economy. Similar macroeconomic conditions can impact on collaterals and values within the payments system and impact its smooth functioning. Racocha further underscored linkages between payments system and financial stability by positing that the "stability of the payments system has empirical links to the quality of the overall financial system". He illustrated this with the negative relationship between payments system turnover (number of days payments system returns the GDP) and financial depth ratio (M2/GDP).

In another vein, the interconnectedness of financial institutions is better appreciated through the payments system. Institutions within the payments system depends on each other to settle transactions as funds and securities traded in the financial markets are settled within the payments system. The effectiveness of the payments system to efficiently transfer values as and when due and within predictable framework is essential to sustaining confidence among participants in the financial markets.

According to C. Murat Baykal (2013) "The importance that central banks attach to the stability of financial markets derives from the possibility that financial institutions' actual or perceived inability to settle their obligations in distressed market conditions could contribute to a loss of confidence and could also have a negative effect on the stability of financial markets and the economy as a whole." Furthermore, he underlined the legal underpinnings of the interrelationship of the payments system and financial system stability by highlighting that, "in many jurisdictions, laws on central banks expressly mention the central banks' crucial role in promoting sound and efficient payment and settlement infrastructures, which is linked to the tasks of maintaining confidence in the currency and providing sufficient liquidity to the financial system, both in normal circumstances and in cases of emergency."

The payments system has largely driven the adoption of technology within the financial system. The efficiency and security of technology deployed in providing services within the financial system is crucial to the stability of the system. The rapid adoption of technology within the payments system and by financial institutions is extending the frontiers of financial services and at the same time introducing operational and fraud risks in exponential proportions in tandem with the rate of technology innovation. Cyber frauds on bank customers resulting from their use of the payments system can impact negatively on the confidence in the financial system. Rosengren (2015) elucidated on the impact of operational disruptions and fraud risks within the payments system of financial system stability. He highlighted the erosion of customers' confidence in the payments system and by extension, financial institutions who are providers of payments services. Disruption in services and/or fraud does not only erode confidence of the customers but also creates a trust deficit among participants in the financial markets. Where participants' confidence is eroded and risk is priced into assets, the financial system may be impeded in its functions thereby resulting to instability.

Achieving and sustaining financial stability indeed cannot be extricated from the core objectives of having an efficient and secure payments system. The payments system is to the financial system and the economy as the circulatory system is it to the human body and any clog within it as a key financial market infrastructure can disrupt the smooth functioning of the financial system.

5.0 PAYMENTS SYSTEM AND FINANCIAL SYSTEM STABILITY: THE NIGERIAN EXPERIENCE

The Nigerian experience is pertinent in to the illustration of the linkage between the financial system stability and the payments system. Pre 2004, financial institutions were known to have indicated signs of default through the accumulation of settlement obligation which the Central Bank of Nigeria had accommodated through its Lender of Last Resort (LOLR) role. A number of such banks could not sustain their business further and the CBN had to intervene by restructuring persistent temporary credit within the payments and settlement into term loans to enable the banks time to turnaround in the larger interest of financial system stability.

The Central Bank of Nigeria to address the challenge had to evolve a new settlement policy called the New Settlement Framework placed more responsibility for managing payments system liquidity on the financial institutions by instilling market discipline. Some selected banks, which were considered financially sound and with adequate collateralization capacity were appointed as settlement banks within the clearing system. Other financial institutions had to access the clearing system through settlement banks by equally pledging collaterals against their expected settlement positions while the settlement banks are directly responsible for the settlement.

To further enhance the payments system, manage risks effectively and ensure that it does not introduce disturbances into the financial system, the Real Time Gross Settlement System was implemented by the Central Bank of Nigeria in 2006 to reduce the level of risks associated with deferred net settlement system for settling major financial markets transactions and avoid defaults of financial markets transactions. This enhanced efficiency for settlement of money markets transactions has further insulated the financial system from shocks as a result of trade settlement defaults. Other actions taken to manage risks within the payments system is the stipulation of N10m cap on clearing cheques and the migration of more transactions to the electronic payments platform. However, it has become expedient that financial institutions and other payments system participants be more effective in managing liquidity as RTGS and other faster payments mechanism are more liquidity demanding and lapses within financial institutions can trigger shocks in the financial system.

6.0 EMERGING PAYMENTS ISSUES AND IMPACT ON FINANCIAL SYSTEM STABILITY

In view of the linkages between the payments system and financial stability, it is necessary to review emerging payment systems policy challenges within the prisms of financial stability concerns. There is pressing need for payments system policy to balance efficiency of payments system with security of the systems. Technology innovations are increasingly enhancing efficiency within the payments system and making real time payments possible not only with respect to large value, time-critical payments but also retail payments. The liquidity requirement within faster payments environment and risks for settlement default due to temporal solvency issues has been heightened. Customers of financial institutions on one hand yearns for more efficient transfers method, central banks seeks to have market discipline by ensuring that financial institutions are responsible for their liquidity needs while the institutions are also faced with greater challenges in predicting their treasury movement to avoid mismatch and dislocation of their allocative function. It is noteworthy that the Central Bank of Nigeria has indicated its intention to cease it Lender of Last Resort (LOLR) role for the RTGS system by December 2016 and for the Deferred Net Settlement System by December 2019. Financial stability analysis must therefore take cognizance of policy directions in the payments system landscape to dimension its implications and ensure proper response to forestall disruptions.

Cyber risk is another emerging issue within payments system that financial stability discussion must put in scope. Rosengren (2015) stated that "cyber security is a serious financial stability concern. The potential for loss of trust in payment systems due to incursions or disruption is a key consideration. Beyond intrusions with financial motivation, the increased activity of rogue states or entities in what is essentially cyber warfare or cyber terrorism changes and elevates the nature of the protections necessary". Cyber frauds and manipulation of ICT systems used in by financial institutions, financial markets as well as infrastructure in the operation of the financial system has been under siege by fraudsters like never before. Payments policy experts are seeking ways to ensure security of customers' funds and resilience of settlement systems to manipulation or disruption by cyber criminals. Curtailing the impacts of cyber fraud within the payments system is of significant importance to financial system stability.

Financial system integration globally relies heavily on payments and settlement systems. Cross border policy collaboration for financial system stability should therefore give appropriate thoughts to payments system issues as the linkages in global financial markets is made possible by payments and settlement infrastructure integration across the globe.

7.0 PAYMENTS SYSTEM INDICATORS FOR FINANCIAL SYSTEM STABILITY

It is needful that financial system policymaker start considering tools and/or indicators which can be integrated into the set of tools for financial stability analysis. This paper will be proposing the following indicators as tools that could be

used considered for further studies which can be incorporated into the financial stability analysis spectrum.

1. The rate of transformation of intraday facility/standing lending facility into term loans for financial institutions. The tendency for banks to rollover intraday facility more frequently into standing lending facility and the facilities rather than being liquidated gets restructured into term loans, should signal concerns for financial system stability.
2. The ratio of collateral pledges within the payments system to total portfolio financial securities within the financial system can signal liquidity strain and shallowness of the financial market
3. Ratio of cancelled RTGS transactions to successful transactions should interest policy makers responsible for financial system stability
4. The ratio of transactions settled with non-central bank money versus transactions settled in central bank money is also essential to measure the extent to which financial system stability can be shocked by exogenous variables.

8.0 CONCLUSION

The resilience of the financial system to shocks is a function of the resilience of its components which include the financial market, financial institutions and financial infrastructure. The payments and settlement system is a key financial infrastructure that connects the financial institution within the financial market and links the financial system to the economy. The efficiency and resilience of the payment and settlement system have implications for both macroprudential and microprudential policies within the framework for managing financial system stability.

It is therefore imperative for policy makers to closely monitor development in the payments system and the likely implications for financial system stability. Liquidity risk and credit risk usually materialize through the payments system. The payments system therefore should be considered for adaptation as a component of early warning signals mechanisms within the framework for managing financial system stability.

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RETHINKING SOVEREIGN WEALTH FUND IN A GLOBAL PERSPECTIVE – LESSONS FOR NIGERIA

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1.0 INTRODUCTION

A Sovereign Wealth Fund (SWF) is an investment fund owned by a sovereign state/nation with the mandate to invest in financial assets such as stocks, bonds, precious metals, property and other financial instruments. The structure and scope of investments of a sovereign wealth fund depends on the circumstances of each nation as well as what the enabling law setting up the fund permits. The international Working Group of Sovereign Wealth Funds defined SWFs as "special purpose investment funds or arrangements that are owned by general governments". Razanov (2005) was the first to coin the term sovereign wealth funds, and provided the first definition of these funds. He defined sovereign wealth funds as "neither traditional public pension funds nor reserve assets supporting national currencies but funds set up with the following objectives: insulate the budget and economy from excess volatility in revenues, help monetary authorities sterilize unwanted liquidity, build up savings for future generations, or use the money for economic and social development".

According to Paulson (2009) a lot of international financial and investment institutions resorted to funds from the SWFs to shore up their balance sheet after the financial crisis. Sovereign wealth funds usually have long-term investment focus. However, their objectives might include providing liquidity stabilization funds, as well as the funding of vital economic infrastructure projects. Sovereign Wealth Fund thus, is basically a government's investment portfolio policy that most oil-producing nations have adopted in the recent time to face the challenges of the future.

Since 2010 there had been a considerable increase in the number of sovereign wealth funds across the globe and especially among resource-rich countries, however, they had been in existence for almost five decades. They have metamorphosed from being considered to be instruments of wielding international political influence, to very recently as providers of needed liquidity to support asset values and create financial returns in the developed and emerging market economies. According to wikipedia.org, the first SWF to be established was the Kuwait Investment Authority, which was established in 1953 before the country became an independent state. It was set up with the aim of investing surplus oil revenues to reduce the reliance of Kuwait from its finite oil resources. Thus, the Fund was created from crude oil revenues and is currently valued at about three hundred billion US Dollars ($300 billion). Majority of the countries that operate an SWF and rely on single export commodity have the objective of using the Fund to stimulate non-commodity sectors of the economy in an effort to diversify and reduce reliance on the dominant export commodity.

SWFs are also created when governments have budgetary surpluses and have little or no international debt. This excess liquidity is not always possible or desirable to hold as money or to channel into immediate consumption. This is especially the case when a nation depends on raw material exports like oil, copper or diamonds. In such countries, the main reason for creating a SWF is because of the properties of resource revenue: high volatility of resource prices, unpredictability of extraction, and exhaustibility of resources.

Many economists argue that there is no reason to believe that investments made by sovereign wealth funds are motivated by anything other than seeking the highest rate of return on their investments. Most sovereign wealth funds are set up to be distinct from their sponsoring governments to attempt to ensure freedom from political interference. Major sovereign wealth funds rarely choose to join the board of the companies in which they invest, and many times sovereign wealth funds intentionally purchase non-voting shares in companies to avoid public scrutiny. Some sovereign wealth funds are closely associated with state governments, in direct opposition to the idea of free market capitalism. Sovereign wealth funds have been characterized as the return of state capitalism, a kind of new mercantilism designed to protect national interests in the global economy. Summers

(2007), stated that the concerns raised over sovereign wealth funds are profound and go to the nature of global capitalism.

Despite the above contention, since 2000 the number of SWFs has continued to grow in size and assets, about 50 SWFs are in operation and are estimated to jointly control about US$3.98 trillion in assets. Today, most if not all the emerging economies of the world have SWFs, in fact, prior to the establishment of the Nigerian Sovereign Wealth Fund in May 2011, Nigeria was one of the only three OPEC member states that do not have a sovereign wealth fund. Many benefits have been cited as regards the operation of the SWFs, including – budgetary stabilization, savings for the future, international recognition for fiscal prudence and ability to attract world class investments. Now, more than ever before, resource-rich nations are being assessed one-against another in terms of the magnitude and quality of their SWFs. Investors world-wide consider the existence and the success of a SWF in a country as a vital component of economic governance and the attraction of foreign investments. Also, according to the Sovereign Wealth Fund Institute (SWFI) "the negative effects of 2008 global economic meltdown have left many nations looking towards using the sovereign wealth funds – to cushion their economies. Countries now rely on natural resource wealth created via establishing SWFs as economic management 'best practice'". Also, from the macroeconomic perspectives studies have shown that setting up of SWF may help reduce inflation, lessen exchange rate appreciation and improve transparency in the economy.

As a result of the growing importance of SWFs, the Nigerian government proposed the establishment of the Nigeria Sovereign Investment Authority (NSIA) which was concurrently passed into an Act of parliament by the two legislative chambers in May, 2011. The NSIA was to address the issues associated with excess liquidity arising from crude oil sales, thus replacing the Excess Crude Account (ECA) which had long been considered as an arrangement without legal framework. Also, the administration of the ECA was considered vulnerable to political arbitrariness especially in the disbursement of the funds among the three tiers of government which always create bitterness among the federating units. Therefore, the establishment of the NSIA was expected to remedy these issues, among others.

However, with the coming of the NSIA into operation, there still seems to be some misgivings from some federating units about the legality or otherwise of the establishment of the NSIA as well as its relevance. The current litigation as it relates to the ECA between the Federal government and some state government has denied the NSIA of its projected cash stream since the initial payment of US$ 1.0 billion into the Fund. Thus, the non-payment of the estimated cash flow could constrain the NSIA of investing the funds into what it was designed to achieve.

The objective of this paper is therefore to highlight the justification for the continued existence of SWF in Nigeria, while at the same time examining SWFs of other (similar oil producing) nations and what they were created to achieve. The paper will discuss what SWFs were created to achieve in those countries vis-à-vis the objective of its creation in Nigeria to in particular support the building of strong infrastructure, absorb vulnerability to commodity shock and the need to transform our finite endowment (oil) into an investment for future growth and development.

Following this introduction, section two of the paper provides a brief review of literature. Section three discusses the rationale for SWFs with some stylized facts. The impact of SWFs on the economy is discussed in section four; section five discusses the significance of SWFs while, an overview of other countries' SWFs is discussed in section six. Section seven concludes the paper.

2.0 LITERATURE REVIEW

The unprecedented emergence of SWFs as financial players has impelled a debate among policymakers, market players and scholars regarding the potential risks and benefits that these funds can convey to the global economy (Johnson, 2007). The role of SWFs has been widely acknowledged in this highly volatile global financial system dominated by risk aversion, liquidity pressures and asset write-downs (Rios-Morales & Brennan, 2008). Tamara Gomes, (2008) outlines the SWFs possible impact on international financial stability and concludes that SWFs are long-term investors that can play a stabilizing role in financial markets by supplying liquidity and reducing market volatility.

In the debate around the potential risks and benefits of SWFs, the main concern has been the lack of transparency in the administration and investment strategies of these

colossal funds. A large number of publications have underlined the danger that SWFs may cause if they remain unregulated (Truman, 2007a; Green & Torgerson, 2007; Redicker & Crebo-Redicker, 2007), suggesting that SWFs can act as vehicles of future global instability (Redicker & Crebo-Redicker, 2007). A number of publications have emphasised the need to establish an international code of conduct in order to avoid protectionism that would be detrimental to the globalization process (Truman 2007a, 200b). In contrast to the above perspective, Jen (2007a) and Kern (2007) have underlined the variety of economic and financial benefits that SWFs present. Beside the benefits that SWFs encompass as investors, the IMF (2008) argues further that SWFs can help to avoid extreme economic cycles, transfer across generations surpluses of current accounts and enhance revenues of investors' nations (IMF, 2008). Nonetheless; this international institution has been prominent in raising the importance of establishing an international code of conduct (IMF, 2008).

The potential risks that have been attributed to SWFs, have been addressed by the launch of the Santiago Principles in October 2008. Thus, there is a need to focus on the potential benefits that SWFs can bring to the global economy. Although much has been written about SWFs in recent times, the body of scholarly research on this topic is rather scanty. In assessing the role of SWFs as important contributors of FDI in the global economy, the existing substantial body of literature on FDI provides evidence for the significance of FDI as a method of economic growth. However, research on the topic of SWFs as contributors of FDI is limited. Nonetheless, the work of Green & Torgerson (2007), Jen (2007b), Siebert (2007), UNCTAD (2008) and Plotkin & Fagan (2009) offer a basis for seminal work to support our argument that by engaging in FDI, SWFs can sustain the global economic growth. According to the World Investment Report 2008, SWFs have only invested 0.2 percent of their total assets in FDI. About 80 percent of this investment has taken place during the period 2005-2007. The report also reveals that 73 percent was invested in the developed world mainly in the United Kingdom, the United States and Germany (UNCTAD 2008). Since these funds already represent five trillion dollars (UNCTAD, 2008) and are estimated to reach the sum of 12 trillion dollars by 2015, (Redicker & Crebo-Redicker, 2007), SWFs have the potential to serve as major funding sources in the global financial system (Fernadez & Bris, 2009).

Important research has been conducted on the topic of FDI as a contributor of economic growth. The large body of literature is not unanimous in acknowledging that FDI is a direct contributor of economic growth. However, research shows that FDI has the potential to contribute to long-term economic development (Blomström, 2001; Addison and Heshmati, 2003; World Bank, 2005; Lall, 2005; Dunning, 2006). Researchers also acknowledge the fact that FDI will have a positive impact in the economy of a country when the infrastructure of the host country is ready to receive the so-called spillovers of FDI (Borensztein et al., 1998, Willem te Velde, 2001). Spillovers of FDI can benefit the domestic economy by bringing technology, know-how, managerial skills and production networks (Blomström, 2001). Hermes & Lensink (2003) found that FDI has a particularly positive impact in economies with well-developed financial markets.

The participation of SWF in FDI is novel and to date no theories have been developed to analyse and forecast the impact of these new financial players on FDI. However, the Investment Development Path Theory (IDP) of Dunning (1998) offers a basis for examination. The IDP suggests that the magnitude of countries investment is correlated positively with the rate of economic growth.

The IDP model gives special attention to the government role in FDI (Dunning & Narula, 1997). This theory focuses on the role of government and economic development in determining the pattern of competitive advantages of foreign investors relative to those of local firms (ownership advantages), relative competitiveness of location-bound resources and capability of the country (locational advantages), and the propensity of foreign and local firms to utilize the ownership advantages internally rather than through markets (internalization advantages). With a country's development and government interventions the configuration of these advantages changes and reflects on the NOIP of the country (Dunning & Narula, 1997). While Dunning suggests that the IDP of countries differ with each other mainly due to the pattern and efficacy of government interventions, the theory should take this into account (Dunning & Narula, 1997). Since the establishment of SWFs, and in many cases their

operation represent a government intervention, they may impact on the IDP of their countries of origin.

3.0 STYLIZED FACTS ON SWFs

The largest SWFs are usually designed with one or more policy objectives in mind. These objectives include stabilization funds, intergenerational savings funds, and reserve management funds:

- Stabilization funds – Stabilization SWFs are created to reduce the volatility of government revenues, to counter the boom-bust cycles' adverse effect on government spending and the national economy as they were originally conceived – were designed to smooth planned government budgets. In principle, excess reserves were accumulated during a commodity boom when prices for a commodity were above a predetermined level. These reserves could then be drawn down to finance government expenditure when prices fall below this threshold level. In practice, few if any of the stabilization funds operate in this fashion.

- Intergenerational savings funds were designed to accumulate a portion of the windfall revenues in order to benefit future generations and force inter-temporal expenditure smoothing. Savings SWFs build up savings for future generations. One such fund is the Government Pension Fund of Norway. It is believed that SWFs in resource-rich countries can help avoid resource curse, but the literature on this question is controversial. Governments may be able to spend the money immediately, but risk causing the economy to overheat; example is Venezuela or Shah-era in Iran. In such circumstances, saving the money to spend during a period of low inflation is often desirable. Savings funds facilitate intergenerational transfers, allowing future generations to benefit from current favorable economic conditions

Recent SWFs have been created to earn a higher return on foreign exchange holdings than is normally associated with traditional reserve instruments. Other reasons for creating SWFs may be economical, or strategic, such as war chests for uncertain times. For example, the Kuwait Investment Authority during the Gulf War managed excess reserves above the level needed for currency reserves (although many central banks do that now). The Government of Singapore Investment Corporation and Temasek Holdings are partially the expression of a desire to bolster Singapore's standing as an international financial center. By the virtue of their size and investment strategies, SWFs are liquidity providers and they support global markets in times of stress while facilitating the gradual unwinding of global imbalances.

4.0 IMPACT OF SOVEREIGN WEALTH FUND ON THE ECONOMY

4.1 Impact of Sovereign Wealth Fund on the Capital Market

The asset allocation of Sovereign Wealth Funds has been addressed from economic, legal, and political perspectives. However, the implications for asset allocation of the requirements that SWFs have agreed to respect (through the Santiago Principles and other agreements) are still a matter of study. The traditional economic approach focuses on the management of reserves (Jeanne and Rancière 2008), models of portfolio choice (Campbell et al. 2004) and contingency claims (Alfaro and Kanczuk 2005, Rozanov 2005). More holistic approaches analyse the motives behind the establishment of each type of fund (Reisen 2008). A recent literature on the implications of SWF investments for the international financial system is rapidly growing. Bortolotti et al. (2009) assesses the financial impact of SWF investments on stock markets, stressing some similarities between SWFs and other internationally active investment vehicles such as pension funds, buy-out funds and mutual funds. They find a significantly positive mean abnormal return upon SWF acquisitions of equity stakes in publicly traded companies. Sun and Hesse (2009) find that the announcement effect of SWF investments is positive and SWF share purchases are positively associated with abnormal returns. Balding (2008) states that SWFs act as economic driven investors and their impact on international financial markets may be more moderate than expected. Chhaochharia and Laeven (2008) find that SWFs invest to diversify away from industries at home but do so in countries with cultural closeness, suggesting that investment rules are not entirely driven by profit maximising objectives. In fact, long-term performance of firms acquired by SWFs tends to be poorer. More recently Chhaochharia and Laeven (2009) show that other

institutional investors also invest in countries with common cultural traits. Berstein et al. (2009) examine SWFs' equity investment strategies and their relationship to organisational structure. They find that SWFs where politicians are involved are more likely to invest at home than those where external managers participate. At the same time, SWFs with external managers tend to invest in industries with lower Price-to-Earnings levels. Fernandes (2009) focuses on SWF holdings (rather than transactions) for the period 2002- 2007, finding that firms with higher SWF ownership have higher valuations and better operating performances. In a companion paper, Fernandes and Bris (2009) find a stabilising effect of SWF investments on corporations. They stress the positive impacts of SWFs, notably through helping companies reduce their cost of capital. These findings are confirmed by other studies on the market impact of SWF investment. Kotter and Lel (2008) suggest that SWFs are profit-oriented passive investors and that markets react positively to SWF investment announcements. All in all, the evidence suggests that SWFs can be a stabilising force in global financial markets.

4.2 Impact of Sovereign Wealth Fund on Inflation, Exchange Rate and Transparency

The fact that each sovereign wealth fund is distinctive in its objectives, investment portfolio and strategies, the overriding goal is to ensure that the benefit from the tapping of the natural resources are harnessed in such a way that the economic variables remained stable and supportive to the growth potentials of the economy. Some studies have examined the impact of sovereign wealth funds in the attainment of economic growth and the stability of the major macroeconomic variable of an economy. Most of the theories suggested that the likely impact of sovereign wealth fund could center on inflation, exchange rate, government borrowing and ultimately on real growth.

A study by Pricewaterhouse-Coopers (PwC) to understand whether a SWF has any quantifiable impact on the host economy was carried on countries with significant commodity income. The major findings of the study revealed that:

- "Setting up of a sovereign wealth fund may help reduce inflation, such that the presence of a fund is linked to lower inflation, even when we account for a number of other factors likely to affect inflation, such as monetary policy stance, the state of the labour market and the current account balance". "This result is stronger for commodity rich countries than for those with a non-commodity based trade surplus" the report concludes.

- "Exchange rate appreciation may be lessened by a sovereign wealth fund - in countries with floating exchange rates we found a relationship between the presence of a SWF and a weaker exchange rate. The effect was equally strong for countries with and without commodity wealth. This may occur because monies can be held in foreign currencies (often in US dollars), so not bidding up the value of the local currency"

- " SWF may help improve transparency in an economy – our analysis found levels of transparency to be correlated with measures of economic development such as GDP per capita and the depth of financial markets. Even when these factors are taken into account, however we see lower levels of perceived corruption in countries where a Fund is present".

5.0 THE SIGNIFICANCE OF SOVEREIGN WEALTH FUND

Sovereign wealth funds are established for four principal reasons.

(i) First, most funds held by natural resource exporters act as intergenerational transfer mechanisms, where future government pensions, asset liquidity, and fiscal revenues are guaranteed by today's export earnings. When the country's natural resources are exhausted, therefore, future generations can continue to live prosperously using the earnings of their forefathers.

(ii) Second, most sovereign wealth funds of all country types are created to diversify a country's income so that it can respond to shocks to the country's comparative advantages. When a country is faced with a competitiveness crisis, it can call on its sovereign wealth fund assets to reinvest in new sectors of the economy that can revive the country's competitive advantages.

(iii) Third, countries establish sovereign wealth funds to increase the return on assets held in their central bank reserves. By investing in securities other than U.S. or European sovereign bonds, they can raise returns above the 3-5% annual returns garnered by most foreign exchange reserve holdings. With rapidly expanding foreign exchange stocks in many emerging markets and the decline of the U.S. dollar—and thus lower returns on dollar-denominated debt—this desire has become increasingly prevalent in recent times.

(iv) Fourth, some sovereign wealth funds, whether in word or practice, also seek to promote investment from multinational corporations and technological transfer to domestic industries. To accomplish this goal, a fund would have to acquire a majority stake in a company or form a coalition with other shareholders. With its voting power, the SWF can appoint corporate board members that could direct a company to invest in the SWF's home country, and especially, establish research and development facilities there.

On the technology transfer end, these research and development facilities could produce new technologies under the intellectual property regime of the SWF-holding country, allowing it to tailor its patent laws to favor the dissemination of newfound knowledge to domestic firms. Only those countries seen as "allies" of the United States—Taiwan, South Korea, and Singapore—have invested in foreign companies to promote technological innovation in domestic industries, and have avoided major investments in U.S. technology firms.

On the other hand, no SWF to date has invested in a company for reasons of political "blackmail" or espionage. Some funds, including the Abu Dhabi Investment Authority, have a stated policy to avoid majority stakes in companies due to the possibility that such "blackmail" could occur. China and Russia, in addition, have both communicated to the Treasury their intention to avoid strategic purchases in the next five years. Furthermore, all of the top ten SWFs except the Singapore Investment Corporation and Temasek Holdings have stated that they do not wish to invest in sensitive sectors such as oil, gas, telecommunications, and national airlines. This, again, is to avoid any concerns that SWFs are looking to make investments for reasons of political positioning. China is even more sensitive in this regard—in its $3 billion agreement to take a minority stake in The Blackstone Group, it reassured American critics of the deal by waiving its shareholder voting rights. After the Dubai Ports and Unocal debacles, it can thus be seen that SWFs have been quite careful to stay out of the public limelight in the United States and across the world's developed economies. Finally, although SWFs are very secretive in their investments, there is no record of SWFs investing in the economies of "obvious" enemies. As an example, Saudi Arabia has made it policy not to invest in Iran, while China has privately stated that it will not invest in Taiwan.

6.0 COUNTRY EXPERIENCES

KUWAIT - Kuwait Investment Authority (KIA)

The Kuwait Investment Authority (KIA) was initially established as the Kuwait Investment Board in 1953 and is the parent body of the Kuwait Investment Office (KIO). The Authority invests in the local, Arab and international Markets. The Kuwait Investment Board was established when Sheikh Abdullah Al-Salem Al –Sabah decided that oil revenue could be used to create a fund for the future and reduce its reliance on a single non-renewable resources. The Kuwait Investment Office replaced the Kuwait investment Board in 1963 and is based in London. The KIO, which is a global and long-term investor, manages the Reserve for future generation and the General Reserve Fund. Some of the objectives of the Office include the following:

- Maintain the real value of the funds entrusted to the office for the Future Generation Fund
- Achieving a fair return over the long term
- To increase the favorable reputation as an expert and progressive institutions in the international financial markets

The KIA's management reports to the Board of Directors, which consists of Four ex-officio members and five members representing the private sector, who are appointed by the Council of Miniters through an Amiri Decree.

The Kuwait Investment Authority ensures that the State of Kuwait transfers 10 per cent of oil revenue into the Reserve for future generation on an annual

basis. Kuwait Investment Authority was instrumental in rebuilding the Kuwaiti economy in the aftermath of the Iraqi invasion of the country which sparked the 1990 Gulf War. The National Technology Enterprise Company of Kuwait (NTEC) was created in 2002, with a start of capital in US$311 million. NTEC is the direct venture capital conduit for the Kuwait Investment Authority.

VENEZUELA - FEM

The 'Macroeconomic Stabilization Fund' which is also known as FEM was established in 1998. FEM, which translates to the Fund for Investment of Macroeconomic Stabilization was created by the authority of the presidency of the Republic as a result of advice from the IMF. Oil revenues above the reference price are transferred to the Fund, which is the main source of funding. If the oil prices drop below the reference price, the Fund transfers revenues to the treasury to substitute the revenues it would otherwise have received if oil prices had been stable.

The regulation of the fund by the Board of the Central Bank of Venezuela started in December, 1999. The Board ensures compliance, approves annual operating budgets, issues internal regulations, approves expenditures, approves annual fund reports, establishes polices and ensures that the Fund functions as they desire. The legislative has limited involvement with any decision-making powers over the Fund, nor does it have an oversight role. The majority of the decision-making powers lie with the president as he makes expenditure decisions from the Fund by decree.

The revenue generated from Petroleos de Venezuela SA and any profits resulting from its crude oil operations constitutes the main resource of FEM. The Fund also receives revenues that are determined by rules that the president has the power to regularly change, the country thus, exhibit low levels of effective governance. Some of the objectives of the Macroeconomic Stabilization Fund of Venezuela include the following:

- It aims in countering the 'Dutch Disease'. This is achieved by sterilizing excess earnings from exports by keeping them outside the domestic economy
- To increase the transparency of transactions related to Venezuela's oil wealth.
- To stimulate non-commodity sectors of the economy in order to diversify and reduce the county's reliance on the dominant export commodity, which is oil.
- Assisting with the budget planning and addresses issues such as flunctuation of prices in international community market.

GABON

Since 1998, The Gabonese Republic has a reserve account at the Bank of Central African States (BEAC), which is known as Fund for future generations. The Fund was renamed in 2010 as the Founds Souverain de la Republique Gabonaise(Sovereign Fund of the Gabonese Republic). Ten (10) per cent of the country's oil revenue projected in the budget are transferred to the Fund annually. The Fund also partakes in 50 per cent of revenue above budget assumptions. The Fund is managed by the Bank of Central African States (BEAC).

UNITED ARAB EMIRATE - Abu Dhabi Investment Authority

The country is currently counted as one of the most progressive in the entire world. Until the mid-20th century, the economy of Abu Dhabi was maintained by camel herding and production of dates and vegetables. Fishing and pearl diving were also engaged during summer time. However, things changed completely after the city struck oil, in the year 1958 and gained independence in 1971. The UAE has one of the largest Sovereign Wealth Fund (SWF) in the world with over US$620 billion under management of the Abu Dhabi Investment Authority (ADIA). Founded in 1976, the source of the fund is primarily from the oil wealth of the Emirate of Abu Dhabi. According to ADIA's 2009 Review, ADIA's sole mission is "to invest funds on behalf of the Government of the Emirate of Abu Dhabi to make available the necessary financial resources to secure and maintain the future welfare of the Emirate". A robust and discerning investment powerhouse, highly sought after in fund investor portfolios, ADIA is a truly global operation with only 30.0 per cent of its 1,200 staff from the UAE, 36 per cent from Asia and 12 per cent from Europe. ADIA does not invest in the UAE or Gulf region. With a substantial SWF and a gross national income (GNI) per capital of $11,906, Emirate of Abu Dhabi can afford not to invest in their region. UAE's investment of its SWF had helped build its capital, Abu Dhabi, which is the second largest city in the emirates.

QATAR - Qatar Investment Authority

Qatar Investment Authority (QIA) was established in 2005 by virtue of the Emiri Decision No (22) of 2005 as an independent government investment institution and went into operation in early 2006. QIA is wholly owned and subject to supervision by the Government of the State of Qatar and pursuant to Article (2) of QIA's constituent instrument, namely said Emiri Decision, QIA has a legal personality and a budget, both of which are independent of those of the Government of the State of Qatar.

According to its constitutive instrument, QIA's objectives are to develop, invest, and manage the state reserve funds and other property assigned to it by the Government via the Supreme Council of Economic Affairs and Investments. The above mentioned Emiri Decision endowed QIA with required capacity, powers, and competences to act in fulfilling its statutory mandate and achieve its objectives. QIA's Board of Directors is the supreme body, having full control over its affairs and the discharge of its business.

RUSSIA –The Reserve Fund

The Reserve Fund (RF) and National Wealth Fund (NWF) were established in accordance with the amendments to the Budget Code, the federal law of the Russian Federation, approved in 2007. The initial transfers to the RF and NWF were executed on January 30, 2008, from the Stabilization Fund of the Russian Federation, whereupon it ceased to exist. As of that date the size of the RF and NWF totaled US$125.40 billion and US$31.98 billion, respectively. As of August 1, 2008, the RF totaled US$129.68 billion and the NWF totaled US$32.69 billion. The RF has replaced the Stabilization Fund. The objective of the RF is to ensure that the federal budget expenses are financed and the federal budget balance is maintained. In case the amount of oil and gas revenues is not sufficient for the budget purposes, an additional amount could be withdrawn from the RF. The RF could also be used for early state foreign debt repayment in compliance with the federal budget law for the corresponding fiscal year. The amount of the RF is limited to 10 percent of GDP. That means that this sum is sufficient to meet future budget obligations in case of unfavorable conditions for a period of at least three years.

The objectives of the NWF are to co-finance voluntary pension savings of the Russian citizens and to maintain the budget balance of the Pension Fund of the Russian Federation. The NWF assets could not be used for any other purposes. The budget proceeds from the mineral extraction tax and export duties on oil, gas, and oil products are accounted separately from other proceeds to the budget. As the oil and gas proceeds are withdrawn from the budget the artificial budget deficit appears. The oil and gas proceeds in excess of the transfer are to be channeled to the RF until its amount reaches 10 percent of GDP. If after all there is an excessive amount of oil and gas revenues, then it will be channeled to the NWF. The Ministry of Finance of the Russian Federation manages the RF and NWF. The primary investment objective of the RF and NWF is to ensure safety of the assets and stable level of return.

AUSTRALIA - The Future Fund

The country has a sovereign wealth fund known as the Future Fund. The Future Fund Act 2006 (the Act) commenced on April 3, 2006, and established the Future Fund Special Account (the Fund Account), the Future Fund Board of Guardians (the Board) and the Future Fund Management Agency (the Agency), collectively referred to as the Future Fund. The object of the Act is to strengthen the Commonwealth's long-term financial position. The Future Fund will make provision for unfunded superannuation liabilities that will become payable during a period when an aging population is likely to place significant pressure on the Commonwealth's finances. The legislation quarantines the Fund, the balance of the Fund Account and other investments, for the ultimate purpose of paying unfunded superannuation liabilities and expenses associated with the investment and administration of both the Board of Guardians, and by direct transfer from the administered funds, the expenses of the Future Fund Management Agency.

The Future Fund is controlled by an independent Board of Guardians that is collectively responsible for the investment decisions of the fund and is accountable to the Australian Government for the safekeeping and performance of fund assets. The Future Fund Management Agency is responsible for the development of recommendations to the Board on appropriate investment strategies and for the Implementation of these strategies. In the 2008–09 budgets, the Australian Government announced that the Future Fund Board of Guardians and Management

Agency would be given additional responsibility for managing the investment of three additional specific purpose funds that the government proposes to establish to support expenditure on education, health, and infrastructure.

MEXICO – Oil Revenue stabilization Fund

In 2000, the Oil Revenues Stabilization Fund was constituted with a risk management purpose in response to the observed oil price decreases that led to unplanned budget cuts in the late 1990s. The objective of the Fund is to lessen the effects on public finances of changes in the level of oil revenues derived from sudden variations in international oil prices. The Fund's inflow comes from a special levy on oil revenues and 40 percent of excess revenues, when the observed oil price is higher than the one set in the budget. Also, it has an upper limit defined by the level of oil production platform. The resources of the Fund are used to compensate for a decrease in estimated income from the levies of the related fiscal year derived from a lower observed oil price, using up to 50 percent of the accumulated resources at the end of the previous the fiscal year for that purpose. The operation of the Fund and the allocation of resources are audited by the Superior Auditor of the Federation, and reports are sent to Congress on a quarterly basis.

CHINA - China Investment Corporation (CIC)

China provides another classic example of SWF. For many years, China's rapid export growth has caused it to accumulate an ever growing reserve that reached US$1.5 trillion by 2007. As a consequence of the rapid increase within the last decade, the government established its sovereign wealth fund, the China Investment Corporation (CIC) on September 29, 2007 with US$200 billion in initial capital. The CIC is one of the largest sovereign wealth funds (SWFs) in the world.

The investments by the CIC are commercial based, seeking to maximize return on investment. Since its creation, the CIC and its subsidiaries have made several investments, including the purchase of 9.9 per cent of the U.S. financial firm, Morgan Stanley in 2007. The CIC was created to improve the rate of return on China's $1.5 trillion in foreign exchange reserves and to soak up some of the nation's excess financial liquidity. China's economy is rapidly growing and coupled with its foreign exchange reserve and the large SWF, China saves today to consume even more in the future. Its high savings rate reflects what economists call "precautionary saving" against a downturn. The CIC is a semi independent, quasi-governmental investment firm established by the Chinese government to invest a portion of the nation's foreign exchange reserves. CIC has to pay dividends to the State Council as its owner, to cover the cost of these special treasury bonds. The CIC reports directly to China's State Council, conferring it with the equivalent standing of a ministry. The purpose of the CIC is to maximize return at acceptable risk tolerance and tolerance and improve the corporate governance of key state-owned financial institutions. CIC is subject to financial supervision by the Ministry of Finance and periodic external auditing by the National Auditing by the National Audit Office.

7.0 CONCLUSION

The study has revealed that the global rise in the operation of sovereign wealth funds in a number of commodity and non-commodity exporting counties has been of tremendous magnitude. The fact that, most, if not all the oil exporting countries of the world today have SWF clearly confirms the many benefits of having a sovereign wealth fund. Resource-rich countries are also being judged against one another in respect of the size and quality of their Funds by international investors as an important component of good governance in the attraction of Foreign Direct Investment. Anecdotal evidence has also confirmed that some economic-related impacts may arise from a country having a sovereign wealth funds, which includes a country being insulated against inflation, funds reducing government borrowing and limiting exchange rate appreciation.

For Nigeria the lesson from other resource rich countries that have established SWF is very clear, as at today no country that had embarked on the project had ever abandoned it or had a rethink about its significance. The current debate and especially the litigation about its constitutionality should give way to the overall objective for which it was designed to achieve in the areas of investing in infrastructure (which we have huge deficit), economic stabilization fund and savings for future generation. The fund will also be able to curtail the cycle of spending binge by office holders arising from revenues coming from high oil prices resulting in "windfall" and bringing some negative impact –profligacy.

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BASICS AND COMPUTATION OF REBASED GROSS DOMESTIC PRODUCT (GDP) NIGERIA'S EXPERIENCE

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1.0 INTRODUCTION

The gross domestic product (GDP) is one of the primary macroeconomic indicators used to gauge the health of a country's economy. It is a good measure of the level of economic activities carried out in a nation at any given period in time. It represents the total market value (measured in monetary terms) of all goods and services produced within a specific period. It is an important indicator of the national accounts.

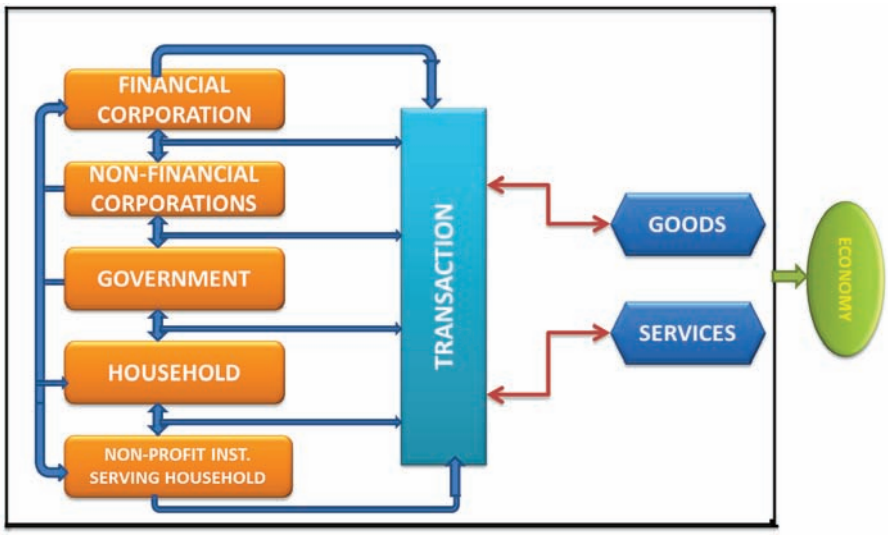
Historically, NBS (2014) had explained that "earliest known work on national income for Nigeria was carried out by John Mars, Margery Perham and A. J. Brown in the 1930s". Several other interventions were made which include: A.R. Prest and I.G. Stewart (1950), visiting World Bank Mission (1954), E. F. Jackson and P.N.C. Okigbo in late 1950s to early 1960s, Federal Office of Statistics (FOS) 1963. Professor O. Aboyade (report in 1981), Professor Adamu (1985) revised Nigeria's SNA from 1977/78 to 1986, World Bank consultants (Majumdar and Hodgekinson) reviewed GDP for the period 1981 to 1986.

Other interventions include: The United Kingdom Department for International Development (DFID) 2001-2005, period within which the GDP base year was changed from 1984 to 1990 and the emergence of the thirty-three economic activity classification for the Nigerian economy, the Central Bank of Nigeria (2005 and 2008) collaborating with NBS to produce the first quarterly national accounts and establish a process that guarantees the quality, frequency and timeliness of the estimates.

Currently, the System of National Accounts, (2008 SNA) is the statistical standard that supports the compilation of the GDP. The SNA is a statistical framework that provides a comprehensive, consistent and flexible set of macroeconomic accounts for policymaking, analysis and research purposes.

Statutorily, the National Bureau of Statistics (NBS), by the Statistics Act, 2007 is mandated to compile the GDP. In recognition and subsequent response to the changing structures of production, consumption and finance in many economies, countries traditionally engage in the review of the methodology for compiling the GDP and the base year in an attempt to capture the current economic realities. It is in this regard, that the NBS decided to embark on the rebasing exercise. The objective of this paper therefore is to look at the basic concepts in GDP compilation and the computational processes for the rebased GDP.

This paper is structured into four sections. The first section deals with the introduction while section two explains some basic concepts and mathematics for GDP compilation. Section three takes a look at the GDP Rebasing while section four deals with the Recent Development from the Rebasing exercise.



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2.0 BASIC CONCEPTS

2.1 The Economy

The System of National Accounts (2008 SNA) defined the total economy as the entire set of resident institutional units. An institutional unit is an economic entity that is capable, in its own right, of owning assets, incurring liabilities and engaging in economic activities and in transactions with other entities. The SNA therefore have classified these institutional units into five mutually exclusive institutional sectors.

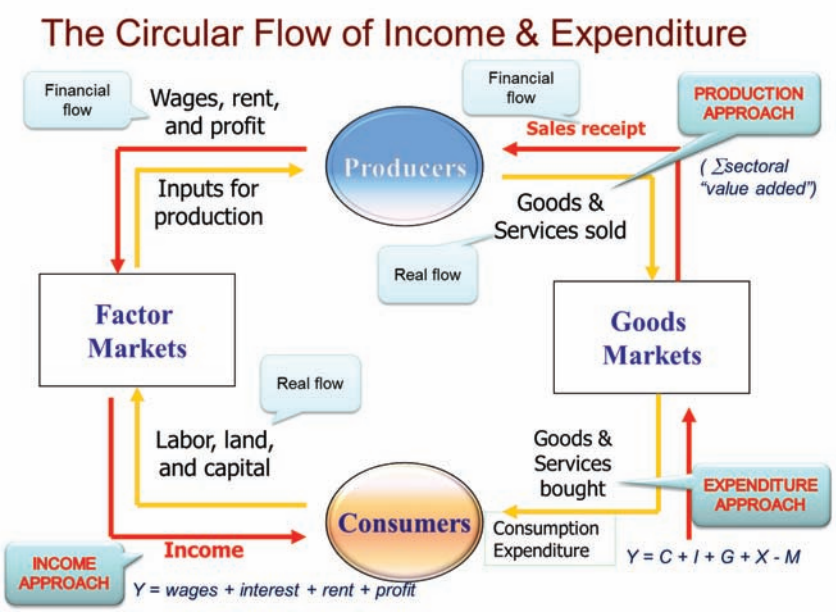
The diagram below shows the five institutional sectors, how they interact, and the outcome of the interactions (goods and services)

Compiling the GDP therefore involves accounting for activities of the institutional units within the institutional sectors and determining the monetary values of goods and services produced by them under the framework of the SNA.

2.2 The Circular Flow of Income and Expenditure

The circular flow of income and expenditure further portrays how the economic agents fulfil their ambition within the national economy. The diagram that follows gives a pictorial description of the participation of the firms and the households (consumers) in the production process within the economy and the three approaches of measuring the economy which we shall discuss in later part of this paper.

One important issue arising from this circular flow of income and expenditure is that inputs of goods and services are used for the production of further goods and services which when measured produces the gross domestic product (GDP).



2.3 What is GDP

Gross Domestic Product (GDP) is the standard measure of the value of final goods and services produced by a country within a specified period of time. It combines in a single figure and without double counting, all the output (production) carried out by all the firms, government, non-profit institutions and households within the country's economic territory.

"Gross", implying that consumption of fixed capital of machinery and other capital products used in production have not been deducted.
"Domestic" means that the goods and services are produced by resident institutional units of the country.
"Products" describes the final goods and services produced which is usually measured.

2.4 Estimates of GDP

- **Nominal GDP**

It is a measure of the value of an economy's output at current prices. It refers to the final goods and services produced in a given year valued at the prices of that year.

- **Real GDP**

This is inflation-adjusted GDP. It refers to the same quantities of final goods and services, but valued at unchanged prices of a reference year. The Real GDP can either be a fixed base, previous year, or a chain base. When it is a fixed base, it is described as GDP at constant prices and the base year corresponds to the year for which the price index is equal to 100.

- **Implicit Deflator**

This is an index that measures the average price level of an economy's output relative to the base year. The GDP deflator can be viewed as a conversion factor that transforms real GDP into nominal GDP or vice versa. Note that in the base year, real GDP is by definition equal to nominal GDP so that the GDP deflator in the base year is always equal to 100. Thus, the percentage change in the GDP deflator measures the rate of price increases for all goods and services in the economy.

$$GDP\ deflator = \frac{Nominal\ GDP}{Real\ GDP} \times 100$$

2.5 Approaches to GDP Compilation

- **Production or Value-Added approach**

GDP by production approach = sum of gross value added during a period plus taxes less subsidies on product.

Output is the market value of goods and services receivable by producers of these goods and services.

Intermediate Consumption is the cost of all goods and services used up in the process of producing the output within the accounting period. It is usually measured in purchasers' value. Therefore

$$GDP = \sum Output - \sum Intermediate\ consumption$$

$$GDP = \sum Gross\ value\ added$$

The Mathematics of Compiling GDP by Production Approach:
If the gross output (ø)for a sector is given as

$$\theta = q * p \qquad (1)$$

where

q = quantity of goods or services produced in the sector for a given period
p = market price for the goods or services produced and
w = intermediate consumption (IC) for that sector

Then, gross value added for the sector will be given as

$$y = \theta - \omega \qquad (2)$$

In practice, GDP is compiled either at the product or industry level and can easily be summarised at the sector level hence total value added for the sector is given as:

$$y_j = \sum_{i=1}^{m} \theta_i - \omega_i \qquad (3)$$

where
yj = value added for jth sector
j = sector in the economy
$Ø_1$ = gross output of the i^{th} product in the sector
w_1 = intermediate inputs used for the ith product in the sector
m = number of products in each sector

Thus, the total GDP for the economy would be given as

$$Y = \sum_{j=1}^{n} y_j \qquad (4)$$

Where
n = number of sectors in the economy

In Nigeria, the total GDP is currently measured for forty-six economic activities (sectors) using data from the thirty-six states of the Federation and the Federal Capital Territory (FCT) as represented in the matrix below:.

Therefore the total GDP for Nigeria is mathematically given as:

$$Y = \sum_{i=1}^{37} \sum_{j=1}^{46} y_{i,j}$$

where
Y = total GDP
$y_{i,j}$ = value added for sector j from state *i*

From the above matrix $\sum_{i=1}^{37} y_{i1}$ gives the total value added of crop production for all the states, while y_{11} and $y_{37,46}$ represents value added of Crop Production in Abia State and value added of Other Services in the FCT, respectively.

- **Expenditure approach**

Measures GDP as the sum of its final uses
= sum of final consumption (private or public (government)),

Matrix of Value added of each economic activity by State

State	Crop Production	Livestock	.....	Crude Petroleum & Natural Gas	.....	Other Manufacturing	.....	Other Services
Abia	y_{11}	y_{12}	.....	y_{15}	.....	$y_{1,21}$	.....	$y_{1,46}$
Adamawa	y_{21}	y_{22}	.....	y_{25}	.....	$y_{2,21}$	.....	$y_{2,46}$
Akwa Ibom	y_{31}	y_{32}	.....	y_{35}	.....	$y_{3,21}$	.....	$y_{3,46}$
.	.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.	.
FCT	$y_{37,1}$	$y_{37,2}$	.....	$y_{37,5}$	.....	$y_{37,21}$	.....	$y_{37,46}$
Total	37	37	.....	37		37		37

Gross Fixed Capital Formation (Investment),
Net export
Mathematically expressed as:

$$Y = C + G + I + X - M$$

where
Y = total expenditure on GDP
C = private final consumption expenditure
G = government final consumption expenditure
I = investment or Gross Fixed Capital Formation
X = export of goods and services
M = import of goods and services

- **Income approach**

This is income earned by the various factors of production
= sum of employee compensation (wages, salaries in cash or kind)
gross operating surplus (or profit)
and mixed income

Mixed income is the surplus or deficit accruing from production by unincorporated enterprises owned by the households; it implicitly contains an element of remuneration for work done by the owner, or other members of the household.

2.6 Standards for Compiling Economic Statistics

Three of these standards are of interest here namely:-
- System of National Accounts (SNA)
- International Standard Industrial Classification (ISIC)
- Central Product Classification (CPC)

These standards guided both the data collection for the rebasing and the actual compilation of the rebased GDP. The details of provisions in each of the manual are as follows.

a) System of National Accounts

The System of National Accounts, (SNA 2008) is a statistical framework that provides a comprehensive, consistent and flexible set of macroeconomic accounts for policymaking, analysis and research purposes. The SNA was produced under the joint responsibility of five organizations namely; United Nations, the European Commission, the Organization for Economic Co-operation and Development, the International Monetary Fund and the World Bank Group. The SNA had witnessed series of update; the most recent being from the 1993 to the 2008 SNA which like earlier editions, reflects the evolving needs of its users, new developments in the economic environment and advances in methodological research.

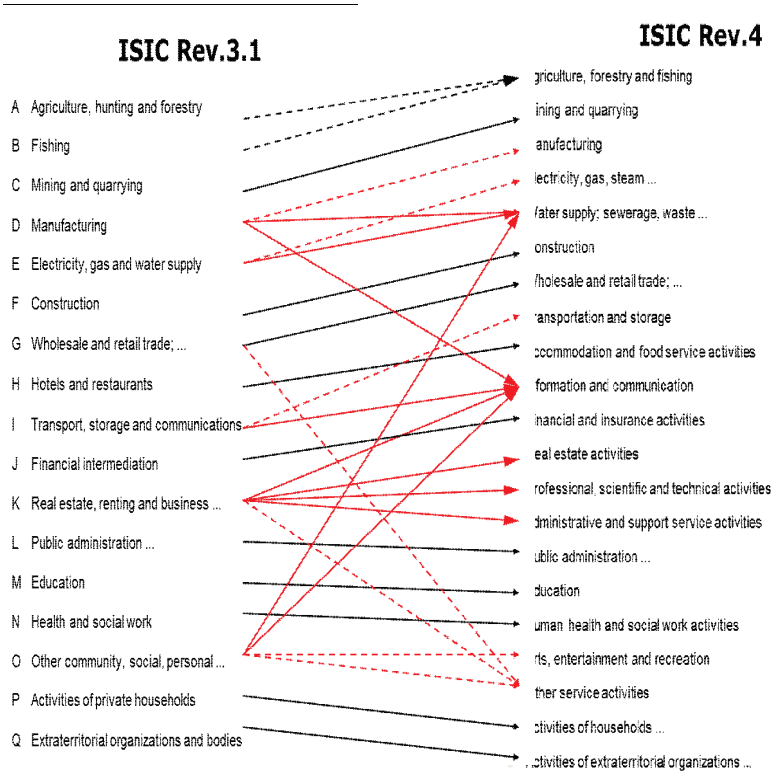
The 2008 SNA is intended for use by all countries, having been designed to accommodate the needs of countries at different stages of economic development.

The Statistical Commission unanimously adopted the 2008 SNA as the international statistical standard for national accounts. The SNA is the standard for the compilation of the GDP. The NBS migrated from 1993 SNA to 2008 SNA in 2013.

b) International Standard Industrial Classification (ISIC)

The onus of the task of the national accountant includes compilation of the GDP and producing the national classification of the economy which will be used for reporting the national GDP in accordance with international standards. Further to this, the classification should be able to capture the emerged economy and address morbidity of the activities in the economy where necessary. One such document which contains the activities classified according to their industrial lining is the ISIC.

The ISIC is the classification structure that represents a standard format to organize detailed information about the state of an economy according to economic principles. It provides the basis for the construction of the survey framework, namely the Statistical business register (SBR). In addition



to the SBR, the structure/classification of the Nigerian economy for reporting the GDP numbers emerged from the ISIC. During the rebasing exercise, the NBS migrated from ISIC revision 3.1 to ISIC revision 4.0
The diagram below shows the linkage of the ISIC rev 3.1 to ISIC rev 4.0. It shows the emergence of new industries or how industries have expanded. The major fallout of this is the expansion and proper re-classification of the economic activities.

c) Central Product Classification (CPC)
The CPC is a classification based on the physical characteristics of goods or on the nature of services rendered. Each type of goods or services distinguished in the CPC is usually produced by only one activity as defined by the ISIC. The NBS migrated from CPC version 1.1 to CPC version 2.0
The CPC covers products that are output of economic activities. These products which constitute goods and services are what are valued at either current or constant prices to produce the Nominal or the Real GDP. It also provides the bases for the construction of the Supply and Use Table (SUT) at product level.

3.0 GDP Rebasing

We had earlier described the real GDP as inflation-adjusted GDP. When it is a fixed base year i.e. goods and services valued at unchanged prices of a particular year, it is also described as GDP at constant prices. In the course of time, the pattern of relative prices (unchanged prices of this particular year) becomes progressively less relevant to the economic situations of later periods. It becomes inappropriate to continue using them to measure volume measures from one period to the next. It therefore becomes necessary to update the base period, (replacing the old base year with a more recent one). This process therefore is referred to as "rebasing"

3.1 Why Rebasing the GDP?
There are two dimensions to this question:
i. What is the relevance of the GDP or the uses of the GDP as an economic indicator
ii. What must be done to enhance the strength of the GDP as an economic indicator

Uses and Relevance of the GDP
1. The GDP estimate is used for research, policy formulation and decision making. Such decisions may include how output is divided between consumption and investment, dependency of the national economy on foreign trade, and how the structure of output changed over the years.
2. It allows for comparability across states or nations. Such data can serve as tools for attracting or designing programmes to improve the welfare of the citizens.
3. One fundamental economic problem is the issue of resources and their allocation. The GDP could be used as a guide in resource allocation, avail government, and investors understanding of the structure of the economy for effective channelling of resources to grow the economy, create jobs, improve infrastructure, and reduce poverty
4. The GDP also provides a tool for monitoring the development of the national economy over time. The time perspective is particularly interesting in analysing the rate of GDP growth. It also aids in understanding the patterns of government and household consumption as well as the productivity trends.
5. It aids the International agencies in determining country's eligibility for concessional assistance, calculating quotas for IMF member countries, and measuring the relative economic power of countries.

Strengthening the GDP
- Most often the issue of Exhaustiveness of basic economic data for GDP compilation confronts the national account. This is more pronounced when compiling quarterly accounts because these estimates suffer from incomplete record. As a result, partial data or indicators as the case may be are used in their compilation. This poses a source of weakness. Strengthening the GDP involves correcting this inadequacy through the use of the full set of accounts on production; income and expenditure which usually occur during rebasing.
- The birth and death of industries determine the extent of the Evolution of the economy. When such situation arises, it changes the structure of the productive economy. High premium therefore is placed in capturing the emerged economic activities and probably make less prominent the economic activities that are morbid. This leads to the compilation of a better business register or what we popularly called the frame. Data collected on the basis of this updated business register, helps to strengthen the power of the GDP.
- Re-aligning the price configuration needed to obtain a base year structure which is more representative for the current period. Nigeria applies the fixed base method for deriving the constant price GDP. As a result, the further away the base year is from the current year, the higher the trade off with respect to accuracy and robustness of the GDP estimates. The Real GDP for Nigeria compiled by the National Bureau of Statistics was based on 1990 basic prices with a nineteen-year

lag considering 2010 as new base year. This lag poses a great challenge in recording accurately the true economic realities over time. Rebasing therefore provides the opportunity to resolve this constraint.

The question therefore "WHY REBASING THE GDP" takes its queue from how important the GDP is as an economic indicator and the periodic interventions in strengthening it. Therefore the entire process of rebasing the GDP summarily involves enhancing the POTENCY of the GDP as an economic arsenal:

- To obtain a more accurate estimate of the size and structure of the economy.

4.0 RECENT DEVELOPMENTS FROM THE REBASING EXERCISE

4.1 Recent Developments

The principles and computational procedures adopted during the rebasing exercise complied and were in accordance with international recommendations. What follows below are issues that were significant and impacted positively to the GDP during the rebasing exercise.

a) Methodology

Migration - Standards:

- Migration from the 1993 SNA to 2008 SNA
- Adoption of ISIC revision 4.0 from ISIC rev 3.1
- Adoption of CPC version 2.0 from version 1.1
- Development of SUT for Nigeria, which is still on-going

b) Reclassification of the economy

The Nigerian economy has been classified severally considering the potential use of the classification and adoption of various standards for compiling economic statistics and national accounts. The ISIC plays an important role in this circumstance in determining the formal publication of the GDP. Nigeria over the years had reported its GDP at both current and constant prices in a differing number of economic activities under different base years. What follows below is the presentation of the various classifications of the Nigeria economy used to report the GDP. The recent is the classification of the economy into forty-six economic activities using ISIC rev 4 and the adoption of 2008 SNA as standard for the GDP compilation (Appendix 1).

c) Frame update

Economic production is an activity, carried out under the responsibility, control and management of an institutional unit that uses inputs of labour, capital, and goods and services to produce output of goods and services. When a list of the institutional units involved in this economic production is compiled, a Business register or a Frame as commonly referred is produced.

It is an important instrument in any statistical enquiry or investigation. It plays a prominent role in ascertaining the size and structure of any economy and form the basis for deriving the various probabilities of computing national aggregate. This also suggests why the standards (Manuals) for compiling statistics are being updated from time to time to re-align the economy with respect to these changes.

d) Data Sources

The NBS which is statutorily mandated by the Statistics Act, 2007 to compile the GDP and other allied macroeconomic aggregates collects data through three major survey modules or infrastructures namely:-

· National Integrated Survey of Households (NISH)
· National Integrated Survey of Establishments (NISE)
· System of Administrative Statistics (SAS)

The NISH module provides a platform for household data to be collected while the NISE patterns to Industries or establishments. The SAS module covers all data that are product of administrative routine.

The NBS conducted multiple surveys which were

NBS HARMOMIZED FRAME			
	SECTORS	NBS NEW FRAME	NBS OLD FRAME
1	AGRICULTURE, FORESTRY AND FISHING	1,116.00	671.00
2	MINING AND QUARRYING	971.00	261.00
3	MANUFACTURING	76,656.00	16,248.00
4	CONSTRUCTION	53,507.00	551.00
5	WHOLESALE AND RETAIL TRADE, REPAIR OF MO TOR VEHICLES AND MOTORCYCLES	502,085.00	16,583.00
6	TRANSPORTATION AND STORAGE	5,902.00	1,418.00
7	ACCOMODATION AND FOOD SERVICE ACTIVITIES	13,109.00	5,774.00
8	INFORMATION AND COMMUNICATION	1,719.00	2,183.00
9	PROFESSIONAL, SCIENTIFIC AND TECHINICAL ACTIVITIES	125,482.00	4,593.00
10	ADMINISTRATIVE AND SUPPORT SERVICE ACTIVITIES	2,048.00	1,096.00
11	EDUCATION	34,974.00	24,713.00
12	HUMAN HEALTH AND SOCIAL WORK ACTIVITIES	13,083.00	6,749.00
13	ARTS,ENTERTAINMENT AND RECREATION	805.00	281.00
14	OTHER SERVICE ACTIVITIES	8,450.00	2,002.00
15	REAL ESTATE	11,721.00	610.00
	Total	**851,628.00**	**83,733.00**

complemented by the use of existing administrative or other survey data in the country. List of surveys conducted for the purpose of the GDP rebasing under the NISE Infrastructure are listed below:

i. Mining and Quarrying
ii. Manufacturing
iii. Construction
iv. Wholesale & Retail Trade, Repair of motor vehicles & motor cycles
v. Transportation & Storage
vi. Accommodation & Food service activities
vii. Information & Communication
viii. Real Estate activities
ix. Professional ,Scientific & Technical activities
x. Administrative & Support Service activities
xi. Education
xii. Human Health and Social Work activities
xiii. Arts & Entertainment
xiv. Other Service activities

Additional data gathering from the FIRS and other MDAs on: Electricity, Gas, Steam & Air conditioning Supply, Water Supply, Sewage, Waste Management and remediation activities and Oil marketing activities were conducted.

The surveys or censuses listed below are on-going and are intended to be incorporated into the GDP Framework either currently or in the future. They have a five or ten year frequency.

- National Census of Commercial and Industrial Businesses (NCCIB)
- National Agricultural Sample Census (NASC)
- Household Survey (Harmonized Nigeria Living Standard Survey – HNLSS)

These surveys or census are very relevant and provide substantial data for the compilation of the GDP.

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ISSUES IN CENTRAL BANK COMMUNICATION

WILLIAMS D. KAREEM

1.0 INTRODUCTION

Central bank communication can be defined as the provision of information by the central bank to the public regarding such matters as the objectives of monetary policy, the monetary policy strategy, the economic outlook, and the outlook for future policy decisions (Blinder et al, 2008).

In the past communication was not taken serious by central banks just because of their conservative nature as they are hardly seen or heard in the public. Central bankers took pride in mystifying communication as observed by Woodford (2004), when he observed that before 1990s, central banking was shrouded in mystery, at the Federal Reserve and elsewhere. According to him, the "mystique" of central banking, was guarded jealously by central bankers as essential to their success. Blinder et al (2008) also agreed that central banks used to be shrouded in mystery, and believed they should be. A few decades ago, conventional wisdom in central banking circle held that monetary policy makers should say as little as possible, and say it cryptically.

Dale et al (2011) noted that, over the past two decades, central banks' approach to communications has undergone a sea change. The cultivation of secrecy and mystique has been replaced by a zeal for openness and transparency. Although, the benefits of an open and transparent monetary policy process are now widely recognized and understood many central banks are still grappling with the exact and best way to achieve that aim. An approach of "more information is always better" than is neither sufficient nor correct. There are costs as well as benefits associated with communicating ever-increasing amounts of noisy and complex information. As central banks seek to continue their progress toward greater openness, these costs and benefits, and their implications for the design of central bank's communication need to be better understood.

Also alluding to the foregoing, Syrichas (2004) noted that, in the past, the communication practices of central banks could best be described as secretive and ambiguous, thus, giving rise to a certain mystique surrounding their activities. In contrast, communication today is considered to be an essential and vital part of modern central bank policy making. Over the past fifteen years or so, central banks have placed more and more emphasis on the amount of information they release to the public as well as on its timeliness and quality. This new open approach has been welcomed by the public and has improved the efficiency of different monetary policy strategies.

In the same vein, Comanescu (2012) opined that during the last two decades, central bank communication and transparency became undisputable conditions of effective monetary policy. Central banks seek to create a climate of confidence by communicating strategically on their policy goals, rules and operations, with the financial markets and the general public. Tomuleasa (2013) also agreed that central banks were really reserved, but were constrained to communicate much more about monetary policy issues, especially because of the pressures from the recent financial crisis.

Furthermore, CLAMS (2004) noted that there can be no doubt that information is a valuable resource leading to knowledge. Knowledge is power. Information is obtained via communication and in its widest meaning of disseminating and transmission of knowledge. Therefore, communication implies a high degree of responsibility on those who provide it, a commitment that translates into truthfulness, transparency and ethical integrity.

It is therefore pertinent to postulate that in recent times, central banks have recognized these attributes as valuable assets, since they provide them with credibility and prestige. Thus, a majority of central banks have convinced themselves of the need for communication. Communication in its widest sense, not only with the so called media – newspapers, radio, television, news agencies, etc, but also with all groups within society that demand information on the

central bank and its activities. Almost all monetary authorities in the world today recognize the imperative need for openness and transparency. Many prestigious central bankers already consider communication as an integral part of their responsibilities, on the same level as monetary and exchange rate policy or reserve management.

2.0 WHY DO CENTRAL BANKS COMMUNICATE?

One may argue that openness is the reason why central banks communicate. Although there are two main rationales for openness, the effectiveness of monetary policy could be stressed more. With a more transparent central bank, market expectations are so critical to the transmission of monetary policy – e.g. through the termed structure of interest rates, the reactions of stock markets and exchange rates, and wage and price setting will reflect on policy changes making it better and faster. One may examine a number of the modern academic arguments for 'creative ambiguity', and find them wanting. If the central bank is both open and honest, then, the arguments for obfuscation melt away.

A philosophically different argument for openness derives from the need for democratic accountability. As a public institution operating on delegated authority, a central bank must be fully accountable to the elected representatives of the people. Thus, transparency can be thought of as an implied corollary of central bank's independence: in exchange for its broad grant of authority. The central bank owes the public transparency and accountability. Communication is at the heart of both.

The essential message that any central bank ought to convey to the public is its policy regime: what it is trying to achieve, how it goes about doing so, and its probable reactions to the contingencies that are likely to occur. Of course, no central bank can spell out in advance its reaction to every conceivable contingency; nor is it necessary to reveal every detail of its operations. The guiding principles should be two.

First, the bank should reveal enough about its analyses, actions and internal deliberations so that interested observers can understand each monetary policy decision as part of a logical chain of decisions leading to some objective(s). Central banks need to communicate with at least four constituencies whose needs may be somewhat different – the markets, the media, the politicians and the broad public. But the messages communicated to each must be consistent. This is a challenge, but not an insurmountable obstacle.

Second, the arguments for transparency are so strong that the burden of proof should be on those who would withhold information. There are valid reasons for a central bank to be secretive, e.g. the protection of proprietary information. But that is not the norm, and this report proceeds with the presumption of openness. And this must be to the extent that, a higher level of common understanding on the part of their diverse audiences is reached. Central banks by this shall attain greater levels of credibility and transparency. This, essentially, will contribute significantly to the growing support for central bank as an institution, particularly, in the sense of autonomy and independence required to achieve their objectives. From this perspective, the main responsibility of a central bank's communication policy consists in ensuring that its vision of the world is commonly understood, and in transmitting information in a language that is understood and shared by the public.

Despite the fact that a central bank is essentially a technical and operational entity, its field of action has an undeniably political dimension to the extent that, it wields an exclusive state prerogative in the creation of money by administrative fiat, and because its actions have a direct impact on the welfare of the community. This is why central banks must explain their conduct, and the motives underlying their actions to the society. This view was further strengthened by Tomouleasa (2013) who opined that arguments in favour of a strong communication includes increasing monetary policy efficiency, the predictability of central banks actions and the central banks' independence.

In the view of Erhmann et al (2005) communication plays a central role in monetary policy making. Central banks have direct control only over a single interest rate, usually the overnight rate, while their success in achieving their mandate: whether the focus is on price stability or on economic activity requires that they are able to influence asset prices and interest rates at all maturities. Effective communication as much as credible policy actions are of fundamental importance for achieving these objectives.

Conscious of the diverse nature of its audiences, central bank develops its own language and construct in different levels of discourse the same message it can effectively transmit i.e. central bank will be communicating (attempting a higher degree of common understanding) rather than merely informing. The modern context of autonomous central banking is more suitable for measuring the task and responsibility of communication. The links between autonomy, transparency and accountability have been widely noted within the paradigm of central bank's independence.

The importance of communication strategies for policy effectiveness follows from a fundamental feature of the kind of problem that a central bank is called upon to solve. Central banking is not like steering an oil tanker, or even guiding a spacecraft, which follows a trajectory that depends on constantly changing factors, but does not depend on the vehicle's own expectations about where it is heading. As a consequence, there is a good reason for a central bank to commit itself to a systematic approach to policy that not only provides an explicit framework for decision making within the bank, but also used to explain the bank's decision to the public.

3.0 WHAT DO CENTRAL BANKS COMMUNICATE?

3.1 Objectives

First, and perhaps foremost, central banks need to make clear their long-run objectives. This should be a relatively simple task for a bank with a single target, such as the inflation rate or the exchange rate. The job is more difficult for central banks with multiple goals, such as the Federal Reserve and the Bank of Japan, but they must have some notion of what they are trying to accomplish, and they should articulate it as best they can. For instance, the mandates of the Central Bank of Nigeria (CBN) are clearly spelt out in the Central Bank of Nigeria Act, 2007.

3.2 Tactics

Generally, central banks are quite transparent about how they go about putting a monetary policy decision into effect – as they should be. However, there is one main exception to this rule. When they intervene in foreign exchange markets, the authorities almost and always try to catch market participants by surprise. Also, they often maintain a steely silence over how, and when sterilized interventions have taken place, even well after the fact. Despite expectations on the subject of openness, a departure from the premise of transparency could be 'endorsed,' because governments are unlikely to have enough ammunition (foreign exchange reserves) to force the market to bend to its will. So the element of surprise and some creative ambiguity about when and where the authorities are likely to strike next, may be essential to the success of sterilized foreign exchange operations.

3.3 Talking about decisions

Often, it is taken for granted that all decisions should be publicly announced as soon as they are made, with no informational advantage to selected 'insiders.' A far more difficult question is: what, if anything, central banks should say about their tentative future plans. The old answer to this question was nothing. In recent times, however, more and more central banks are making relatively straightforward (though often highly stylized) statements about which way they are 'leaning.'

Furthermore, it is possible to distinguish among at least four broad classes of issues, about which a central bank may consider revealing more or less to the public. The first is the central banks' interpretation of economic conditions, including (perhaps) the central bank's view of the outlook for the future, to the extent that this is shaped by factors other than the bank's intentions with regard to policy. Central banks typically have a large staff devoted to collecting, and analyzing information about current conditions of the economy as an input to policy deliberations; and accuracy of private sector understanding of the state of the economy might be improved if the central bank were to reveal more about what it believes it has learned.

The second topic is the content of the policy decisions that are made in the central bank about current operating targets. A third possible kind of communication would be a description (which might be more or less explicit) of the strategy that guides the central bank's policy decisions in general, while the fourth type of communication makes statements about the outlook for future policy, in the light of current situation, without necessarily asserting that, this illustrates a general rule that must always be followed.

With regards to what to communicate, Blinder et al (2008) submitted that the

central banks communicate about at least four different aspects of monetary policy: their overall objectives and strategy, the motives behind a particular policy decision, the economic outlook, and future monetary policy decisions. Central banks' objectives and strategies tend to be more stable, so the corresponding signals show less variability over time than signals about the other three items.

4.0 HOW SHOULD CENTRAL BANK COMMUNICATE?

The precise ways in which a central bank chooses to communicate will depend on many factors. But perhaps the most important is whether monetary policy decisions are made by a single individual or, as is increasingly the norm, by a committee. And, if it was by a committee, it is whether the decisions were presented as achieved by consensus (which we call a collegial committee), or by individuals voting for their own preferences (which we call an individualistic committee). The distinction is clearest when discussing how to communicate the results of monetary policy committee (MPC) meetings.

What seems to have become standard practice is the announcement of each policy decision with a brief statement, issued shortly after the meeting, and followed some weeks later by a fuller explanation in the published minutes. There are, however, some obvious but rarely discussed trade-offs.

A single decision-maker has no meeting, no minutes and no vote to report. The statement therefore carries the burden of explaining the reasoning behind the decision. It should therefore be full, intelligible and promptly issued.

On the other hand, a truly individualistic committee may find it quite difficult to agree upon a statement in short order. So, for instance, the Bank of England's MPC normally issues no statement at the close of each meeting.

To that extent, transparency calls for detailed minutes to be released as soon as possible. With individual responsibility, the minutes might or might not attach names to specific arguments and positions, but it should certainly record the vote of each committee member, or at least, the number of votes cast for each proposal.

4.1 Asymmetric information

The presence of an information asymmetry between the central bank and the public is the basis of the case for full transparency. Yet, this argument can be turned on its head. And this is because, the public can never be sure that it fully knows the policy regime, it needs to scrutinize every signal that the central bank emits. To suspicious observers, signals are always ambiguous. Once doubt exists, the onus is: how can it be fully removed? This usually pervades every central bank's pronouncement, no matter how hard the central bank tries to be transparent. Its signals stand to be misinterpreted or exaggerated. The public may read too much in the information released by the central bank, and get confused. This is true as exemplified by Nigerian financial/economic experts whose divergent views are projected in the print and electronic media whenever there are burning issues relating to the CBN's policies, or statements.

Two main implications follow: The more transparent the central bank, the more signals it sends, and under this view, the more volatile are the financial markets. The central bank may become hostage to market sentiment because, every one of its utterances or actions produces strong reactions with potentially powerful effects on inflationary expectations. The result could be a very conservative approach to policy with small, possibly delayed actions. The view that less information could help to deal with the information asymmetry as the public does not know as much about the central bank preferences, and intentions as the central bank itself is surely paradoxical. These results referred to above rely on some peculiar features of financial markets which result in such phenomena as herding behaviour or panics.

Also, these phenomena involve a large number of imperfectly informed participants who draw wrong inferences from each other's behaviour or 'cheap talk'. There is no doubt that these things exist, and occasionally result in serious disruptions, even crises, as documented by Shiller (2000).

Central banks sensibly fear becoming hostage to market sentiment. This is because, their business is inherently uncertain, they need to stand ready to react to numerous contingencies and cannot be tied down by earlier pronouncements, or by market expectations. One solution is to shun pronouncements altogether. While this may alleviate the hostage-to-markets problem, it runs against the grain of the case for transparency: the costs in terms of effectiveness not to mention

accountability which are likely to a large extent outweigh the benefits. A better solution is to consider carefully the channels of effect from short-term interest rates to stock and bond prices and see what can be done. For stock markets, one argument is that communicating intentions on the future path of interest rates could go a long way toward stabilizing expectations. The fear is that such detailed information about intentions, which remain highly tentative and will typically change as new information flows in, could backfire because of market's tendency to go to the extremes. Hence, noting that central banks do not really have any information advantage over markets, one could be agnostic on the desirability of communicating such intentions.

For bond markets, central banks hold the key to current and future interest rates. This gives them the ability to strongly influence the markets, and therefore need not be overly concerned to go against them. The root cause of all this, is that, individual financial market participants fail to agree among themselves when interpreting the central bank signals. It stands to reason that a complete public disclosure of the bank's intentions should help coalesce heterogeneous opinions and drive financial markets towards the 'correct' view (Tarkka and Mayes, 1999, Winkler 2000). In contrast, if market participants are inherently suspicious, that, central bankers do not always speak their minds, more information will not always deliver a better understanding. The only sensible solution is for central banks to be fully opened. The risk is that, trust will never be complete and on occasions, more information may not be better. But it remains the case that, in most instances openness will eliminate costly misunderstandings. (Blinder et al, 2001).

4.2 Transparency and Independence

Having noted that, central banks without independence may be subject to an imposed inflation bias, what then is the effect of the independence status on the communication strategy? It is pertinent to note that, independence requires accountability and accountability requires transparency. Here we are focusing on the economic efficiency aspect of the relationship, asking whether the precise form of independence matters for transparency.

Central banks which are goal-independent and have a broad mandate may well have, at least from time to time, a different view of what ought to be done than the public at large. If that is the case, the central bank will want to protect some privacy, while the public will ask for total transparency. Faust and Svensson (2000a) observed that, this may explain the Fed's approach to limited transparency. If this aspect is deemed important, it is believed that the proper response is not opaqueness, but a shift to instrument independence with full transparency.

4.2.1 The aim of transparency

The guiding principle is that, transparency should allow the public to understand, and possibly anticipate the central bank's decisions and to see each of them as the logical conclusion of a chain of past and future decisions aimed at a clearer set of targets, possibly, but not necessarily one target. In order of importance, transparency should aim at providing outsiders with the following information:

Objective(s): The central bank must fully reveal what it is trying to achieve. Observers understand that, setting any objective is inherently conflictual and political. Outsiders will always pass judgment on the central bank's action, so, opacity at best buys time, but at a cost. There is no shortcut to full revelation of policy regime. Even though, the policy objective(s) change along with circumstances (economic and political), or as new knowledge is acquired, central bank's actions are guided by a limited number of fundamental principles, such as keeping inflation below some threshold, avoiding large output gaps, smoothening interest and exchange rate changes and containing asset price volatility, among others. The central bank may not set precise numbers or weights on these objectives, but it must develop its own understanding of where warning signals start ringing, and how to deal with conflicting aims. It cannot, and should not, be more precise vis-à-vis the outsiders, than it is internally, but it should not be less precise either. Transparency is about sharing certitudes as well as doubts, and promptly revealing shifts in the priorities when they occur.

Methods: Each central bank relies on a large set of methods of analyses. This includes selecting data and deciding on how to interpret them. It also involves using models, large and small, to produce forecasts and policy simulations. Outside observers, and in particular, professional economists peruse similar data and use similar

models as they attempt to deal with the same issues. There is no reason to believe that the central bank's methods are systematically superior or inferior to those of outsiders, but they may often lead to different conclusions. Only time can tell who was right and who was wrong, and there is no shame in being occasionally wrong. But the bank's actions will not be intelligible unless the methods and the conclusions of the analyses are disclosed.

Full disclosure does not only allow for professional exchanges, it is a precondition for outsiders to understand the central bank's actions by relating them to the stated policy regime. Revealing the policy regime without disclosing the internal methods is like providing a car without the engine, it goes nowhere.

Decision-making: Outsiders understand that policy making is more of an art, than a science. Some even call it a gamble. At times, several reasonable options may co-exist and the task of the policy maker is to choose one. Monetary policy committee meetings are, therefore, likely to be occasionally contentious, and the decision finally reached will reflect internal debates. The debates themselves, and who said what, and when, belongs more to the gossip column than to the financial pages.

On the other hand, which argument carried the day and how convincing it was within the decision-making committee, matters a great deal for outside observers. It helps them relate the bank's methods to the declared objective(s), that is, the policy regime, and it reveals the degree of uncertainty surrounding the current and expected situation.

Finely balanced decisions best illuminate the way priorities are set. The decision-making process is a reality check on the principles set forth. Revealing this process is the only way a central bank can make its policy understandable and predictable.

4.3 Democratic accountability

A central bank is a public institution, and as such, it must be fully accountable for all its actions and procedures. This broad, and uncontroversial principle, establishes the basic presumption that all information ought to be released, unless a good case can be made to the contrary. Such a case can be, and usually is made regarding proprietary information on financial institutions that central banks routinely collect, or receive in periods of financial instability. More generally, market-sensitive information requires particular care to ensure a level playing field among competing financial institutions. With these exceptions in mind, there should not be other generic information that central banks ought to conceal from the public domain.

4.4 Citizens and the media

In the developing countries like Nigeria, it is fair to note that most citizens care little for monetary policy. The average citizen typically does not understand monetary policy, and they make little effort to grasp what they perceive as an arcane world, which speaks mostly unintelligible words. The average citizen seems not to care about price stability, however, and would react strongly to a return of high inflation.

They routinely care about interest rates, but would not seriously feel a difference of 50 basis points. Meanwhile, in small open economies, they are keenly aware of the exchange rate. In the end, they typically see central banks as affecting growth and employment, which may explain why most central banks try to distance themselves, mostly unsuccessfully, from the real economy. However, in recent times, the CBN has been involved in the real sector development with interventions in the areas of agriculture, power and aviation sectors.

To that effect, central banks need to use all available communication channels. They often publish pedagogical brochures, for instance. But the main effort is clearly in the direction of the media, and in particular, those that appeal to the educated public. Central bankers routinely make themselves available for press conferences, interviews and background briefings. They usually and freely provide data and analyses. All central banks now have websites with a rich, often nearly exhaustive content.

A particular challenge is that some media specialized in financial affairs, which are mostly read by the educated public, while most citizens receive their information from non-specialized media. Communication with the specialized media comes naturally, and is often more than adequate.

Communication with the non-specialized media, and therefore, with the majority of citizens, is considerably more difficult.

In dealing with monetary policy the media face two problems. First, they need to create and maintain interest in a technical subject. Simplification, and pedagogy, is essential ingredients here but the risk is to lose nuance, a key ingredient in central bank communication. This especially is the case with television, the most influential of all media, where a few minutes, often seconds, are devoted to any piece of news, leading to the search for 'sound bites.' Central bankers naturally fear this form of communication, which can easily lead to misquotation.

Secondly, the central bank is a monopolist in dishing out monetary policy, but it should not enjoy monopoly in discussions of monetary affairs. The media need to diversify their sources of information and analysis. Much is the same concerning government, but there, the media can always turn to opposition politicians. Because the media will always seek contrarian views, central banks need well-informed critics who can challenge their words and their deeds. In some countries, there exist self-appointed shadow monetary policy committees. In general, central banks would be well-inspired to feed with as much information as possible a wide group of experts, if only to avoid debates borne out of ignorance of what they do, and think.

4.5 Governments and parliaments

Governments, and the parliaments represent the citizens, but they may also have their own agenda, precisely because of the limited interest of citizens in monetary affairs. Governments are keenly interested in monetary policy because of shared responsibilities (e.g. the exchange rate) and shared impact on both inflation, and economic activity. Most crucial is the economic conditions which often play a decisive role in elections, so governments and their oppositions must have a clear view of what they would like the central bank to do over the proceeding period. Conflicts of interests are the norm, and this is why independence is crucial.
Independence, now the norm rather than the exception, slightly complicates matters. On the one hand, independence carries responsibility for central bank's unelected officials. With responsibility comes accountability to elected officials. Central bank accountability is generally established in its statutes. In most cases, the central bank is formally accountable to the parliament, but on the other hand, independence requires an arms-length relationship between central banks and politicians. Some central banks are both goal and instrument independent, and forbidden by law to take instructions from any outsider. In that case, accountability must balance independence and democratic control.

Parliaments are usually the custodians of central bank behaviour, implying formal reporting. In some countries (e.g. the United States and the United Kingdom) parliamentary oversight is backed by the right to amend the statutes and/or the procedures of the central bank. This gives weight to parliamentary control and provides an effective tool of communication between the central bank and the elected representatives. In others, the Euro area being a good example, the parliament can only engage in 'dialogue' with central bank officials, but cannot affect its statutes and objectives.

In Nigeria, the Central Bank usually have periodic rapport with the National Assembly's Committees on Finance, Banking, Insurance and Other Financial Institutions, Public Accounts, National Planning, Public Accounts, Commerce, Petroleum, etc . (Please note that the National Assembly comprises the Senate and the House of Representatives). The National Assembly has in turn exercised its control over the CBN on many occasions by summoning the Governor to appear before it, and make clarifications on monetary policies and other burning issues.

Whatever is the institutional set-up, transparency greatly enhances central bank's independence vis-à-vis politicians, while furthering the goal of accountability. The more open the bank is, the less can it be amenable to government political pressure. Greater transparency also contributes to lessening the impact of institutional shortcomings, be it excessive or insufficient power of parliaments. (Blinder et al, 2001).

5.0 PRINCIPLES FOR SOUND CENTRAL BANK COMMUNICATION

The CLAMS (2004) noted that, the design and implementation of best practices in central bank's communication rest upon five fundamental pillars. These may be considered as the basic principles that should be observed in order that the communication process be efficient and effective, and fulfill its objectives. These basic

principles are the following:

1. The point of departure of central bank's communication strategy must be to accept the premise that, the better the public understanding of monetary policy, the more effective it will be.

2. It is imperative that central banks pursue a proactive communication policy. This proactive element must come about as a true balance between the traditional spirit of the central banker and its role as a dynamic, open and transparent communicator. This proactive policy must be dynamic, demanding and aimed at a wide and diversified social spectrum with well-defined interlocutors. It should be all embracing in its efforts to reach all groups within society. The messages should be tailored to each interlocutor group.

3. A central bank should design and implement an integral and articulated communication strategy so as to adequately transmit, and explain its objectives and actions to all social groups.

4. A central bank should consolidate the process of disseminating ample and transparent information as a systematic process and continuous effort aimed at guiding and explaining monetary policy. It is not sufficient for economic agents to have timely access to information; they must also have the elements with which to interpret it properly. Only thus, will the messages a central bank wishes to transmit to society get through, and achieve an authentic consensus on its everyday business.

5. Since in many countries, especially the emerging economies, inflation is one of the phenomena least understood by the public, despite the fact that, they have been directly affected by the rise in prices for a long period of time, the communication and dissemination effort must begin by building an authentic anti-inflationary social consensus. In other words, the work must begin at the foundation, and to the degree that, a collective social consciousness regarding the damage caused by inflationary pressures can gather ground; more favourable expectations aligned with the disinflation goals of the central bank to be strengthened.

6.0 CONCLUDING REMARKS

This article is an attempt to discuss some issues in communication and show that it is a very important aspect of central banking. Although, the value of communication has been hitherto ignored, it has become evident over time that, for a central bank to succeed in achieving its set objectives and mandates, it must put in place effective and efficient mechanisms needed in crafting, and disseminating information about its policies. The ability of the central banks to identify their stakeholders and address their unique communication needs will enable them to earn the trust of their stakeholders and portray them as transparent and accountable entities.

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A STUDY OF TECHNICAL EFFICIENCY OF DEPOSIT MONEY BANKS IN NIGERIA (2007 – 2012)

Auwalu I. Fagge

ABSTRACT

Measures of technical efficiency are derived in the Nigerian deposit money banks (DMBs') by implementing non-parametric, data envelopment analysis technique on a cross section of 24 banks taken from 2007 to 2013. The efficiency concepts, measurement and methodology were discussed. The existence of technical efficiency is established. The result suggests that the sources of overall technical inefficiency, the observed issues are due to poor input utilization (managerial inefficiency) and failure to operate at most productive scale size. Therefore, in this research work, we suggest or consider some important factors which may exert an influence on the overall technical efficiency of a bank. This includes larger profit levels, market share, and exposure to off-balance sheet activities may have positive result on the overall technical efficiency. On the other hand, poor assets quality (i.e., larger volume of Non-performing Asset in relation to total assets) has negative consequences on the overall technical efficiency of the bank. Examination of these factors would help placed banks' efficiency better.

Keywords: *Technical efficiency, Data Envelopment Analysis and Banking system.*

1. INTRODUCTION

Relative banks' efficiency is always a matter of concern to all the stakeholders (regulators, customers, shareholders and operators). Thus, efficient banks are often directly linked to the productivity of the economy, it guarantees better services delivery, higher returns and maintains lower operational costs, while inefficient banks are riskier and prune to failure. When banking system fails, the whole of a nations' payment system is in jeopardy. In view of this, some major reforms have taken place in the Nigerian banking industry aimed at strengthening the sector by growing and positioning the banks to encourage improvements in their own operational efficiency and play pivotal roles in driving development in other sectors of the economy.

The measures employed at different occasions, specifically with reference from 2004, includes consolidation of banks through mergers and acquisitions, raising the capital base of banks, minimal reliance of public sector for funds, the adaptation of risk focused and rule-based regulatory framework, strict enforcement of corporate governance principles in banking management, greater transparency and accountability in the implementation of laws and regulation, improved data rendition among others, placed the banking sector to continue supporting economic growth. The sector also showed a stronger capacity in financing the real sector activities with substantial credit flow to the core private sector. In addition, the increased use of the various electronic money products reflected the shift away from cash transactions and, thus, an improvement in the efficiency of funds intermediation.

In spite of these positive developments, a new set of problems emerged and threatened the financial system from 2008, coinciding with the global financial crisis. The surge in capital put pressure on the availability of human capacity in the sector and this led to margin loans and other high risk investments. Consequently, when the capital market bubble burst, the balance sheet of banks became eroded to the extent that most of them remained for some time on 'life support' from the Central Bank of Nigeria (CBN). Inter-bank rates spiked as banks could borrow at any rate in order to remain afloat, the size of non-performing loans enlarged, customer panic re-emerged and several unethical conducts among the managements of banks were revealed. It was this scenario that set the stage for further set of reforms.

The reforms were of two-fold. The first part focused on ensuring that the nine banks, which examination revealed were in poor state, were rescued. Some of the actions included the reduction of cash and liquidity ratios, expanded discount window operations, which enabled the banks to borrow for up to 360 days from the CBN. It also admitted non-traditional instruments, like commercial papers, promissory notes and bankers' acceptances in the discount window. Interbank

lending was also guaranteed to encourage banks to lend among themselves. The sum of N620 billion was injected into eight of the weak banks in direct rescue packages, while corporate governance was enhanced with the appointment of new management teams. Simultaneously, the establishment of the Asset Management Company of Nigeria (AMCON) to purchase toxic assets of banks and recapitalize troubled banks helped the system restored to the path of stability.

The second aspect of the reforms was embedded in terms of medium to long term objectives. Under this, financial sector stability is emphasized alongside the need to position the banks to provide funding for the development of the real sector of the economy. The four cardinal pillars of the reform are: enhancing the quality of banks, establishing financial stability, enabling healthy financial sector evolution, and ensuring that the financial sector contributes to the real economy.

Against this background, it has become pertinent to measure the extent of relative efficiency or otherwise of deposit money banks in Nigeria and explore the areas for bringing an improvement in their efficiency. More so, it is important to reveal whether the observed inefficiency is due to managerial underperformance or choice of inappropriate scale size. The present study is an attempt in these directions. Specifically, aim to measure the extent of technical efficiency of deposit money banks applying data envelopment analysis (DEA) technique. This paper is divided into six sections, following the introduction; section 2 briefly reviews the literature on the efficiency of banks, followed by efficiency concepts and measurement in section 3. Sections 4 and 5 contained the methodology and empirical findings, while section 6 concludes the paper.

2. LITERATURE REVIEW

Brack and Jimborean (2010) acknowledged the maiden research work on bank efficiency and productivity conducted by Farrell (1957) at a micro level. They maintained that Farrell's contributions centered on the definition of the efficiency and productivity, and the calculation of the benchmark technology and efficiency measures. His analysis was based on the assumption of a perfect input-output allocation which allows for inefficient operations. Inefficiency is defined as the distance of a firm from a frontier production function accepted as a benchmark. The radial/expansion connecting inefficient observed points with unobserved reference points on the productivity frontier is the basis for this measure. The ratio of the actual to potential production defines the level of efficiency of the individual firm.

Berger and Humphrey (1997) surveyed 130 studies of financial institutions' efficiency in 20 countries. They applied five different econometric techniques of measuring efficiency with an aim of summarizing and critically reviving empirical estimates of efficiency of financial institutions. They identified that the various efficiency methods under parametric and non-parametric frontiers do not always yield consistent results.

Drake (2001) investigated the efficiency and productivity change in UK banking by using Data Envelopment Analysis (DEA) technique and Malmiquist Productivity Index (MPI). The analysis revealed that increasing returns to scale were obvious for smaller banks while decreasing returns to scale for large-scale throughout the sample period. Malmiquist productivity indices suggested that UK banks have exhibited positive productivity growth over the period. All UK banks have been experienced with positive technical change due to increasing competition and product diversity.

Allen and Rai (1996) evaluate the overall cost function of 194 international banks (from 15 countries), over a 5-years period, spanning from 1988 – 1992, in order to determine the inefficiency of inputs and outputs, using parametric approach. Their analysis suggests that, the inefficiency of inputs were higher than those of outputs. Applying distribution free approach (DFA) overestimates the size of inefficiency scores, compared to the stochastic frontier approach (SFA) approach. Large banks have the highest value of inefficiency of inputs at 27.5 percent of the cost and significant levels of diseconomies of scale. For the other banks, the inefficiency was at 15 percent of the cost, with reduced economies of scale for small banks.

Kablan (2010) conducted a study on determinants of banking system efficiency and financial development in sub-Saharan Africa (SSA), using stochastic frontier analysis. The findings suggest that SSA banks are found to be generally cost-efficient, but non-performing loans undermine efficiency, which suggests that improvement in the regulatory and credit environments should improve efficiency. The paper concluded that political and the economic environments have held back financial development in the region.

Table 1: A Survey of Banks' Efficiency Empirical Studies

S/No.	Author (Year)	Period	Data	Methodology	Conclusions
1.	Aly et al (1990)	1986	322 Banks	DEA	The results indica ted a low level of overall efficiency, which was technical by nature.
2.	Brack and Jimborean (2010)	1994 – 2006	10 Banks	DEA & Tobit Regression	The results suggested an improvement in cost-efficiency of French and Spanish banks. However, inefficient banks have reduced the gap during the period 1994 – 2006.
3.	Kumar and Gulati (2008)	2004/5	27 Banks (cross-sectional)	DEA	The results suggested that the level of overall technical efficiency is around 88.5 percent. The sources of inefficiency were poor input utilization and failure to operate at most productive scale size.
4.	Fukuyama (2006)	1990	143 Banks (cross-sectional)	DEA	The results suggested that the major cause of overall technical inefficiency was pure technical inefficiency. Nonetheless, there still exist some degrees of scale inefficiency due to increasing returns to scale (IRS).
5.	Heerden & Westhuizen (2008)	22 months	1 Bank	DEA	The result suggests that 19 districts out of the 37 districts were never fully technical efficiency. A large port ion of higher bank fee may be the result of inefficiency.
6.	Obafemi (2012)	1984 - 2004	67 Banks	DEA	The findings suggested that on the average Nigerian banks were not efficient. However, liberalization improved the efficiency of banks.
7.	Oke & Poloamina (2012)	2001 - 2008	15 Banks	DEA	The results suggests that credit risk was found to be the most significant variable that negatively influenced efficiency in the model at 5 percent level, followed by foreign bank that showed a positive effect on efficiency.
8.	Kolapo et al. (2012)	2000 - 2010	5 Banks	Panel Technique	The results showed that the effect of credit risk on bank performance measured by the return on assets of banks is cross-sectional invariant.
9.	Fagge et al. (Unpublished)	2007 - 2012	24 Banks	DEA	The results suggests pure technical efficiency at 39.8 percent is higher than the scale and technical efficiencies at 30.0 and 24.5 percent, respectively, while average technical change and efficiency change index were at 1.2 and 2.3 points, respectively.
10.	Fagge (Unpublished)	2007 - 2012	5 Banks	DEA	The results suggested that recent banking sector reforms have strengthened the fundamentals of the sector and led to the transformation of the financial system. The overall efficiency results suggest that technical, pure technical and scale efficiencies were each at 63.3 percent.

Source: Authors' compilation

Studies mentioned above used both parametric and non-parametric approaches for estimating technical efficiency of banks. This research work intended to add to the existing literature on the study of banks' technical efficiency in Nigeria.

3. EFFICIENCY: CONCEPTS AND MEASUREMENT

3.1 Concepts

As briefly mentioned in the literature review, Farrell (1957) laid the foundation to measure productivity and efficiency studies at the micro level. His work consisted of two issues: the definition of the efficiency and productivity, and the calculation of the benchmark technology and efficiency measures. The fundamental assumption was that of a perfect input-output allocation, which allows for inefficient operations. Inefficiency is defined as the distance of a firm from a frontier production function accepted as benchmark (Brack and Jimborean, 2010).

They showed that the radial contraction/expansion connecting inefficient observed points with (unobserved) reference points on the productivity frontier is the basis for this measure. If a firm's actual production point lies on the frontier, it is perfectly efficient. If it lies below the frontier then it is inefficient. The ratio of the actual to potential production defines the level of efficiency of the individual firm (decision making unit, DMU).

They further maintained that Farrell's study on efficiency consists of technical efficiency and the allocative efficiency. The former reflects the ability of a decision making unit (DMU) to minimize input use in order to produce a given amount of output. The latter reflects the ability of a DMU to use inputs in optimal proportions, given their respective prices and production technology. Considered together, these two measures represent a total efficiency measure (Coelli et al., 1997; Brack and Jimborean, 2010). Efficiency ratios take a value between zero and one, where one indicates that the DMU is fully efficient.

3.2 Measurement

Kumar and Gulati (2008), in their research work acknowledged that besides using conventional financial ratios such as capital adequacy, loans to deposits, return to equity, return on assets, expense to income, etc., a number of alternative frontier techniques have been used for analyzing differences in efficiency across banks. They maintained that each frontier technique involves various models for deriving a measure of best practice for the sample of DMUs and then determine how closely individual DMUs lie relative to this standard. The best practice is usually in the form of an efficient frontier that is estimated using econometric or mathematical programming techniques. The frontier techniques summarize DMU performance in a single statistic that controls for difference among banks in a sophisticated multi-dimensional framework that has its roots in economic theory. Further, frontier efficiency measures dominate traditional ratio analysis in terms of developing meaningful and reliable measures of bank performance. Owing to these features of frontier technique, the conventional ratio analysis is becoming obsolete.

The frontier technique for measuring banking efficiency has two major channels, parametric and non-parametric techniques. However, each of the techniques involves various models for deriving a measure of best practice (efficient frontier) for the sample of banks and determine how closely individual decision making units lie relative to this standard (Kumar and Gulati, 2008).

They maintained that parametric methods consists of stochastic frontier approach (SFA) sometimes referred to as the econometric frontier approach (EFA), thick frontier approach (TFA) and distribution free approach (DFA), each method has its specific merits and demerits and yields different efficiency estimates. In contrast, non-parametric methods comprise of the data envelopment analysis (DEA) and free disposal hull (FDH) techniques, which do neither impose any assumptions about functional form of the frontier, nor about inefficiency. However, the main drawback of nonparametric methods is that they do not include the random error in the estimation of efficiency, so that the distance to the efficiency frontier is entirely measured as inefficiency.

This research work intended to apply the non-parametric methodology, the DEA. This technique has been first used in industrial economy studies; it started to be applied to financial institutions, specifically to banks, at mid-1990s (Chauveau and Couppey, 2000; Brack and Jimborean, 2010). They maintained that the work of Sherman and Gold (1985) was presented as the first application of this method to banks. Subsequently, the contributions multiplied. Cook and Seiford (2009) provide a very detailed review of major research thrusts in DEA that have emerged over the past decades, since the seminal work of Charnes et al. (1978).

Kumar and Gulati (2008) relayed that DEA has developed over the years as a most effective technique for measuring relative efficiency across banks due to its inherent leads over others. In the 122 studies reviewed by Berger and Humphrey (1997), DEA has been applied in 62 studies, just over 50 percent. This fact indicates DEA's significance, popularity and relevance in banking efficiency analyses.

3.3 Data Envelopment Analysis (DEA)

In this study, DEA is employed for evaluating the performances of similar decision making units which transform multiple inputs into multiple outputs with respect to each other. Built for measuring the efficiency of one decision unit with respect to the similar decision units by adopting the best observatory efficiency frontier, the first DEA model was first developed by (Cooper et al., 2004). The two of most frequently used methods in DEA are the CCR model suggested by Charnes-Cooper-Rhodes in 1978 and the BCC model developed by Banker-Charnes and Cooper in 1984. The basic difference between these two models is the method on how to deal with the returns to scale. The first model presumes that the decision units operate with constant return to scale; nevertheless, in the second model variable return to scale is taken into consideration (Jemric and Vujcic, 2002).

In using DEA, it is necessary to determine which approach is to be used in the selection of inputs and outputs; it is also essential to make sure that the selected approach is input or output oriented. The DEA models could be established for either input-minimization or output-maximization purposes. While it is aimed to use minimum input usage to get the actual current output level in the model identified as input approach, it is intended to get the maximum output level that could be obtained through the actual current input level in the output approach (Cooper et al., 2007).

There are two approaches used as the baseline of determining the inputs and outputs to measure the efficiency of banking system: production and intermediation. In the production approach, the banks are considered as the firms using capital and labor to produce the deposit and credit accounts existing in different categories (Colwell and Davis, 1992). In the intermediation approach, on the other hand, to produce the credits and other assets, the banks use the capital and the labor with the items that entail financial based on deposits (Fortin and Leclerc, 2007). The second approach basically relies on the role of the financial institutions as intermediaries in the fund transfer process.

The basic difference between the two approaches is that while the financial earning assets are considered as outputs and liabilities, labor and physical capital are regarded as inputs in the intermediation approach; both the financial earning assets and liabilities (deposits) are considered as outputs in the production approach. There is no agreement on which approach is to be used in the analysis of the efficiency of the banks (Drake and the others, 2009, p.3). Although both approaches are imperfect, each features some degree of advantage over the other. The production approach is more suitable for measuring the efficiency of branches; however, the intermediation approach is more suitable for evaluating all the financial institutions (Berger and Humprey, 1997). Like many of the studies existing in the literature, the inputs and outputs used in this study are selected in accordance with the intermediation approach.

We will further present the non-parametric methods, insisting on the methodology employed in our work - the DEA technique. This technique has been used in industrial economy studies; it started to be applied to financial institutions, particularly banks in the mid-90s (Chauveau and Couppey, 2000). The work of Sherman and Gold (1985) is presented as the first application of this method to banks. Afterwards, the contributions multiplied. Cook and Seiford (2009) provide a detailed review of major research thrusts in DEA that have emerged over the past decades, since the seminal work of Charnes et al. (1978). Since then, thousands of DEA studies have been reported in application areas including agriculture, education, financial institutions, health care, public sector firms, etc.

4.0 METHODOLOGY

The studies conducted earlier and relayed by Tahir, et al. (2009), reveal that the main objective of DEA is to determine which firms are operating on their efficient frontier and which firms are not.

Tahir, et al. (2009), considered a general situation where 'n' decision making units (DMUs) and each consumes the same 'm' inputs to produce the same 's' outputs. Precisely, DMUj uses xij (I = 1, 2, 3...., m) of input i to produce yrj (r = 1, 2....., s) of output r assuming that xij > 0 and yrj > 0 (Tahir et al. 2009).

The specific DMU being evaluated has to solve the following optimization problem:

Subject to the constraints:

$$\max h_0 = \sum_{r=1}^{s} u_r y_{ro} / \sum_{i=1}^{m} v_r x_{io} \qquad (1)$$

$$\sum_{r=1}^{s} u_r y_{rj} / \sum_{i=1}^{m} v_i x_{ij} = 1, \quad u_r \geq 0, v_i \geq 0 \qquad (2)$$

for i = 1,2, ..., m; r = 1, 2,.... s; j = 1, 2, ..., n. where ho is the ratio of virtual outputs to virtual inputs, the ur's and the vj's are the variables and the yro's and the xjo's are the observed output and input values of the DMU to be evaluated. A set of normalizing constraints guarantees that no DMU, including the one evaluated, can obtain an efficiency score that exceeds unity. Thus, DEA establishes a benchmark efficiency score of unity that no individual firm can exceed. If the efficiency score ho = 1, DMUo satisfies the necessary condition to be DEA efficient; otherwise it is DEA inefficient.

The Charnes, Cooper and Rhoades model (CCR model) followed an assumption of constant returns to scale. This assumption was later relaxed to allow for the evaluation of variable returns to scale and scale economies. Specifically, the efficient frontier may be derived using four alternative returns to scale assumptions; constant returns to scale (CRS); variable returns to scale (VRS), non-increasing returns to scale (NIRS); and non-decreasing returns to scale (NDRS).

According to Yue (1992) and Tahir et al. 2009, a bank exhibits increasing returns to scale (IRS) if a proportionate increase in inputs and outputs places it inside the production frontier. A bank exhibits constant returns to scale (CRS) if a proportionate increase or decrease in inputs or outputs move the firm either along or above the frontier. A bank which is not on the frontier is defined as experiencing non-increasing returns to scale if the hypothetical bank with which it is compared exhibits either constant (CRS) or decreasing returns to scale (DRS). A similar definition applies for non-decreasing returns to scale.

A firm which is efficient under the assumption of variables returns to scale (VRS) is considered technologically efficient; the VRS score represents pure technical efficiency (PTE), whereas a firm which is efficient under the assumption of constant returns to scale (CRS) is technologically efficient (TE) and also uses the most efficient scale of operation. Tahir et al. (2009), suggests that from the measures of technical (T) and pure technical (PT) efficiency, it is possible to drive a measure of scale efficiency:

$$S=TE/PTE \quad (3)$$

or

$$S = CRS / VRS \quad (4)$$

where $0 \leq S \leq 1$ since $CR \leq VR$. If the value of S equals 1, the firm is scale efficient and all values less than 1 reflect scale inefficiency. If scale inefficiency exists ($S \leq 1$), the source of inefficiency is the result of operating at either increasing (NI < VR) or decreasing (NI = VR) returns to scale.

4.1 Data Specification

The data for this research work is primary and was collected from the Central Bank of Nigeria electronic financial surveillance system (e-FASS) monthly returns of twenty-four (24) deposit money banks (DMBs') in Nigeria over the period of 6 years (2007 – 2012), (see Appendix 1).

According to Tahir et al. (2009), "the evaluation of bank efficiency creates several problems which arise as a result of the nature and function of financial intermediaries, especially as banks are multi-product firms that do not produce or market physical products. One of the major problems in the study of bank efficiency is the specification of bank inputs and outputs. There has been long-standing disagreement among researchers over what banks produce. The most debatable issue is the role of deposits and, more specifically, whether they should be treated as inputs and/or outputs. Some researchers such as Elyasiani and Mehdian (1990), and Lang and Welzel (1996), treat them as inputs, but researchers such as Berger and Humphrey (1991), and Ferrier and Lovell (1990), treat deposits as outputs while other researchers such as Humphrey (1990) and Aly et. al., (1990) treat them simultaneously as inputs and outputs".

Thus, these studies as highlighted above indicate two ways of measuring bank outputs; the production approach and the intermediation approach. Under the production approach, banks create accounts and process deposits and loans, and acquire operating costs. Under the intermediation approach, banks are treated as financial intermediaries that combine deposits, labour and capital to produce loans and investments. The values of loans and investments are treated as output measures; labour, deposits and capital are inputs; and operating costs and financial expenses comprise total cost.

This research work uses the intermediation approach given the financial intermediary role banks play in the economy to define bank inputs and outputs. Accordingly, three inputs and three outputs are used consisting of: X1: Total Assets; X2: Capital Adequacy Ratio; X3: Liquidity Ratio; Y1: Total Operating Income; Y2: Net Profit/Loss before Tax; and Y3: Non-performing Loans.

5.0 EMPIRICAL ANALYSIS

Performance Improvement Measurement (PIM) -Version 3, DEA Frontier program was used to perform all computations. The

Figure 1: Efficiency Trends

first stage of our analysis (as shown figure 1) is the efficiency trends of the banking sector for the review period 2007 - 2012.

Table 2 presents overall technical efficiency (OTE) scores of 24 deposit money banks (DMBs) in Nigeria, along with the scale of overall technical inefficiency (OTIE). The results suggest that the banking sector has been characterized with large asymmetry between banks as regards their OTE that ranges between: 9.6 percent and 100 percent in 2007, 8.7 percent and 100 percent in 2008, 18.7 percent and 100 percent in 2009, 5.1 percent and 100 percent in 2010, 4.7 percent and 100 percent in 2011, and 35.1 percent 100 percent in 2012, respectively. The sector's average efficiency results for individual years were 38.1, 50.7, 62.4, 35.5, 70.5 and 84.3 per cent, respectively. This suggests that an average Nigerian bank, if producing its outputs on the efficiency frontier instead of its current (virtual) location, would need only 61.9 percent of the inputs currently being used in 2007. This interpretation of efficiency frontier scores can be extended for subsequent periods in the sample analysis.

The connotation of this analysis further suggests that the magnitude of average OTIE in the banking sector would also need to the tune of 49.3 percent in 2008; 37.6 percent in 2009; 64.5 percent in 2010; 29.5 percent in 2011; and 15.7 percent in 2012, respectively of the inputs currently being used. This suggests that, by adopting best practice technology, deposit money banks can, on an average, reduce their inputs of total assets, loanable funds and labor by at least the levels of overall technical inefficiencies for the respective periods under review and still produce the same levels of outputs. However, the potential reduction in inputs from adopting best practices varies from bank to bank.

Of the 24 banks, 3 banks were found to be technically efficient representing 12.5 percent of the total in 2007, 2008 and 2010, since they had overall technical efficiency score of 1. Similarly, 8 banks were found to be technically efficient representing 33.4 percent in 2009 and 2011, respectively. In 2012, 9 out of 20 banks were equally found to be efficient, representing 45 percent of the sector. These banks together define the best practice or efficient frontier and, thus, form the reference set for inefficient banks. The resource utilization process in these banks is functioning well. It means that the production process of these banks is not characterizing any waste of inputs. In DEA terminology, these banks are called peers and set an example of good operating practices for inefficient banks to emulate. On the other hand, the remaining (inefficient) banks have overall technical efficiency score less than 1, which means that they are technically inefficient. The results, thus, mark a presence of marked deviations of the banks' from the best practice frontier (See table 3).

These inefficient banks can improve their efficiency by reducing inputs. The overall technical efficiency among the inefficient banks, range from 23.3 percent for bank19 to 90.4 percent for bank15 in 2007. These results suggest that inefficient banks can potentially reduce their current input levels by percentages that commensurate with their inefficiency points, respectively while leaving their output levels unchanged. Thus, this analysis can be extended further to cover subsequent banks and respective periods.

6.0 CONCLUSION

This paper attempted to evaluate the extent of technical efficiency in Nigerian deposit money banks, using cross-sectional data for 24 banks, over the year 2007 – 2012. The study used data envelopment analysis (DEA) technique and adds to the existing literature on technical efficiency marking several importance contributions.

Nigerian deposit money banks operate under the same environment with same policy and regulatory frameworks, yet the result suggests that some banks are more efficient than others. Therefore, financial analysts are often interested to know about factors accrediting to the efficiency differences among banks, despite the facts that they share the same enabling environment.

The results indicate that the sector's average efficiency

results for individual years were 38.1, 50.7, 62.4, 35.5, 70.5 and 84.3 per cent, respectively. This suggests that average Nigerian banks, if producing its outputs on the efficiency frontier instead of its current (virtual) location, would need to reconsider its input ratio than currently being used.

Turning to the sources of overall technical inefficiency, the observed issues is due to poor input utilization (managerial inefficiency) and failure to operate at most productive scale size. Therefore, in this research work, we suggest or consider some important factors which may exert an influence on the overall technical efficiency of a bank. This includes larger profit levels, market share, and exposure to off-balance sheet activities may have positive result on the overall technical efficiency. On the other hand, poor assets quality (i.e., larger volume of Non-performing Asset in relation to total assets) has negative consequences on the overall technical efficiency of the bank. Examination of these factors would help placed banks' efficiency better.

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Appendix 1:

DMUs: Input - Outputs Variables (N'Million), 2007

DMU	Total Assets	Capital Adequacy Ratio	Liquidity Ratio	Total Operating Income	Net Profit/Loss before Tax	Non-performing Loans
Bank01	1,024,692.9	37.82	68.57	8,287.8	2,731.0	10,547.4
Bank02	683,005.3	27.97	69.79	8,823.8	3,109.0	17,368.4
Bank03	538,743.6	8.36	99.21	5,235.6	2,024.0	6,263.9
Bank04	1,121,597.0	16.05	59.56	10,398.8	5,433.2	3,564.1
Bank05	596,040.9	25.25	73.08	5,148.2	2,152.7	4,491.9
Bank06	139,024.3	27.67	100.24	1,380.6	811.8	1,407.6
Bank07	407,913.0	12.00	70.36	3,655.0	1,113.5	5,459.1
Bank08	87,557.9	(63.50)	21.80	3,905.8	(9,188.6)	91,511.1
Bank09	332,398.1	10.42	43.44	4,876.7	2,203.3	3,223.2
Bank10	226,669.0	16.99	57.89	2,455.9	1,363.8	7,072.3
Bank11	318,046.6	19.85	85.03	2,758.8	952.1	4,826.1
Bank12	411,048.2	11.01	48.85	5,704.7	3,457.0	10,205.9
Bank13	222,744.9	15.75	41.22	2,980.3	1,582.8	13,464.5
Bank14	306,560.5	14.16	49.53	3,478.3	1,656.1	10,411.4
Bank15	346,236.4	30.66	121.22	2,083.3	(1,670.8)	10,706.5
Bank16	106,704.0	32.20	151.67	1,357.8	(303.3)	-
Bank17	132,822.0	15.80	49.66	1,285.2	139.1	4,828.0
Bank18	814,662.6	17.34	70.48	50,762.9	20,862.1	98,427.5
Bank19	232,702.3	10.44	51.39	5,703.4	4,571.9	14,611.4
Bank20	143,177.5	26.44	32.15	9,689.5	1,419.9	17,709.7
Bank21	126,330.6	36.17	56.07	1,304.2	687.3	12,433.7
Bank22	812,273.5	29.51	41.04	21,495.8	10,464.5	11,151.5
Bank23	1,069,988.2	23.53	51.86	7,014.4	(3,791.3)	3,760.4
Bank24	268,346.4	5.03	41.88	6,709.4	2,444.1	24,536.1

Source: Electronic - Financial Analysis Surveillance System (E-FASS), Central Bank of Nigeria

Appendix 2:

DMUs: Input - Outputs Variables (N'Million), 2008

DMU	Total Assets	Capital Adequacy Ratio	Liquidity Ratio	Total Operating Income	Net Profit/Loss before Tax	Non-performing Loans
Bank01	1,394,154.3	25.90	41.93	11,767.3	3,007.4	14,594.4
Bank02	950,677.3	23.18	36.77	15,459.6	5,318.3	18,084.0
Bank03	737,479.9	24.86	38.30	7,580.1	3,804.4	10,241.1
Bank04	1,699,552.3	30.97	66.07	14,978.7	6,406.4	9,231.3
Bank05	902,509.3	15.29	50.42	8,373.3	2,642.3	1,792.9
Bank06	158,736.0	22.77	73.39	2,158.4	1,606.4	1,200.3
Bank07	468,787.6	18.98	36.33	7,145.2	3,589.5	12,909.8
Bank08	123,709.4	(46.18)	13.13	12,372.4	761.9	77,448.0
Bank09	422,277.3	11.49	32.22	6,335.6	2,982.7	12,705.1
Bank10	475,409.4	36.20	50.51	4,676.3	2,256.6	14,043.8
Bank11	449,145.9	34.10	38.91	4,471.5	1,787.4	9,535.1
Bank12	974,913.1	26.91	41.55	6,921.2	1,850.9	6,266.1
Bank13	562,769.1	31.92	42.85	4,237.5	1,252.9	22,108.3
Bank14	502,392.6	22.42	42.45	5,854.5	2,568.4	9,395.4
Bank15	363,703.8	24.27	108.33	6,278.1	3,219.4	6,949.5
Bank16	161,729.1	29.04	111.37	1,343.1	413.2	-
Bank17	163,424.2	11.61	45.17	2,579.2	1,283.1	6,655.6
Bank18	1,380,248.8	11.11	30.52	13,867.3	6,507.5	72,131.9
Bank19	318,038.6	7.65	37.11	3,312.4	1,078.8	37,933.2
Bank20	188,600.9	14.53	(33.10)	11,918.6	1,782.0	55,146.8
Bank21	214,079.5	23.38	48.70	1,557.2	500.3	19,064.8
Bank22	1,190,234.9	20.58	35.97	14,121.4	571.5	15,571.8
Bank23	1,228,401.3	17.65	33.03	9,564.5	586.7	10,713.9
Bank24	312,429.4	35.71	38.20	3,323.3	185.4	19,766.2

Source: E-FASS, Central Bank of Nigeria

Appendix 3:

DMUs: Input - Outputs Variables (N'Million), 2009

DMU	Total Assets	Capital Adequacy Ratio	Liquidity Ratio	Total Operating Income	Net Profit/Loss before Tax	Non-performing Loans
Bank01	1,783,609.3	18.03	40.89	15,005.4	6,809.0	81,530.0
Bank02	1,365,502.6	12.50	44.60	13,256.3	4,707.5	34,767.0
Bank03	639,085.9	28.19	43.05	637.2	10,471.0	59,434.4
Bank04	1,583,461.1	27.99	63.37	13,083.8	10,953.4	38,320.9
Bank05	1,024,067.8	15.21	42.80	7,233.5	3,328.2	17,269.6
Bank06	205,228.7	22.88	106.41	5,144.6	2,805.2	1,392.5
Bank07	624,460.1	20.30	38.28	5,934.5	3,994.0	35,006.6
Bank08	196,482.4	(68.42)	46.23	3,176.0	(24,263.1)	138,606.2
Bank09	366,792.1	21.84	40.67	3,469.7	2,195.6	90,337.8
Bank10	446,171.6	41.37	67.12	3,101.0	(752.0)	-
Bank11	466,509.5	35.84	53.32	2,231.0	5,299.7	-
Bank12	598,044.3	(22.63)	21.61	3,144.7	(194,206.1)	-
Bank13	391,691.2	(68.90)	19.47	(1,367.7)	(6,514.8)	308,958.1
Bank14	617,754.0	16.11	42.11	16,927.9	13,924.6	-
Bank15	334,048.4	28.13	63.01	3,113.9	1,307.0	17,183.5
Bank16	179,821.8	18.96	58.05	2,072.3	(1,673.6)	11,147.1
Bank17	205,383.9	13.47	46.47	2,120.0	880.0	16,999.2
Bank18	1,153,110.3	(4.39)	40.62	5,484.6	(27,498.9)	222,125.7
Bank19	259,182.9	(4.78)	28.33	8,985.0	5,413.7	52,774.8
Bank20	231,242.7	(1.94)	70.73	16,276.6	(24,609.6)	92,531.1
Bank21	161,890.8	(48.15)	36.92	1,040.0	(382.1)	15,698.2
Bank22	1,057,982.4	(18.65)	16.34	(95,807.1)	(47,440.0)	582,740.2
Bank23	691,789.4	(56.09)	9.52	2,006.5	64,358.5	527,396.6
Bank24	212,047.3	(64.37)	30.99	2,878.3	(15,800.6)	144,081.9

Source: E-FASS, Central Bank of Nigeria

Appendix 4:

DMUs: Input - Outputs Variables (N'Million), 2010

DMU	Total Assets	Capital Adequacy Ratio	Liquidity Ratio	Total Operating Income	Net Profit/Loss before Tax	Non-performing Loans
Bank01	1,977,332.9	20.51	47.61	19,524.1	7,526.5	73,407.0
Bank02	1,452,637.0	18.13	49.13	3,531.0	(785.9)	40,811.6
Bank03	726,305.9	28.59	34.30	6,809.0	1,617.8	40,766.6
Bank04	1,827,189.0	29.45	66.87	16,958.6	6,434.2	18,867.0
Bank05	1,087,633.4	17.94	47.94	9,570.7	4,899.3	35,347.9
Bank06	263,800.0	28.77	99.84	1,603.6	492.5	857.6
Bank07	566,888.5	18.30	41.32	7,215.8	1,654.5	44,476.3
Bank08	207,238.5	(170.32)	74.47	9,915.7	8,595.1	45,234.5
Bank09	460,541.1	21.48	51.30	3,778.2	(1,893.2)	57,979.2
Bank10	501,147.5	41.92	59.77	4,460.6	1,151.0	70,855.5
Bank11	526,735.9	29.25	32.83	6,040.0	4,089.9	-
Bank12	547,788.6	(46.91)	23.68	(358.9)	56,523.2	30,401.2
Bank13	315,261.6	(138.05)	26.32	4,302.5	1,635.1	362,549.7
Bank14	663,917.1	14.67	30.47	5,820.7	1,532.9	37,786.8
Bank15	377,295.2	27.07	46.24	3,613.1	1,400.1	14,237.2
Bank16	225,639.7	16.04	63.75	2,781.2	990.2	9,735.0
Bank17	262,882.7	7.93	46.88	11,416.6	294.5	8,707.3
Bank18	976,479.3	(57.34)	90.14	97,576.1	91,930.8	92,576.7
Bank19	323,683.7	7.10	46.65	13,385.0	10,583.7	18,770.8
Bank20	208,056.9	(50.54)	87.24	15,645.9	13,452.7	31,503.4
Bank21	122,065.1	(55.72)	45.12	969.2	(4,411.1)	-
Bank22	1,056,980.9	(19.00)	44.59	(2,420.0)	31,870.5	-
Bank23	648,557.8	(84.06)	29.01	77,399.9	76,604.1	147,826.4
Bank24	218,099.0	(220.14)	57.06	25,568.8	18,453.3	63,092.1

Source: E-FASS, Central Bank of Nigeria

Appendix 5:

DMUs: Input - Outputs Variables (N'Million), 2011

DMU	Total Assets	Capital Adequacy Ratio	Liquidity Ratio	Total Operating Income	Net Profit/Loss before Tax	Non-performing Loans
Bank01	2,505,343.6	20.73	60.13	41,509.8	6,132.1	18,894.4
Bank02	1,648,617.3	17.31	55.50	11,135.9	(4,781.3)	8,540.1
Bank03	971,621.0	14.95	28.67	4,496.4	189.0	19,979.8
Bank04	2,247,992.4	26.72	63.65	20,066.0	9,635.5	29,061.0
Bank05	1,532,536.7	14.73	54.24	11,831.0	5,519.4	28,747.6
Bank06	380,103.0	19.88	97.47	1,938.2	1,178.4	15.5
Bank07	763,557.6	16.04	46.19	7,289.2	(8,432.9)	27,921.5
Bank08	219,221.8	16.60	85.04	18.2	(202.4)	1,307.4
Bank09	575,845.0	18.05	70.48	3,678.9	33.0	8,996.3
Bank10	743,276.5	30.76	55.93	7,800.8	1,236.7	22,832.4
Bank11	625,079.4	25.54	48.67	6,195.1	(4,512.9)	10,557.1
Bank12	346,140.8	40.98	105.13	17,306.0	13,610.0	5,124.4
Bank13	322,507.9	25.20	94.45	30.5	(3,335.1)	42,391.4
Bank14	871,956.3	14.85	32.13	6,508.6	716.4	7,470.7
Bank15	545,564.3	20.75	67.54	3,518.2	1,093.4	17,680.0
Bank16	317,908.3	13.99	64.51	2,633.5	1,493.2	10,137.0
Bank17	330,302.9	12.20	46.93	13,527.5	1,575.6	3,337.4
Bank18	890,037.7	18.26	87.22	1,980.9	20,181.9	67,644.5
Bank19	380,768.7	10.03	46.55	4,898.6	(848.5)	7,072.3
Bank20	237,512.4	9.85	55.97	4,586.7	158.4	2,848.5
Bank21	211,398.5	6.29	72.18	2,632.5	1,134.9	8,420.7
Bank22	603,562.4	14.73	46.26	8,209.8	494.8	14,416.7
Bank23	680,737.8	3.47	109.21	7,068.0	1,522.2	8,651.0
Bank24	249,886.7	3.27	94.60	6,166.2	4,112.4	11,263.4

Source: E-FASS, Central Bank of Nigeria

Appendix 6:

DMUs: Input - Outputs Variables (N'Million), 2012

DMU	Total Assets	Capital Adequacy Ratio	Liquidity Ratio	Total Operating Income	Net Profit/Loss before Tax	Non-performing Loans
Bank01	2,701,388.0	16.21	47.59	22,306.2	1,439.5	37,297.9
Bank02	918,032.3	18.66	53.77	14,985.4	5,234.6	3,358.0
Bank03	1,538,484.0	19.10	50.00	5,164.2	1,041.4	30,982.9
Bank04	2,488,674.8	24.10	63.36	30,341.0	11,731.1	31,433.5
Bank05	1,625,158.8	16.67	52.49	12,592.2	5,480.0	21,859.9
Bank06	337,450.3	21.53	87.05	2,708.1	1,404.5	4,689.6
Bank07	1,070,510.8	15.92	40.02	9,603.0	2,481.6	20,892.5
Bank08	276,580.7	20.90	79.74	4,652.1	3,292.5	7,757.2
Bank09	1,349,543.0	16.49	52.20	8,857.1	(1,779.1)	20,613.8
Bank10	922,010.7	26.95	53.43	12,210.5	163.6	8,294.3
Bank11	945,359.3	18.54	58.79	8,738.8	4,058.8	7,748.8
Bank12	330,280.1	25.89	76.56	1,273.8	(14,715.3)	3,749.9
Bank13	307,774.4	31.46	145.15	7,353.9	1,455.3	500.3
Bank14	1,087,467.0	16.24	36.61	6,489.8	1,973.7	23,280.6
Bank15	598,314.8	16.80	56.26	5,457.1	(1,562.6)	14,054.5
Bank16	439,467.1	18.25	90.43	4,649.0	3,348.7	8,307.6
Bank17	577,974.2	12.30	55.69	4,806.4	1,061.1	5,666.9
Bank18	918,032.3	21.49	89.78	2,352.1	(2,643.1)	17,522.8
Bank19	397,101.7	10.31	35.79	4,237.1	2,456.0	12,932.0
Bank20	255,913.5	6.07	53.42	1,999.4	478.0	5,145.7
Bank21	-	-	-	-	-	-
Bank22	-	-	-	-	-	-
Bank23	-	-	-	-	-	-
Bank24	-	-	-	-	-	-

Source: E-FASS, Central Bank of Nigeria

Table 1: List of Deposit Money Banks (DMBs')/Decision Making Units (DMUs)

1.	Access Bank
2.	Citibank Nigeria Limited
3.	Diamond Bank
4.	Ecobank Plc.
5.	Enterprise Bank
6.	Equitorial Trust Bank (ETB)
7.	Fidelity Bank
8.	Finbank Plc
9.	First Bank of Nigeria
10.	First City Monument Bank (FCMB)
11.	Guaranty Trust Bank (GTB)
12.	Intercontinental Bank
13.	Keystone Bank
14.	Mainstreet Bank
15.	Oceanic Bank
16.	Skpe Bank
17.	Stanbic IBTC Bank
18.	Standard Chartered Bank
19.	Sterling Bank
20.	Union Bank of Nigeria
21.	United Bank for Africa (UBA)
22.	Unity Bank Plc.
23.	Wema Bank Plc.
24.	Zenith Bank

Source: Central Bank of Nigeria

Table 2: Banks' Efficiency Ratings (CRS - Technical Efficiency) [Percent]												
DMU		**2007**		**2008**		**2009**		**2010**		**2011**		**2012**
	OTE	**OTIE**	**OTE**	**OTIE**	**OTE**	**OTIE**	**OTE**	**OTIE**	**OTE**	**OTIE**	**OTE**	**OTIE**
Bank01	16.78	83.22	23.79	76.21	93	7	20.66	79.34	100	0	100	0
Bank02	20.55	79.45	61.38	38.62	74.61	25.39	7.53	92.47	41.14	58.86	100	0
Bank03	15.63	84.37	56.15	43.85	18.72	81.28	13.08	86.92	100	0	100	0
Bank04	30.82	69.18	41.57	58.43	51.88	48.12	9.51	90.49	90.12	9.88	100	0
Bank05	14.1	85.9	32.31	67.69	42.39	57.61	9.97	90.03	85.95	14.05	90.47	9.53
Bank06	22.8	77.2	100	0	71.32	28.68	5.09	94.91	14.92	85.08	50.93	49.07
Bank07	14.27	85.73	82.83	17.17	40.13	59.87	14.9	85.1	92.63	7.37	100	0
Bank08	100	0	100	0	100	0	53.75	46.25	4.72	95.28	100	0
Bank09	25.88	74.12	77.24	22.76	38.18	61.82	15.46	84.54	32.7	67.3	77.84	22.16
Bank10	24.43	75.57	49.86	50.14	16.48	83.52	17.13	82.87	77.8	22.2	90.25	9.75
Bank11	13.65	86.35	41.84	58.16	22.31	77.69	9.61	90.39	55.13	44.87	74.75	25.25
Bank12	32.84	67.16	20.77	79.23	40.76	59.24	90.39	9.61	100	0	35.11	64.89
Bank13	36.66	63.34	23.77	76.23	100	0	100	0	100	0	100	0
Bank14	23.9	76.1	55.1	44.9	100	0	13.26	86.74	49.64	50.36	100	0
Bank15	9.6	90.4	93.16	6.84	25.71	74.29	9.45	90.55	51.94	48.06	79.61	20.39
Bank16	18.8	81.2	25.89	74.11	21.99	78.01	11.52	88.48	48.43	51.57	93.1	6.9
Bank17	15.75	84.25	82.41	17.59	29.3	70.7	36.39	63.61	100	0	61.06	38.94
Bank18	100	0	52.46	47.54	39.19	60.81	83.73	16.27	100	0	63.16	36.84
Bank19	76.72	23.28	37.39	62.61	100	0	34.65	65.35	54.49	45.51	100	0
Bank20	100	0	100	0	100	0	63.22	36.78	52.52	47.48	70.1	29.9
Bank21	45.33	54.67	26.07	73.93	100	0	6.7	93.3	62.98	37.02	0	100
Bank22	86.14	13.86	13.17	86.83	72.13	27.87	27.07	72.93	77.3	22.7	0	100
Bank23	18.78	81.22	8.68	91.32	100	0	100	0	100	0	0	100
Bank24	51.61	48.39	10.64	89.36	100	0	100	0	100	0	0	100
Average	**38.1**	61.9	**50.7**	49.3	**62.4**	37.6	**35.5**	64.5	**70.5**	29.5	**84.3**	15.7
Source: Performance Improvement Measurement DEA Software - V3 Result												
Note: OTE = Overall Technical Efficiency; OTIE = Overall Technical Inefficiency												

Table 3: Summary of Banks' Efficiency					
year	No. of	Technical Efficiency		Technical Inefficiency	
	Banks	No. of EB	Ratings	No. of Ineff. B	Ratings
2007	24	3	12.5	21	87.5
2008	24	3	12.5	21	87.5
2009	24	8	33.4	16	66.7
2010	24	3	12.5	21	87.5
2011	24	8	33.4	16	66.7
2012	20	9	45	11	55
Overall Mean		5.7	24.9	17.7	75.2
Note: EB = Efficient Banks; IEB = Inefficient Banks					
Source: Author's Compilation					

BOARD OF GOVERNORS

Godwin I. Emefiele	-	**Governor (Chairman)**
Suleiman Barau	-	**Deputy Governor (Operations)**
Sarah Alade	-	**Deputy Governor (Economic Policy)**
Adebayo A. Adelabu	-	**Deputy Governor (Corporate Services)**
Kingsley Moghalu	-	**Deputy Governor (Financial System Stability)**

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