

# Global Financial Crisis Discussion Series

## Paper 8: Nigeria

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**Olu Ajakaiye and 'Tayo Fakiyesi**



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## Acronyms

|         |   |
|---------|---|
| AIDS    | Acquired Immunodeficiency Syndrome  |
| CBN     | Central Bank of Nigeria   |
| CES     | Constant Elasticity of Substitution   |
| CET     | Constant Elasticity of Transformation   |
| CGE     | Computable General Equilibrium  |
| CRR     | Cash Reserve Requirement  |
| FDI     | Foreign Direct Investment   |
| GDP     | Gross Domestic Product  |
| HIV     | Human Immunodeficiency Virus  |
| IMF     | International Monetary Fund   |
| IPO     | Initial Public Offering   |
| LNG     | Liquefied Natural Gas   |
| MAN     | Manufacturers Association of Nigeria  |
| MDG     | Millennium Development Goal   |
| MPR     | Monetary Policy Rate  |
| NACCIMA | Nigeria Association of Chambers of Commerce, Industry,<br>Manufacturing and Agriculture |
| NAPEP   | National Poverty Eradication Programme  |
| NBS     | National Bureau of Statistics   |
| NDE     | National Directorate of Employment  |
| NEEDS   | National Economic Empowerment and Development Strategy                                  |
| NEMA    | National Emergency Management Agency  |
| NEPC    | Nigerian Export Promotion Council   |
| NHIS    | National Health Insurance Scheme  |
| NIBOR   | Nigerian Inter-bank Offer Rate  |
| NID     | National Immunisation Day   |
| NLP     | Non-linear Programming  |
| NNPC    | Nigerian National Petroleum Company   |
| NPI     | National Programme on Immunisations   |
| NPL     | Non-performing Loans  |
| NSE     | Nigerian Stock Exchange   |
| NSGR    | National Strategic Grains Reserves  |
| NSITF   | Nigeria Social Insurance Trust Fund   |
| OMO     | Open Market Operation   |
| OPEC    | Organization of the Petroleum-exporting Countries                                       |
| PPP     | Public–private Partnership  |
| PPT     | Petroleum Profit Tax  |
| ODA     | Official Development Assistance   |
| SAM     | Social Accounting Matrix  |
| SEC     | Security and Exchange Commission  |
| SEEDS   | State Economic Empowerment and Development Strategy                                     |
| UNDP    | UN Development Program  |
| US      | United States   |
| VAD     | Vitamin A Deficiency  |
| VPF     | Virtual Poverty Fund  |
| WDAS    | Wholesale Dutch Auction System  |
| WDI     | World Development Indicators  |

## **Abstract**

The current global financial crisis, which was triggered by the credit crunch within the US sub-prime mortgage market, is continuing to spread and deepen in several countries. Its impact on Nigeria is evident in the performance of the Nigeria Stock Exchange and the financial system as well as in the real sector. Some of the stylised indicators include market capitalisation, which fell by 45.8% in 2008; the crude oil price declined precipitously from US\$147 per barrel in July 2008 to \$47 per barrel in January 2009, leading to a decline in external reserves and hence accruable revenue. The debt profile is also increasing. Foreign portfolio investors have withdrawn over \$15 billion, while remittances and official development assistance (ODA) are expected to fall greatly in 2009. Developmental goals will be unachievable with less budgetary allocation to social services, thus pushing a greater number of people further into poverty. Government responses to the crisis include reduction of the monetary policy rate (MPR) from 10.25-9.75%, of the cash reserve requirement (CRR) from 4.0-2.0% and of the liquidity ratio from 40.0-30.0%. These measures are required to shore up liquidity in the economy and thus keep it working. The crisis may offer an opportunity to look at sectors that have been yawning to allow them to act as pillars for growth and development of the economy: agriculture, tourism and infrastructure.

## 1. Introduction

The current global financial crisis, which was triggered by the credit crunch within the US sub-prime mortgage market, is continuing to spread and deepen in several countries. Countries around the world have approached this whirlwind pragmatically, prompting emergency funding support for relevant sectors, thereby mitigating the impact of the crisis on economies as well as avoiding the entire collapse of the international financial system. In spite of such support, some countries have been officially declared as in recession,<sup>2</sup> owing to a monumental decline in their wealth, manifesting itself in falling productive capacity, growth, employment and welfare.

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<sup>2</sup> Defined as two successive quarters of negative growth in gross domestic product (GDP).

## 2. Overview of Nigerian economy prior to the crisis

The integration of financial markets has increased the contagion effects of the financial crisis. In developing countries, tracking the transmission of the effects has been hampered by the fact that these countries: i) are at different stages of development; and ii) have different structures to their productive capacities and different socioeconomic problems and abilities to respond promptly to global shocks.

The Nigerian economy prior to the crisis in 2007 performed below projection, with an estimated GDP growth of 6.2%. This figure, below the set target of 10%, was still higher than the 6.0% recorded in 2006. This growth was driven primarily by the non-oil sector, which grew by 9.6% (CBN, 2008a), largely attributable to the agriculture sector, which grew by 7.4%, led by crop production, livestock and fishing. Other drivers of growth in non-oil GDP included wholesale and retail trade, building and construction and services, which recorded growth rates of 15.3%, 13.0% and 9.8%, respectively. Industrial output fell by 3.5%, attributable mainly to the 5.9% drop in crude oil production occasioned by the Niger Delta crisis. By year-end 2007, the crude oil production shut-in stood at 0.9 million barrels a day. Official confirmation from the Nigerian National Petroleum Company (NNPC) showed that the country lost N16.9 billion to petroleum pipeline vandalism. The downstream sector of the petroleum industry remained comatose and the country relied on imported refined petroleum products for domestic and industrial operations. Official confirmation indicated that Nigeria consumed about 14.13 billion litres of refined petroleum products or 38.7 million litres per day during 2007, with premium motor spirit accounting for 9.81 billion litres. By end-September 2007, the Manufacturers Association of Nigeria (MAN) reported a drop in manufacturing capacity utilisation from 44.06% in 2006 to 43.5% owing to the difficult operating environment. The industrial sector made a negative contribution of 0.78 percentage points. The agriculture sector, on the other hand, contributed almost half of the GDP growth rate of 6.2%.

**Table 1: Sectoral contribution to growth rates of GDP in Nigeria, 2003-2007 (%)**

|                                  | 2003 | 2004 | 2005 | 2006  | 2007  |
|----------------------------------|------|------|------|-------|-------|
| <b>Agriculture</b>               | 2.58 | 2.65 | 2.85 | 2.93  | 2.65  |
| Crop production                  | 2.42 | 2.36 | 2.56 | 2.64  | 2.67  |
| <b>Industry</b>                  | 6.12 | 1.22 | 0.47 | -0.62 | -0.78 |
| Crude petroleum                  | 6.02 | 0.84 | 0.12 | -0.93 | -1.08 |
| <b>Building and construction</b> | 0.12 | 0.14 | 0.18 | 0.2   | 0.21  |
| <b>Wholesale and retail</b>      | 0.69 | 1.24 | 1.82 | 2.16  | 2.34  |
| <b>Services</b>                  | 0.06 | 1.32 | 1.19 | 1.36  | 1.49  |
| Communications                   | 0.36 | 0.36 | 0.43 | 0.59  | 0.74  |
| <b>Total GDP</b>                 | 9.57 | 6.58 | 6.51 | 6.03  | 6.22  |
| <b>Non-oil GDP</b>               | 3.44 | 5.36 | 6.04 | 6.65  | 6.99  |

Source: CBN (2008a).

Meanwhile, earnings from non-oil exports, such as finished leather products, cocoa and its products, sesame seeds and manufactured products like cosmetics and toiletries, rose during the year to about US\$1.38 billion. By the end of 2008, this value rose to \$1.8 billion, the highest in the country's history.<sup>3</sup> In addition, gross official external reserves rose by 20% to stand at about \$50.75 billion by end-December 2007, as against \$42.3 billion in December 2006. In 2008, estimated growth of GDP of 6.77% was higher than that of 2007 (at 6.2%). Growth was again driven by the non-oil sector, especially the agriculture sector, which contributed 39.8% out of the 80.7% total contribution of the non-oil sector to GDP in the first half of 2008. This increased to 60% by the last quarter of 2008. This improvement in its output, especially in the first half of 2008, was attributed partly to moderate weather, especially the early rains experienced in the southern and northern states of Nigeria. Other factors that helped to boost agricultural production included several government intervention measures, like the National Agricultural Project, the National Special Programme for Food Security, zero tariffs on imported agro-

<sup>3</sup> Nigerian Export Promotion Council (NEPC) <http://www.nepcng.com> and National Bureau of Statistics (NBS) [www.nigerianstat.gov.ng](http://www.nigerianstat.gov.ng).

chemicals, export expansion grants<sup>4</sup> as well as tightening of controls on illegal imports of agricultural products. The country maintained a balance of payments surplus in 2007, fuelled by the current account surplus. The 2008 half-year report indicated that the trend continued although, judging by the performance of major drivers of the current account, the latter part of the second half of 2008 – especially the last quarter – is likely to show deep deficit.

## **2.1 The global financial crisis and the non-oil sector in Nigeria**

Data from the NBS indicated that GDP at 1990 constant basic prices grew by 6.1% in the first half of 2008, from the 5.5% recorded in 2007. Aggregate growth was driven by the non-oil sector, which grew by 8.7% and contributed 80.7% of GDP, as oil sector output declined further by 3.3% and contributed the remaining 19.3% of GDP. Growth in non-oil GDP was broad based, as building and construction grew by 13%, wholesale and retail trade 12.0%, services 10.3% and agriculture 6.3%. Agriculture remained dominant in terms of sectoral contributions, accounting for 39.8% of GDP; industry, services, wholesale and retail trade and building and construction followed it, with contributions of 22.1%, 18.1%, 17.9% and 2.1%, respectively.<sup>5</sup>

### **2.1.1 Agriculture sector**

The federal government commenced a comprehensive review of its agricultural policy, with a focus on large-scale private sector commercial agriculture as a means of increasing production and productivity. In response to the global food crisis and the concomitant increase in prices, the federal government released 53,610 tonnes of grains (sorghum, maize and millet) between March and May 2008 from the National Strategic Grains Reserves (NSGR) to the states. The government also approved a tax holiday for importers of rice for the period May-October 2008. Moreover, credit facilities were provided to various farmers to ameliorate the food problem, and rehabilitation of infrastructure was undertaken.

The index of agricultural production increased by 4.8% in the first half of 2008, compared with 7.4% recorded in the first half of 2007. All agriculture sub-sectors contributed to this growth. The output from staples rose by 4.9% in 2008, compared with 10.7% in 2007. The output from the livestock, fishery and forestry sub-sectors rose by 5.8%, 4.1% and 1.2% in 2008, respectively, compared with 4.0%, 9.3% and 1.1% achieved in 2007. Furthermore, the composite food index rose by 0.9% in January 2009. The rise in the index, higher than that of the previous year,<sup>6</sup> was caused by increases in the price of staple foods like maize, yams, millet, meat, fruits and vegetables.

### **2.1.2 Manufacturing sector**

The average manufacturing capacity utilisation rate, estimated at 52.6% in 2008, fell by 3.1% and 0.2% below the level in the preceding half year and the corresponding period of 2007, respectively. The decline in manufacturing production could be attributed to poor facilities, especially electric power supply, which remained sporadic, as well as increases in the pump price of diesel and the poor road network. Other constraints to increased production include unfair competition from imported finished products, which constrained the demand for locally produced goods.<sup>7</sup>

## **2.2 Balance of payments**

The balance of payments position remained impressive, with an increase of 8.2% in the current account surplus and a reduction by 61.1% in the capital and financial account deficit in 2007. The

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<sup>4</sup> The export expansion grant is a scheme by the NEPC aimed at identifying and encouraging producers to produce for export rather than for the domestic market.

<sup>5</sup> [www.nigerianstat.gov.ng](http://www.nigerianstat.gov.ng) and CBN (2008b).

<sup>6</sup> [www.nigerianstat.gov.ng](http://www.nigerianstat.gov.ng) and Federal Ministry of Agricultural Development (2001).

<sup>7</sup> MAN and Nigeria Association of Chambers of Commerce, Industry, Manufacturing and Agriculture (NACCIMA) briefing in February 2009.

surplus in the current account was driven by a robust account, occasioned by the positive developments on the international oil markets, as the average price of Nigeria's reference crude oil, Bonny Light 370, API rose from US\$66.39 per barrel in 2006 to \$74.96. Nigeria's external sector remained relatively viable in the past three years, with an impressive balance of payments surplus of N999.0 billion in 2008 compared with 41.6 billion and 1073.3 billion in the corresponding period and in 2007, respectively. This development reflected the favourable trade balance occasioned by high crude oil prices and huge capital inflows in the form of diaspora remittances as well as foreign direct and portfolio investments. The current account surplus represented 17.3% of GDP, while the deficit in the capital and financial account narrowed from 2.4% and 4.6% of GDP in the first and second half of 2007 to 1.1% in 2008.

The current account surplus for the first half of 2008 was N2335.9 billion compared with 1269.5 billion and 2371.4 billion in the corresponding and second half of 2007, respectively. Although the surplus in the current account narrowed slightly by 0.7% from the level in the second half of 2007, the huge net inward transfer overwhelmed the deficits in the services and income accounts, which was reduced by 34.6% and 19.1 %, respectively, when compared with their level in the corresponding period of 2007 (CBN, 2008a; 2008b).

### **2.3 External trade and financial flows**

The International Monetary Fund (IMF) estimated a reduction of global economic growth down from 5% in 2007 to 3.7% in 2008. In 2009, the expected growth rate will be only 2.2%. It is estimated that industrialised countries, for the first time since World War II, will experience negative growth (-0.3%) in 2009. Growth will slow down considerably and particularly in emerging and developing countries – from 7% during 2004-2007 to only 4.5% in 2008/09. Whether developing countries will be feeling the ill effects of the financial crisis depends on a number of factors: level of interdependence with international capital markets; level of export trade diversification and of foreign direct investment (FDI); level of liabilities in foreign currencies; level of foreign currency reserves and the trade deficit; level of inflation and the budget deficit; diversification of local economy and macroeconomic stability; and performance of local institutions.

A number of factors have affected Nigeria. The key one is the reduction in the demand for crude oil, which alone generates more than 80% of Nigeria's foreign earnings. This impact is evident in: i) volume sale, which have gone from 1.69 million barrels a day to 1.49 on a half-year basis between 2007 and 2008; and ii) value, because of the considerable fall in prices, as discussed earlier. Official flows, private flows from both capital and current accounts and remittances have also been affected.

In the medium to long term, though, different negative impacts on the different sector of the economy are likely. This is especially the case should the strong demand for commodities and the resulting increase in commodity prices start to fall. The real impacts will depend on a range of factors, such as the extent of the economic downturn globally and the resulting decrease in commodity demand and prices. Other determinants are the impacts of the crisis on private capital flows (already threatening to be large) and ODA levels. To evaluate the impact on the Nigerian economy, four basic areas are highlighted:

- The direct impacts of the crisis on the Nigerian finance and banking system;
- The potential impacts on private capital flows and ODA levels;
- The potential impacts on commodity demand and prices; and
- The potential impacts on macroeconomic indicators, growth and the Millennium Development Goals (MDGs).

Regarding impacts on private capital flows and ODA pledges, FDI as well as private equity flows to sub-Saharan Africa have increased considerably since the bursting of the dotcom bubble in 2001. Additional capital inflows can be an indicator for the progressing establishment of Africa as an

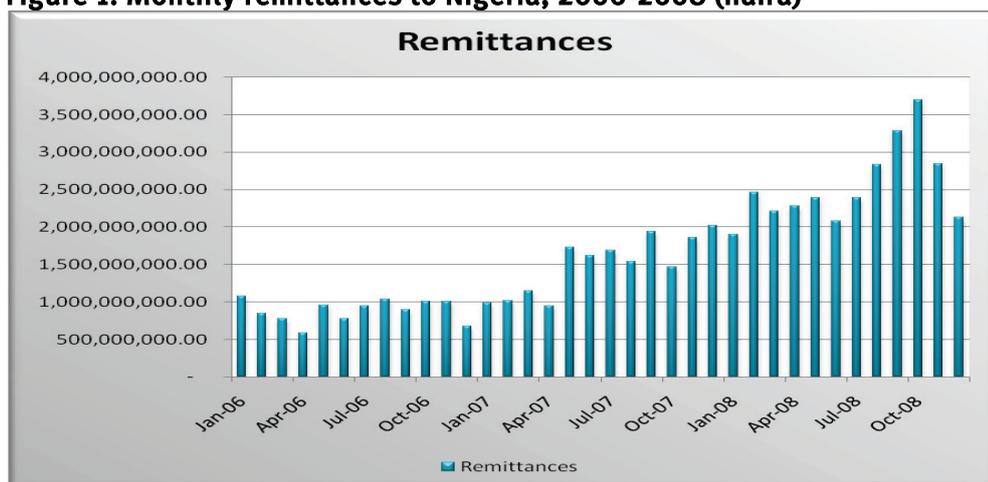
emerging destination for investments and can contribute to providing urgently required capital for additional investments on the continent. In principle, the current crisis also provides opportunities for rising financial capital inflows into Africa, as investors might look for strategies to diversify their risks and to explore opportunities for higher returns. In 2007, average returns on FDI in Africa were 12% higher than average returns on FDI for all developing countries together, which were around 10%.

It is important to note, however, that the bulk of FDI coming to Nigeria still goes into the primary resource extraction and communications sectors. Alternative investment opportunities remain limited owing to the high cost of doing business in Nigeria, most especially with regard to the availability of infrastructure. Therefore, high returns on FDI are also linked to the recent hikes in commodity prices.

## 2.4 Remittances

The crisis could have negative impacts on remittances from Nigerians working abroad. On average, Africans working abroad transfer about US\$9 billion back to Africa yearly. Remittances from Africans have increased considerably, from \$5 billion in 2002 to \$17 billion in 2007. Figures on remittances from Nigeria show a relatively stable trend in 2006 and an increasingly progressive trend afterwards until late 2008, when we expect the unemployment rate in source countries to increase.<sup>8</sup> Remittances, especially from the latter part of the last quarter of 2008, are shown in Figure 1 below.

**Figure 1: Monthly remittances to Nigeria, 2006-2008 (naira)**



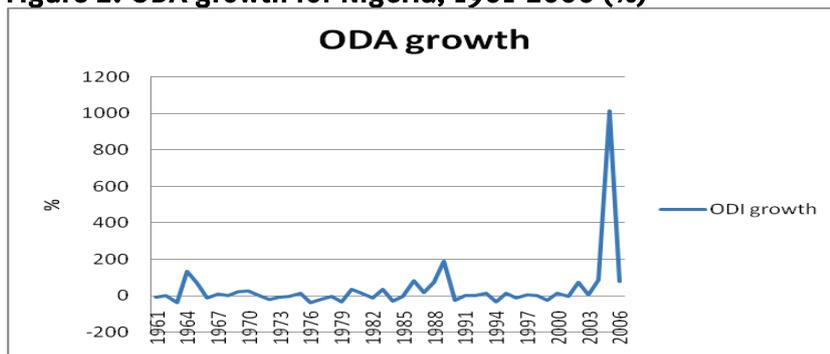
Source: CBN (2009).

## 2.5 Official development assistance

Although ODA accounts for less than 2% of the total budget in the country, it can be very important in the social sector and particularly in the lower tiers of government. Since the last quarter of 2008, donor agencies may have reduced their ODA pledges because of the current crisis and its budgetary effects. The future development of ODA flows depends on a range of factors, such as the extent of the economic impacts of the financial crisis on donor countries. Most countries' budget deficits are likely to increase considerably because of the rescue packages for banks and, in some cases, the real sector. This could also limit countries' scope to receive development assistance. At the same time, the major donor countries pledged to increase their ODA quotas to 0.7% of GDP, and to support achieving the MDGs by 2015. It is very likely that donors' promises will not be honoured in their entirety.

<sup>8</sup> For example, 651,000 jobs were lost in US alone in February 2009, from the January figure of 655,000 cumulating the unemployment figure to about 3.2 million since the emergence of the crisis-about 8.1% unemployment rate, highest figure in 25 years (US Labour Department, 2009). The rate has also been increasing in other developed countries of the world, ranging from 4.2% to 8.4%.

**Figure 2: ODA growth for Nigeria, 1961-2006 (%)**



Source: WDI Omnibus CD-ROM 2007 edition.

The price peak for commodity prices, however, seems to have ended: over the past couple of weeks, commodity prices have been falling again. The price of crude oil, for example, fell from its peak of US\$147 per barrel in July 2008 to below \$50 per barrel now. This means reduced foreign reserves, as well as reduction in capital expenditure by the government. The dramatic reduction in the price of oil cannot but have a significant effect on the revenues and expenditure of the government. The oil sector in Nigeria currently contributes 80% of foreign earnings and provides about 85% of government revenues.

## 2.6 Growth and the Millennium Development Goals

Understanding the effects on macroeconomic indicators, growth and the MDGs is also crucial. The potential impacts of the crisis on trade and financial flows will also have consequences for macroeconomic indicators, as well as for economic growth and the MDGs.

## 2.7 Inflation

The impacts on inflation depend on the degree of changes of commodity prices and the accompanying changes in the terms of trade. Owing to the commodity price boom, inflation rates rose strongly. Officially, Nigeria started experiencing a two-digit inflation rate from the third quarter of 2008. With falling commodity prices, inflationary pressures should subside to some extent as well. A strong and extended downward movement of the exchange rates will keep inflation levels high, most especially since Nigeria is import dependent and has no more foreign earnings to maintain this flair.

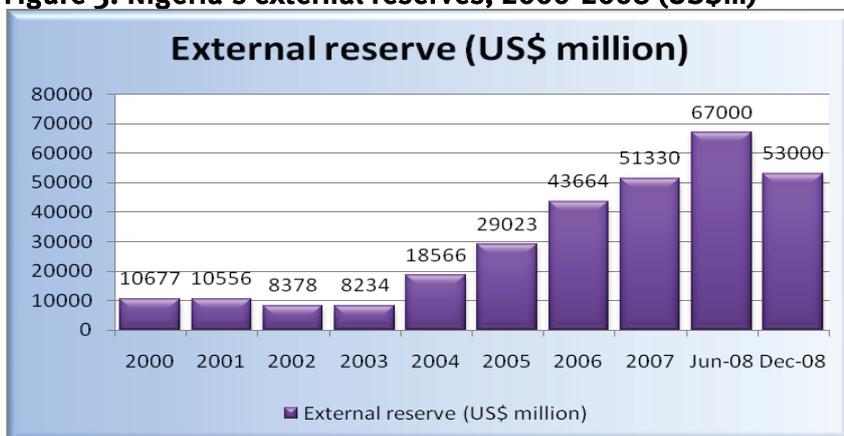
On the side of the real sector, with little investment in infrastructure by the government, especially the firms that source their raw material from abroad might suffer greatly. Impacts and their extent would depend on the depth and duration of the crisis: the likely liquidity squeeze emanating from the withdrawal of foreign portfolio investors from Nigeria, the extent to which remittances will decline and, more importantly, investors' confidence in the economy.

### 3. The global financial crisis shocks in the Nigerian economy

#### 3.1 Introduction

The impact of the crisis on the Nigerian economy has different ramifications for the capital market, the banking sector, foreign exchange and the balance of payments, as well as the real sector. Market capitalisation fell by 45.8% in 2008, a sharp reversal of growth from 2007, when the market grew by 74.7% (Okereke-Onyiuke, 2009). The crude oil price (Bonny Light) declined precipitously from US\$147 per barrel in July 2008 to \$47 per barrel in January 2009, prompting the government to seek other sources of financing for the 2009 fiscal year, as it cannot rely on earnings from crude oil exports. Eventually, there may be a huge budget cut at all tiers of government and social spending, such as on education, health and other basic MDGs, will be deeply affected. The Nigerian currency, the naira, has also depreciated against the US dollar, and this has implications for foreign reserves, which dropped from \$67 billion in June 2008 to \$53 billion in December 2008 (see Figure 3).

**Figure 3: Nigeria's external reserves, 2000-2008 (US\$m)**



Sources: CBN (2006); [www.businessdayonline.com](http://www.businessdayonline.com).

#### 3.2 Shocks in the capital market

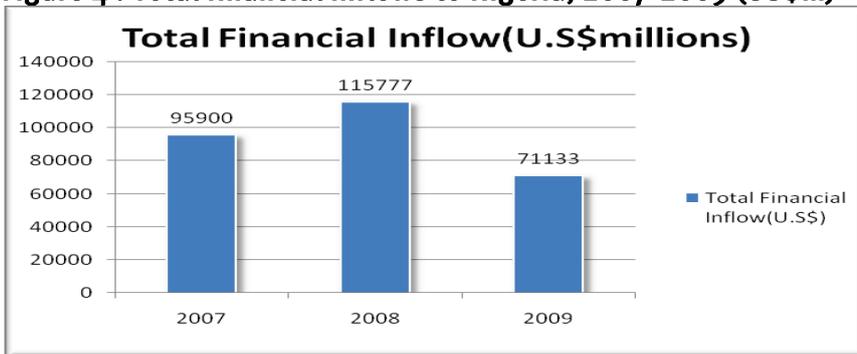
##### 3.2.1 Impact on the equity market

The all share index and the market capitalisation of the 233 listed equities capture activities and performance on the Nigerian Stock Exchange (NSE). The index has been growing over the years from a value of 12,137 in 2002 to 66,371 in March 2008, with a market capitalisation of about N12.640 trillion, after which values fell precipitously to 22,349 points in January 2009, with a market capitalisation of 4998 trillion because of the meltdown. By the end of the first week of March 2009, values had declined to 21,893 points, with a market capitalisation of 4900 trillion (see Figure 4). This value had further declined to 21,608 points, with a market capitalisation of 4836 trillion, by the end of the second week of March 2009. This reveals that between March 2008 and March 2009, the all share index had lost a total share of 67%, while market capitalisation had lost 62% of its value.

There are concerns regarding how rapidly the global financial crisis penetrated the Nigerian capital market, especially given that there is hardly any thriving domestic mortgage market. The decline of indicators of activities on the NSE before the escalation of the crisis on the global scene in July 2008 became a source of concern for many. Emerging facts reveal that the crisis may have been made evident in the capital market through various channels.

- Foreign portfolio investment withdrawals and withholdings in order to service financial problems at the foreign investors' home, as well as prospects of reduced FDI, are bound to affect investor confidence in the economic health of Nigeria. Evidence on the foreign portfolio withdrawals shows that the total financial inflows to Nigeria between 2007 and 2008 increased by 21%, while that between 2008 and 2009 is predicted to reduce by 38.6%. The adoption of a public-private partnership (PPP) policy platform to implement huge investment plans such as oil and gas (liquefied natural gas – LNG – projects), power plants, railways, housing and roads, therefore, exposed the country more to FDI uncertainties and vagaries.

**Figure 4 : Total financial inflows to Nigeria, 2007-2009 (US\$m)**



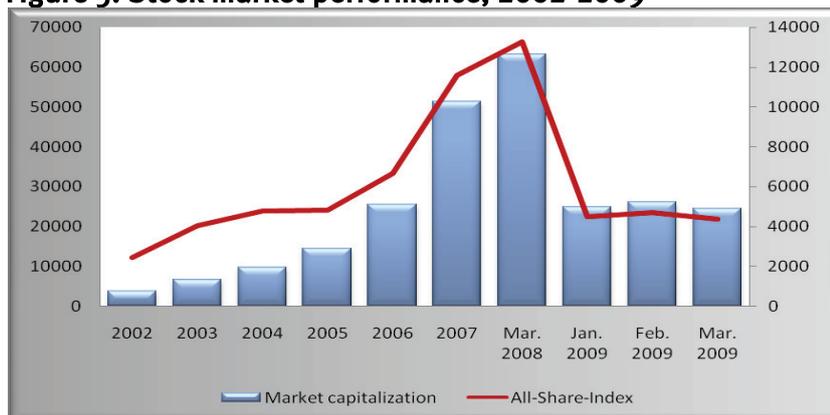
Source: ActionAid (2009).

- The credit crunch experienced by lending (particularly bank) institutions affects businesses that require short- and long-term money, including banks lending to corporate organisations as well as inter-bank short-term lending. In a country like Nigeria, where mortgages and credit card purchases are not well developed, this credit crunch became manifest in weakened risk assets of banks that had given out loans to some investors to invest in other financial instruments (particularly secondary market purchase and initial public offerings – IPOs), in the hope of making quick returns through a quick turnaround of their portfolio. This was what was termed otherwise ‘margin lending’. This may also be termed Nigeria's own version of the ‘sub-prime problem’, resulting in an exploding domestic stock market and stock prices and astounding returns to both the speculators and providers of the margin funds (the banks).
- Other factors that have had a serious impact on the stock market are what can be called the ‘intensifiers’. These include policy interpretations by the market, which may have been induced by the slow government initial stand on the economy. This also includes interpretation of announcements, proclamations and rumours by the market. Examples include the proposed recapitalisation plan of the stock market players (stock broking firms), as well as rumours on the termination of margin lending by banks.

### 3.2.2 Impact on federal government medium- to long-term bonds

The federal government issued 14 bonds between January and December 2007, with a total volume of N504.8 billion. The maturity profiles of the instruments in the portfolio were mainly of three-year and five-year tenor, with only two of 10-year tenor. Issuance in 2008 reduced to five, but one had a 20-year tenor, in November 2008. The total volume of bonds issued in 2008 was around N95 billion. Towards the last quarter of 2008 and first quarter of 2009 to date, the yield curve of the bonds appeared to be affected by the global financial crisis. Prices for the three- and five-year bonds were falling, while the yield curve was rising. The long-run impact of the crisis appears negligible, which seems to suggest confidence in the bond market in Nigeria, as shown in the Annex.

**Figure 5: Stock market performance, 2002-2009**



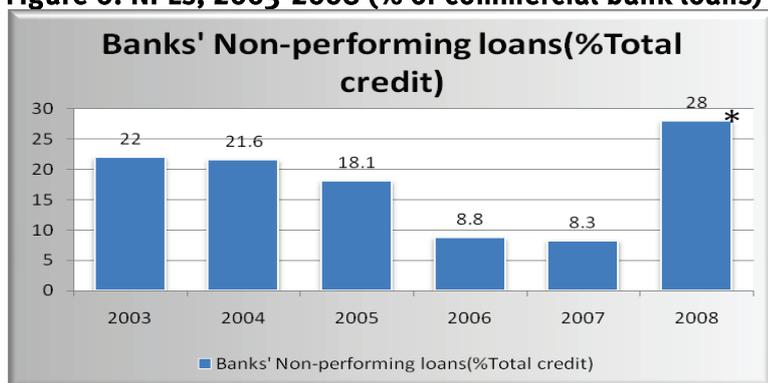
Source: NSE (2002-2007) and [www.fsdhsecurities.com](http://www.fsdhsecurities.com).

### 3.3 Impact on the banking system

In a globalised world, transactions are carried out in different countries in integrated markets. The world has over the past two decades headed towards liberalisation and deregulation, with the goal of integrating world markets. Nigerian markets, although not well integrated into the world market, have been facing serious destabilising effects since the emergence of the global financial crisis in July 2008. The capital market has been shrinking; major international hedge funds have been withdrawn; and the international credit line has faded out of loadable funds for domestic industry. The gravity and depth of the crisis in the banking sector is not yet fully evident, but the following indicators point to its direction.

- Prudential indicators:** This indicator shows declining levels of quality of risk assets. The main component considered is non-performing loans (NPLs) as a percentage of total commercial bank loans. This ratio is likely to increase in 2009 as the maturity of loans granted in 2008 falls due. Some of these are consequent to the activities of the stockbrokers in the use of margin loans in funding their capital market activities, as well as those who received loans to finance share purchases when their prices were still high. These became problems when prices tumbled. Margin lending allows money to be borrowed using existing shares, managed funds or cash as security.

**Figure 6: NPLs, 2003-2008 (% of commercial bank loans)**



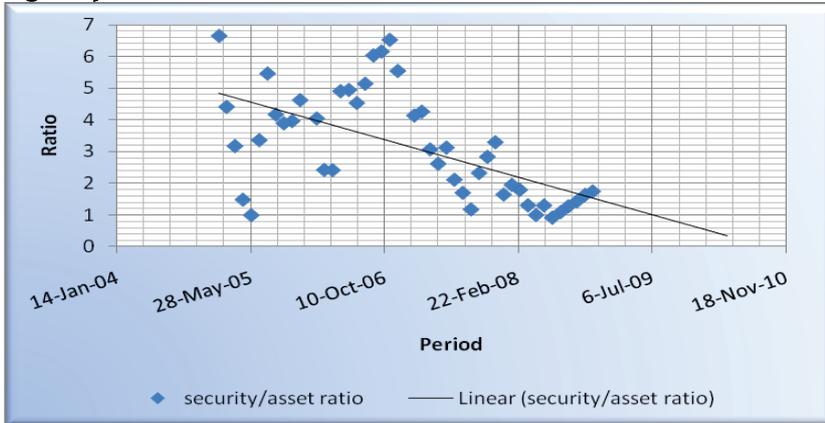
Note: \* Indicates estimated value based on the amount of margin loan swept by the crash in the capital market. The total margin loan (N1 trillion), represents 20% of total credit. If the crisis continues, most of the loans will enter the NPL profile.

Source: CBN (2008a).

- Capitalised value of quoted banks:** These have been seriously eroded since the crisis, owing to the decline in the quoted values of these institutions at the stock exchange. This has seriously endangered their tier one and two capital.

- **Activity indicators:** The activity indicator is captured by the ratio of security investment to total commercial banks' assets. Available data show a continued decline in the ratio from its peak in 2007. Figure 4 indicates that such a decline could continue for the rest of 2009 and extend until 2010.

**Figure 7: Securities investment to total bank assets of commercial banks, 2004-2010 (%)**



Source: [www.cenbank.org](http://www.cenbank.org).

According to CBN, initially bank lending witnessed growth of about 60.9%, which is an indication that Nigerian banks were doing well first of all in the face of financial crisis. However, the situation on the inter-bank market, which holds weekly, has since indicated otherwise, that banks are experiencing reduced liquidity. For instance, as of 31 December 2008, the Nigerian Inter-bank Offer Rate (NIBOR) went up from 13.8% to 14.6% on all segments of the lending market, with the seven-day NIBOR rising from 14.8% to 15.3%, 30-day NIBOR from 16.7% to 17.0% and 60-day NIBOR up from 16.7% to 17.0%. The 90-day NIBOR rate also rose, from 16.7% to 17.2%, the 180-day NIBOR from 16.7% to 17.4% and the 360-day NIBOR from 16.9% to its 17.8% current level. The rising interest rate is an indication of fewer funds to lend out. This may have occurred as a result of the exposure of banks to the margin loan and other capital market funding activities discussed above.

### 3.4 Effect on the real sector

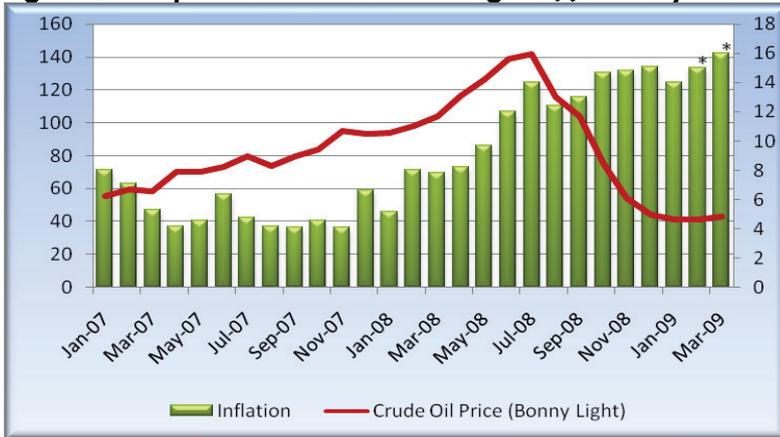
#### 3.4.1 Global financial crisis and the oil sector in Nigeria

The changing international oil market poses grave concerns for Nigeria's fiscal outlook. The global financial crisis has led to slow growth across the world's economies, resulting in lower demand for commodities, especially oil. This impact has been transmitted through several sources to the Nigerian economy, especially through: i) impact earnings and revenue; ii) falls in the naira exchange rate; iii) the balance of payments through narrowing of the surplus on the current account balance; iv) the capital account through reduction in capital flows because of reappraisal of planned investments or complete stoppage of previously committed programmes of investment; and v) contraction of fiscal space for policy.

#### 3.4.2 Crude oil and gas

While speculative behaviour and investment activities helped buoy up crude oil prices internationally, the reality of the global recession is beginning to be fully appreciated across the globe. The adverse impact of the crisis is more evident and direct on international prices of oil. The recent movements of oil prices are apparent in their unprecedented decline from record highs of about US\$147/barrel in July 2008 to about \$50/barrel in January 2009. The figures on the daily basket price hovered between \$38 and \$44 in the third week of February and the first week of March 2009 (see Figure 9).

**Figure 8: Oil price and inflation in Nigeria, Jan 2007-Mar 2009 (naira)**



Note: \* Indicates estimated level of inflation.

Source: CBN, [www.cenbank.org/rates/rateshome.asp](http://www.cenbank.org/rates/rateshome.asp)

**Figure 9: Daily movement of oil price, Feb-March 2009 (%)**



Source: [www.opec.org/library/OPEC%20Bulletin/2009/pdf/OBO22009.pdf](http://www.opec.org/library/OPEC%20Bulletin/2009/pdf/OBO22009.pdf).

**Figure 10: Monthly movement of oil price, Feb 2008-Mar 2009 (%)**



Source: [www.opec.org/library/OPEC%20Bulletin/2009/pdf/OBO22009.pdf](http://www.opec.org/library/OPEC%20Bulletin/2009/pdf/OBO22009.pdf).

The global economic crisis has resulted in about a 71% decline in basket price of crude oil prices as shown above. Accordingly, Nigerian policymakers have adjusted the benchmark price on which the 2009 budget was based. Demand for crude oil in the US and Europe has dropped and may not grow beyond its current level in 2009. As a country whose earnings and expenditures are tied to the prospects from oil, how can we say that the financial crisis has not and will not affect Nigeria? As a matter of fact, the financial crisis will most likely further intensify the search by many developed

countries for alternative and cheaper sources of energy. Usually, oil shocks are defined in terms of price fluctuations, but these may in turn emanate from changes in either the supply of or the demand for oil. In practice, it is unlikely that demand will grow rapidly enough to cause a price shock, unless it is motivated by fears of supply shortages. The supply side has been primarily responsible for observed oil price shocks, at least as an initial trigger. Moreover, expectations and speculation about future demand and (especially) supply conditions play a large part in the determination of crude oil prices on the futures and spot markets, particularly when inventories are low.

The federal government finances the annual budget largely through the sale of crude oil. Consequently, oil revenue drives economic activities and hence inflation in Nigeria. Currently, the nation's foreign reserve is about US\$56 billion, against \$64 billion recorded in 2008. The drop in the price of crude oil will affect federal and state governments' spending if the crisis continues. Several reasons account for this development. The implication is that Nigeria's economy is based on only one commodity, crude oil, and negative developments on the global oil market will have similar impacts on government funding. Simply put, a persistent drop in crude oil prices means that the government will have less to spend for capital projects in the years ahead.

Oil revenue is derived from three basic areas: export volume, price per barrel and petroleum profit tax (PPT) and royalties. Nigeria has no control over the first two factors: the Organization of the Petroleum-exporting Countries (OPEC) and the intake capacity of the international market can dictate the volume of oil produced. Similarly, the price of crude oil is dictated largely by market forces, hence Nigeria has no control over the activities of speculators on the oil market during a bullish period. Therefore, the federal government should not rely on oil market speculators to determine the directions of its budget. Government has control over the PPT as it can determine how and where to channel the proceeds from the tax for economic growth.

### **3.5 Computable general equilibrium findings**

Using the CGE methodology, this study has examined the impact of the persistence of the global financial crisis, transmitted through decreased prices of oil exports to the Nigerian economy. Thus, in line with suggestions from economic theory, oil price shocks, in the form of decreased prices, have tended to affect all net energy exporters adversely, some very significantly, depending on their oil intensity, oil export dependence and energy/oil efficiency, among others. The findings from this study tend to confirm *a priori* expectations on the impact of negative oil price shocks on macroeconomic variables and poverty/household welfare in Nigeria. Oil price shocks have had a stagflationary effect on the Nigerian economy: they slow down rates of economic growth and increase the domestic price level. In addition, they have reduced the level of domestic investment and worsened the government account and income position. Besides, the shocks have increased the level of poverty and worsened household welfare over the period August 2008 to January 2009, and are expected to worsen them further in 2010. For example, between January 2009 and June 2009, the 51.2% decrease in oil prices is expected to cause a 4.3% fall in GDP. The domestic consumer price indices are expected to rise by 14.8%, while investment will decrease by 3.6%. Other expected impacts are falls in current household income and household consumption, by 4.0% and 2.9%, respectively. All effects are in relation to the January-July 2008 base period value. These are indications that the Nigerian economy is very vulnerable to oil price shocks.

The impact of oil price shocks is felt to be more severe in Nigeria than in other countries in the region because of its almost total reliance on its oil revenue to run its economy. The further implication of the above is the need for targeted assistance to the poor under conditions of declining oil export prices to enable them to mitigate adverse consequences. Generally, appropriate fiscal and monetary policy responses to oil prices shocks are crucial in order not to worsen the adverse effects of the shocks and to stimulate both domestic and foreign investment and hence boost growth significantly.

### **3.5.1 Household welfare and poverty impact of oil price shocks**

On the impact of oil price shocks on poverty, household income and consumption volume (expenditure) are used in this study to assess the impact of the global financial crisis transmitted through a decrease in oil price. Annex 2 presents the results of the simulations on household welfare. The results show that the oil shocks have led to a significant increase in poverty.

### **3.5.2 Impact on household income**

Starting with **household income**, Annex 3 shows the simulation results of the impact of the oil price shock on household income in Nigeria. The results show that adverse oil shocks have severe distributional consequences for the Nigerian economy. Household income is made up of wages, profits, transfers and other income. The last income source is exogenous. The single household saves a fixed fraction of its income, as factor remuneration represents the main source of income for households. The results show an overall decrease in household income in Nigeria. For example, in 2008, a 12.2% adverse oil shock deteriorated the income of Nigerian households by 0.93% on average. Generally, relative to the reference (base) run, household incomes on the average (Nigerian) would fall by 5.07% in July-December 2009 under the cumulative 63.5% oil shock scenarios. It would decrease by 5.60% in 2010 if the oil shock is represented by a 69.5% increase over the base period.

In sum, in view of the serious adverse effects of negative oil price shocks on the Nigerian economy, the government needs to determine the appropriate monetary, fiscal and exchange rate policy responses. Also, and very importantly, it needs to institute measures to reduce oil dependence, as some other countries have tried to do, and improve the non-oil sector considerably. Finally, targeted assistance to the poor can help mitigate the impact of oil price shocks on them while avoiding the problems inherent in generalised subsidies.

## **4. The effects of the global financial crisis on growth and development**

Regarding impacts on growth, the results of the experiments show that a negative oil price shock has negative impacts both in the short and medium term on growth items. Annex 3 presents the summary of the results on GDP, savings/investment, exchange rate and investment consumption volume (the percentage deviations from the base run parameters and their marginal changes over the period of investigation) for the Nigerian economy.

An examination of Annex 3 indicates that the simulated average level of the parameter results for GDP differ significantly from the average base run level. With the shock simulation scenarios under 12.2%, 51.2%, 63.4% and 69.5%, GDP deteriorated cumulatively by 0.96%, 4.3%, 5.43% and 6.02%, respectively, on average for the period August-December 2008, January-June 2009, July-December 2009 and 2010, respectively. Specifically, the 51.2% negative oil shock between January 2009 and June 2009 will lead to an average fall of 4.3% in GDP. However, the negative impact on the GDP will decline under the marginal reduction scenario, such that we now have -3.34%, -1.13% and -0.59% from January-June 2009, July-December 2009 and 2010, respectively.

### **4.1 Actual impact**

The consequences of the global financial crisis on growth and development in Nigeria are enormous and widespread. The first point of impact is through the drop in the price of oil. This is followed by the fall in the share price of the stock market. The combined effect of these two led to the depreciation of the naira exchange rate. Further worsening the situation is the withdrawal of foreign portfolio investment (hedge funds) from the Nigerian market. As of January 2009, foreign portfolio investors have withdrawn some US\$15 billion from the country's capital markets. Such massive withdrawals compound the crisis of confidence, which has further complicated the capital market recovery process. The transmission of these impacts to the real and financial sector will surely hamper growth and development of the Nigerian economy. Since the extent is just emerging, it may be difficult to gauge the magnitude of what the impact of crisis is at this time.

The oil sector, which serves as the mainstay of the Nigerian economy, has experienced a plunge in the international price of crude oil. This has meant a huge decline in foreign exchange earnings. Some experts are predicting that oil prices may still come down to as low as US\$30 per barrel over the coming years. Rather than increasing, the reserve has been depleting since the crisis. This has led to reduction and scarcity in the foreign exchange offered for sale in the Wholesale Dutch Auction System. This reduction has intensified speculative tendency at the WDAS. This has introduced instability into the market and triggered further depreciation of the naira foreign exchange rate. Demand in February 2009 was \$3 billion compared with \$7.3 billion in the month of March 2008. In the face of dwindling foreign exchange earnings, the CBN had to evolve management tactics that indirectly support the naira. The overall impact is less budgetary allocation at all tiers of government to growth and development-enhancing programmes and high cost of importation for critical infrastructure development, as in the power and health sectors. This will not only deepen the infrastructure finance gap, but also cloud the prospects for achieving the set targets in the new development plan, the Vision 2020 project.

#### **4.1.1 Current budget 2009**

Current budget plans will be affected in a major way. The 2009 federal budget proposals have an in-built deficit of N1.09 trillion, a figure that many critics consider unsustainable. Government is optimistic that it will be able to finance this through taxation and accruals from signature bonuses from the sale of certain privatised companies, divestment from some private sector activities and issuance of federal government bonds, as well as ploughing back some unspent previous year budget allocations.

However, there are major fears that disbursements to the lower tiers of government may not be achieved at the planned level. Information filtering from discussion with some selected states (Ogun, Ekiti and Niger) indicates that disbursements to states and local governments was at about 33% below planned budget levels for the first two months of 2009 because of scarcity of funds. The trend is likely to continue, except if there is a drastic change in the international oil market.

#### 4.1.2 National debt

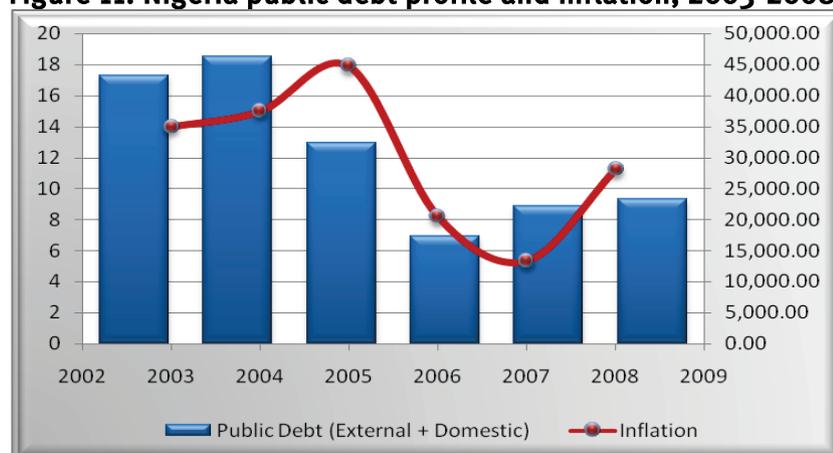
Presently, the debt profile of Nigeria is gradually increasing, from US\$17,349.69 billion in 2006 (after repayment of the substantial debt owed by the country to the Paris Club) to \$22,229.88 billion in 2007 and \$23,383.98 billion in 2008. The domestic debt share, which is in the range of 79-84%, drives this increase. This might rise further in 2009, as the government has promised to meet planned budgeting targets through loans (external/domestic). Further, the growth of domestic debt may also lead to an increase in inflation (see Table 2).

**Table 2: Nigeria debt profile, 2003-2008**

| Type                                | 2003                 | 2004      | 2005      | 2006      | 2007      | 2008      |
|-------------------------------------|----------------------|-----------|-----------|-----------|-----------|-----------|
| External debt stock (US\$ billions) | 32,916.81            | 35,944.66 | 20,477.97 | 3,544.49  | 3,654.21  | 3,720.36  |
| Domestic debt stock (US\$ billions) | 10,283.99            | 10,314.79 | 11,828.76 | 13,805.20 | 18,575.67 | 19,663.62 |
| Type                                | Percentage share (%) |           |           |           |           |           |
|                                     | 43,200.80            | 46,259.45 | 32,306.73 | 17,349.69 | 22,229.88 | 23,383.98 |
| External debt stock                 | 76.19491             | 77.70231  | 63.38608  | 20.4297   | 16.43828  | 15.90987  |
| Domestic debt stock                 | 23.80509             | 22.29769  | 36.61392  | 79.5703   | 83.56172  | 84.09013  |

Source: [www.dmo.gov.ng/documents/debtprofile/external](http://www.dmo.gov.ng/documents/debtprofile/external).

**Figure 11: Nigeria public debt profile and inflation, 2003-2008 (naira)**



Sources: CBN (2006); [www.dmo.gov.ng/documents/debtprofile/external](http://www.dmo.gov.ng/documents/debtprofile/external).

#### 4.1.3 Net capital flows

Another area in which the crisis is affecting the economy is the reduction in net capital flows, in terms of both investment and concessional resources. Huge assistance comes in the form of bilateral and multilateral aid resources in addition to ODA. These are often the soft target when developed countries face a major financial crisis. Unavoidably, investment flows, in terms of both FDI and portfolio investment, are affected. Evidence collected from the NNPC indicates that, for most of the proposed new investments, either they have been stopped or the investor has adopted 'wait and see' tactics. In addition, remittances from the Nigerian diasporas, which exceeded US\$17 billion in 2007, are likely to decline precipitously from late 2008 onwards.

#### 4.1.4 Millennium Development Goals

The growth estimate has been revised down in line with the impact of the crisis. Lower growth would also mean a slowdown in the fight against poverty. Worsening poverty removes further the prospects of attaining the internationally agreed targets for halving the number of the poor within the framework of

the MDGs by the year 2015. In Nigeria, although ODA represents about 2% of total budgetary allocations, it represents a major factor in the drive towards achieving the MDGs at the lower tiers of government, as well as in the development of good governance at state and local government levels.

In some cases there are strong commitments by several donor agencies and their countries towards attainment of the MDGs, but there are still many hurdles to overcome. Efforts are still required or needed to be expanded on various areas of the MDGs, particularly on reducing child mortality, prevention and treatment of HIV/AIDS among other diseases, etc. In other areas such as maternal and newborn mortality, there has been little change; to halve the population that has no access to adequate sanitation or essential medicine, etc.

In the midst of these comes the global financial crisis, with its untoward effect on the commitments towards achieving these goals. Some donors have adopted a 'wait and see' approach or have implemented an outright reduction in budgetary commitments in the face of bad news from home. Total MDG spending in Nigeria may be affected by the economic downturn from two sides: i) reduced allocation in the 2009 budget by both federal and state governments; and ii) reduced allocations and commitments by donor agencies.

## **4.2 Aftermath of the crisis: A bleak future?**

The banking sector and capital market are the first major victims of the current crisis. This is so for the margin lending operations in the financial industry. It is the feeling of the CBN that Nigerian banks are safe because the level of exposure to the global financial crisis remained low, as a result of the size and total value of instruments affected as well as the low level of integration of the Nigerian market into the world market. On the international scene, regulators are insisting that banks become less risky, holding bigger capital cushions for even relatively low-risk activities. Banks are also under pressure to strengthen back-office operations and invest in staff whose job it is to keep an eye on other bank staff and the risks side of their operations. At the domestic level, the regulatory body is seriously monitoring operations of banks. The CBN has deployed resident auditors to all the banks, and all figures presented by banks are met with increased scrutiny. Hence, the level of monitoring of banks has been intensified and will continue to increase.

The depletion of the country reserve has continued because of reduced export earnings, although the crude oil sale presents opportunities to rediscover business virtues that appear to have been forgotten in the good times. The crisis may also stimulate the redirection of energy towards reviving the potential of traditional sectors in the country. This may lead to increases in export earnings from other sectors aside from the oil sector and thus ensure that the country's revenue is secured in the face of shocks emanating from the oil and gas industry.

## 5. Policy implications

### 5.1 Actual policy responses by government and other institutions

Areas of impact on Nigeria include: reduction in bank lending; reduction in portfolio flows; reduction in remittances from emigrant populations; and reduction in export revenues as demand in rich countries starts to shrink. Until recently, the official response to the crisis was slow and the adopted stand was that of indifference in the country.

The shrinking of demand in richer economies for commodities led to cuts in production levels at the different plants located in developed countries. This meant a reduction in the consumption of fuel, metallic and other primary products. Consequently, the earnings of companies will decline. One key factor for an appropriate policy intervention is a proper understanding of the nature and depth of the crisis as it affects the sources of international capital flows to Nigeria. Furthermore, since no two economies are exactly the same, the model or methods used to intervene in times of financial difficulty will differ from one country to the other. The understanding of the composition and behaviour of the Nigerian economy is paramount in developing short- and long-term policy responses that will be relevant to minimising the damage of the crisis on the country's economy.

Some of the policy measures already in place to reduce the problem of the global financial crisis in Nigeria are therefore as follows: i) reduction in the monetary policy rate (MPR) from 10.25% to 9.75%; ii) reduction in the cash reserve requirement (CRR) for banks from 4% to 2%; and iii) cutting the liquidity ratio from 40% to 30%. In addition, the CBN has given a directive to banks that they have the option to restructure the already crystallised margin loans up to 2009; inter-bank lending facilities to banks are expanded and extended up to 360 days. The same goes for discount window facilities, which have been expanded as well.

According to the CBN, these policy adjustments were designed to inject about N150 billion into the system and improve the liquidity in the economy. They are all part of the government's initiative to forestall any unforeseen development in view of the high degree of uncertainty believed to be emanating from the international financial markets.

#### 5.1.1 Other policy stands, announcements and/or actions

- Presidential Steering Committee on Global Economic Crisis (inaugurated on 16 January 2009);
- Presidential Advisory Team on the Capital Market set up to consider measures to reverse the declining fortunes of the Nigerian capital market;
- Security Exchange Commission (SEC), NSE and all capital market operators reduced fees by 50%;
- NSE to review trading rules and regulations;
- 1.0% maximum downward limit on daily price movement and 5.0% on upward movement. This has been harmonised to 5% either way from end-October 2008;
- SEC released guidelines/rules on market makers;
- Strict enforcement of NSE's listing requirement with zero tolerance for infractions;
- NSE de-listed 19 stagnant companies;
- Rules on share buyback introduced, with a limit of 15.0%.

A summary assessment of these rules and regulations suggests an attempt to expand liquidity to counteract the contractionary implications of the global financial crisis on the domestic economy while at same time introducing more regulation and tightening the conditions for operations in the capital market. Whether or not these actions are adequate remains to be seen: we may need to wait a bit more to be able to answer this question.

### **5.1.2 Emerging facts from the economy since the advent of the crisis**

- The GDP growth rate increased from 6.2% in 2007 to an estimated 6.8% in 2008 despite the global crisis, (with non-oil growth at 9.5%, while the oil sector declined by 4.5%);
- End period headline inflation in December 2008 was 14.6%, while core (non-food) inflation was 9.2%;
- Credit to the private sector grew by over 50% by end-December 2008; in the first two months of 2009 this witnessed decline. It may be too early to attribute the decline to the global financial crisis;
- Gross liquidity injections by the CBN through the expanded discount window and repayment of maturing open market operation (OMO) bills from September 2008 to 7 January 2009 stood at about N2.2 trillion. This has moderated interest rates on the money market, and inter-bank rates are currently below the MPR. It is, however, doubtful from our survey of a few banks' lending rates whether the banks are translating the direction into actions;
- The expanded discount window facility to banks now stands at N275 billion (down from N1 trillion as banks repay the temporary loans);
- Repayment of maturing OMO bills since September 2008 is N1.2 trillion;
- Stock of external reserves stood at US\$52.9 billion as at end-December 2008, with 'excess crude' balances at about \$20 billion (relative sharp decline in the inflow of foreign exchange relative to the demand pressure);
- The exchange rate allowed adjusting to reflect the demand pressures relative to supply: the exchange rate depreciated from N117 to N135 per US dollar as at end-December 2008;
- Currently, exchange rate depreciation is approximately 20%, effectively translating into about N2.5 billion extra revenue per day to the Federation Account;
- The stock market remained depressed as at end-December 2008; by 15 March 2009, the gradual upward movement in some stocks was changing the tone of the market;
- The outlook for oil prices in 2009 is about US\$51 (optimistic range) and below \$51 (pessimistic range);
- A growth rate of GDP between 7% and 9% is still possible, despite the economic crisis (if the Nigerian experience of economic recession is short).

Given the above and what the government of the country has done so far, we need to consider what we may term potential policy options.

## **5.2 Potential policy options**

The debate in rich countries about the impact of the global financial crisis has largely ignored its impact on developing countries. Nevertheless, instability in financial markets around the world is already spilling over to the 'real economy' in poorer countries. It is vital that policymakers understand how this crisis may affect developing countries like Nigeria and the implications for development policy. This report has examined the channels of impact of the current financial crisis on Nigeria. It has also discussed key policy implications. It will be necessary to bring out impacts on aid, appropriate social protection measures and implications for financial architecture. The set of policy responses can therefore be considered with regard to what is needed immediately and in the medium to long term to minimise the loss of welfare owing to the crisis. Optimal policies therefore should be perceived in terms of what is possible in the short run as a response to the global financial crisis, and what should be the long-term objective, in order to avert reoccurrence of current experiences while minimising the impact of the current recession in terms of welfare losses for the people of the country.

### **5.2.1 Short-run policy response**

Prior to the global financial crisis, the focus of macroeconomic policy was essentially on price stability. There has been complete neglect of developmental and long-term welfare issues. Macroeconomic

policies should be robust and there should be proper monitoring of the capital and financial system. Strengthening banking supervision to ensure that some of the current policies are strictly adhered to by financial institutions and studying relevant capital adequacy for banking and financial institutions in the country must be given high priority. In addition, short-run policies in monetary and fiscal policy must seek to:

- Manage fluctuations in the exchange rate to minimise uncertainty;
- Minimise the impact of expansionary fiscal and monetary policies on inflation;
- Shift focus to significantly increase agricultural output as a means of bolstering economic growth across the country;
- Enhance social protection by creating social safety nets to protect the vulnerable, who are heavily impacted by the budget reaction to the global financial crisis;
- Effectively coordinate between monetary and fiscal policies and their institutions in tackling the credit crunch.

### **5.2.2 Medium- and long-term policies**

Turbulence in global credit markets has been rooted in the weakening of credit discipline, a build-up of leverage in segments of the financial system and investor complacency that developed during the period of ample liquidity and benign financial conditions. When losses materialised, leverage and a lack of transparency in some segments made the impact worse. Structured products have spread those losses, especially in the NSE, but some market participants were ill equipped to handle the risks they assumed.

There is therefore a need to take a fresh look at the long-term structure of policy organs in the country, particularly the relationship between the monetary authorities and Capital Market Authority to ensure no grey areas are unmonitored. There is also a need for the CBN and SEC to strengthen their tools to identify situations such as movement of large funds in and out of the country without proper conditions.

Stronger systems for monitoring and analysing both the direct and embedded leverage that systemically important financial institutions are using or granting would help in anticipating challenges to financial stability. Long periods of stability should sensitise regulators and private institutions to the dangers of complacency.

Regulated financial institutions should thoroughly explore the dynamics and sensitivities of the assets they hold and use as collateral, particularly if they are hard to value and have illiquid secondary markets. Therefore, Nigeria should strengthen its regulatory role of the financial institutions, particularly the Deposit Money Bank, for a safer and sounder operating environment.

In addition, Nigeria should redefine the architecture of monetary and capital market operations to engender better prudential supervision, separating the monetary from the prudential roles of the CBN.

Moreover, there is an urgent need for government to diversify the economy away from being a monoculture of oil and gas and to embark on deep and systematic reform of institutions to engender stability and robust policies.

## 6. Summary

In summary, the global financial crisis has had some major impacts on the Nigerian economy.

It has aggravated the ongoing stock market crisis. It has been reported that foreign portfolio investors have withdrawn some US\$15 billion from Nigerian capital markets.

The massive reduction in crude oil prices has led to a severe reduction in foreign exchange earnings. It has been predicted by some experts that petroleum prices may come down to as low as US\$30 per barrel over the coming years.

There have been impacts on the national budget: 2009 federal budget proposals may be substantially changed for implementation.

With reduced development funds and lower oil revenue, there will be less funding available for much-needed investment in infrastructure and other socioeconomic projects.

There are reduced capital inflows, investment flows and concessional resources inflows.

Growth estimates have lowered. Earlier estimates seeing growth exceeding by 10% have had to be revised to 7-8% for 2008. The long-term development plan, Vision 2020 as it is, may have to be revised. Lower growth will also mean a slowdown in the fight against poverty.

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# Annex 1: Effect of the global financial crisis on social protection in Nigeria

## Introduction

Nigeria's social status remains poor when compared with other developing countries, which is not very encouraging. As of 2006, it is estimated that about 43.1% of urban residents are poor while 63.8% of rural households are poor. In terms of vulnerability, a rough estimate claims that 87% of households in the country are vulnerable to poverty. Social protection helps to ameliorate the damage to human capital development and labour productivity. In the past four years, the government has introduced various reforms and initiatives aimed at improving Nigeria's social security system. Some of these initiatives include pension reforms, health insurance, virtual poverty funds (VPFs), microcredit, conditional cash transfers, etc. With the exception of the VPFs, these initiatives cover predominantly public sector workers, leaving a larger segment of Nigerians who are poor unprotected. Before the crisis, efforts of governments were committed to deepening social protection that deals with vulnerability and risks of the poor and the non-poor in the face of shocks at different stages of the lifecycle, from birth to old age. The challenges remain formidable and include the pervading poverty and high and growing unemployment, which has worsened with the retrenchment arising from the public sector reforms at different levels of government. In particular, the programmes of reforms undertaken under the National and State Economic Empowerment and Development Strategies (NEEDS) and (SEEDS) include the following objectives:

- Increase security, through helping households and communities sustain their livelihoods in the face of economic, political, environmental, health or other shocks as well as reducing the likelihood of such shocks occurring;
- Contribute to equality through i) promoting levels of livelihood sufficiently to ensure enhanced equality of opportunity by allowing for all households to achieve basic education for their children, as well as standards of health and nutrition necessary for human development; and ii) raising the levels of consumption and livelihoods of the poorest;
- Promote growth through i) ensuring that all households have the ability to provide for basic human development thus ensuring a skilled productive workforce; ii) reinforcing values of social solidarity, thereby contributing to levels of social cohesion necessary for long-term economic development; and iii) providing an environment where individuals and households are able to adapt and change livelihood strategies without fear of calamity should such strategies fail.

## Review of current policies

Social protection policies currently focus on promotion of income security, employment and income generation, and are more targeted at the public sector. This implies that Nigeria's social insurance covers only a minute fraction of the population. Available evidence indicates some measure of improvement in the performance of the sector in terms of poverty reduction. Some policies and programmes to protect the poor and vulnerable in the country include the following.

**Early childhood age (0-5):** Nigeria has a young population structure, with 19.6% falling in the 0-5 bracket. For this age group, some public intervention programmes currently on ground to help mitigate the risks facing this age group include the following:

- **Vitamin A Supplementation Programme:** This is aimed at controlling Vitamin A Deficiency (VAD). Average coverage of Vitamin A distribution in the country is 70% of children aged 6-59 months. The programme is targeted at all children, with no allowance made for the poor and vulnerable.

- **National Programme on Immunisations (NPI):** The aim is to achieve universal child immunisation in Nigeria, being implemented in all the 774 local government areas of the 36 states of the federation and the Federal Capital Territory, mainly through national immunisation days (NIDs). Distribution and administration of the vaccines are carried out under the auspices of the NPI, which is under the Ministry of Health.

**Social protection activities for age 6-14:** The proportion of the population of Nigeria in the age group 6-14 years is 25.3%, with 66.7% of them poor, with 30.1% being core poor and 36.3% being moderate poor. Some of the intervention programmes for this age group include:

- **Universal Basic Education:** The aim is to ensure that every Nigerian child has access to qualitative basic education. The strategy is to make basic education compulsory and universal up to the junior secondary level. However, the nation has not been able to achieve this universal education owing to a number of gaps in the operational modalities of the educational programmes, among which are infrastructure, equipment and inadequate teacher to pupil ratio.
- **Education Tax Fund:** The Education Tax Fund is meant for all levels of education and is designed to improve the financing of infrastructure and resources that will lead to improvement in the quality of education in the country. Presently, the fund has no mechanism for targeting the poor or the schools they attend, which makes it regressive in nature.

**Social protection activities for ages 15-24 and ages 25-64:** There are more than 31 million people within the age range 15-24 years and 23.4 million people within the age group 25-64 years in Nigeria, representing 19.1% and 32.7% of the population, respectively. Within these groups, the poor account for about 63.1% and 67%, respectively. The major social issue is gainful employment.

- **National Directorate of Employment:** This was created and mandated to design and implement programmes to combat mass unemployment, through the articulation of policies aimed at developing programmes with labour-intensive content. The NDE is a laudable programme, but the major obstacle to its full realisation is the shortage of loanable funds as well as the high rate of default by icon beneficiaries. The sustainability of the programme thus depends on the commitment of the federal government in terms of finance and outcomes of the NDE. In addition, most of the activities of the NDE are being duplicated by the National Poverty Eradication Programme (NAPEP).
- **NAPEP:** The main objectives of the programme are to oversee, monitor and coordinate all government initiatives aimed at eradicating poverty, and to periodically extend intervention projects to complement the efforts of the implementing ministries, departments and relevant parastatals throughout the country. Although some successes have been reported in the implementation of NAPEP programmes, performance remains below the optimal level expected by Nigerians.

#### **Social Protection Activities for over 65s (protection against old age)**

- **Government pension scheme:** The public sector pension scheme has been reformed and is being handled by private firms to make for more effectiveness and to ameliorate the situation of public workers suffering in retirement.
- **Nigeria Social Insurance Trust Fund:** The main objective of NSITF is to help in the sustenance of workers after retirement, disability or loss of job. In addition, it provides employment income protection against hazard of old age, invalidity and death as a result of injury associated with employment. As a risk management agency, NSITF targets people working in the private sector, by age and type of occupation. The risks that are of paramount importance to the scheme are job insecurity, income insecurity, life insecurity (including death) and physical disability.

#### **Other social protection activities for the general population**

- **National Emergency Management Agency:** NEMA is mandated to formulate policies relating to emergency management activities as well as to coordinate programmes and plans directed

at responding to disasters in Nigeria. NEMA over the year has been able to respond appropriately to emergency and disaster situations in Nigeria.

- **National Health Insurance Scheme:** The objectives of the NHIS are to ensure that every Nigerian has access to good health care services; to protect families from the financial hardship of huge medical bills; to limit the rise in the cost of health care services; to ensure equitable distribution of health care costs among different income groups; to maintain high standards of health care delivery services within the scheme; to ensure efficiency in health care services; to ensure the availability of funds to the health sector for improved service, etc. Some of the problems confronting the scheme are poor health care facilities, low quality infrastructure and violence/natural disaster.

## The crisis and social protection

Debates about the impact of the ongoing global financial crisis on developing countries have been the dominant themes of discussion among policymakers around the world. Within this context, many stakeholders in the Nigerian economy are deeply concerned about the social and economic implications of the instability of financial markets around the globe for the country. This concern is rooted in the developments in the Nigerian economy in the past three decades. A review of Nigeria's economic development between 2000 and now reveals that overall macroeconomic policies and development strategies have failed to provide an enabling environment that could alter the structure of production and consumption activities in order to diversify the economic base. The country has continued to be a mono-cultural economy, depending on oil, indicating that the export base is yet to be diversified. A widening savings–investment gap, high rates of inflation, chronic balance of payments problems, low government spending on the social services sector, massive unemployment and underutilisation of resources have continued to be the order of the day. In spite of the several decades of economic reforms and adjustment in Nigeria, all relevant indices of human development are embarrassingly low. For instance, the human development index, which is a composite measure of three dimensions of human development – living a long and healthy life (measured by life expectancy), being educated (measured by adult literacy and enrolment at the primary, secondary and tertiary level) and having a decent standard of living (measured by purchasing power parity income) – has not shown any remarkable improvement since 1970 (see Table A1.1). The human development index for Nigeria in 2006 stood at 0.499, which gave the country a ranking of 154 out of 177 countries.

**Table A1.1: Trends in the human development index, 1975-2006**

|       | 1975  | 1980  | 1985  | 1990  | 1995  | 2000  | 2005  | 2006  |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Value | 0.321 | 0.378 | 0.391 | 0.411 | 0.432 | 0.445 | 0.470 | 0.499 |

Source: UNDP (2008).

## Impact of global financial crisis on budgetary allocations

A detailed examination of the federal government budget between 2005 and 2007 shows a gradual increase thanks to the crude oil earnings over the period. Such increases are maintained between 2008 and 2009. However, a decline in crude oil production from 2.5 million barrels a day in 2007 to 2.45 and 2.21 in 2008 and 2009, respectively, was observed because of the Niger Delta crisis. While this was on, the global financial crisis was ravaging the entire world. This led to a fall in demand for oil and hence the oil price crashed. This is threatening the implementation of the 2009 budget. Presently, the proposed 2009 budget has over N1.09 trillion deficits.

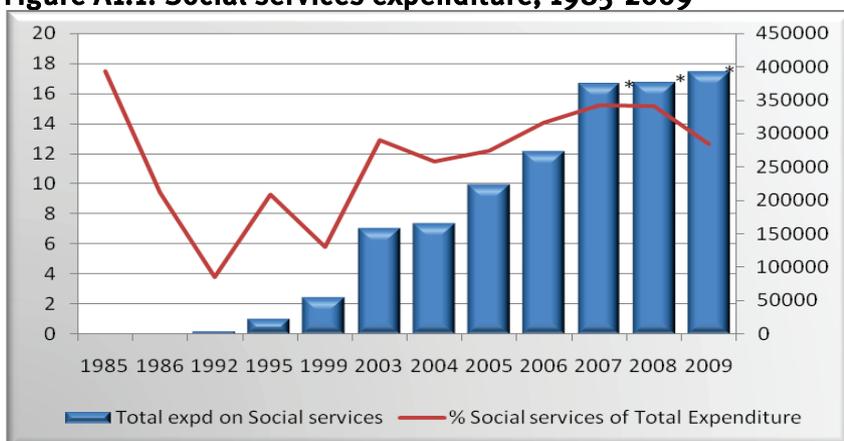
## Impact on the social sector

Considering the fact that the percentage of the annual federal government budget devoted to social and community services, including education and health, has been consistently low over time, in the

wake of the recent global financial crisis salient questions are being raised: what are the budgetary and social protection policy implications of the global financial crisis? What are the implications of the crisis on development policy in a developing country like Nigeria? This report provides answers to these questions by reviewing the current status of public expenditure on social and community services in order to ascertain whether there are any planned changes in response to the crisis. Within the Nigerian context, social and community services include education, health, housing, environment and other social services that can enhance human development.

Figure A1.1 depicts federal government expenditure on social and community services between 1985 and 2009. It can be inferred that federal government expenditure on social and community services as a proportion of total federal government expenditure shows a fluctuating trend. It stood at 17.5% in 1985 and dropped to 9.4% at the onset of structural adjustment, but later reduced to 3.8% at the end of structural adjustment in 1992. It stood at 5.8% in 1999 and has been on the increase since 2004. We expect a decline in the share of social services expenditure to total expenditure between 2008 and 2009.

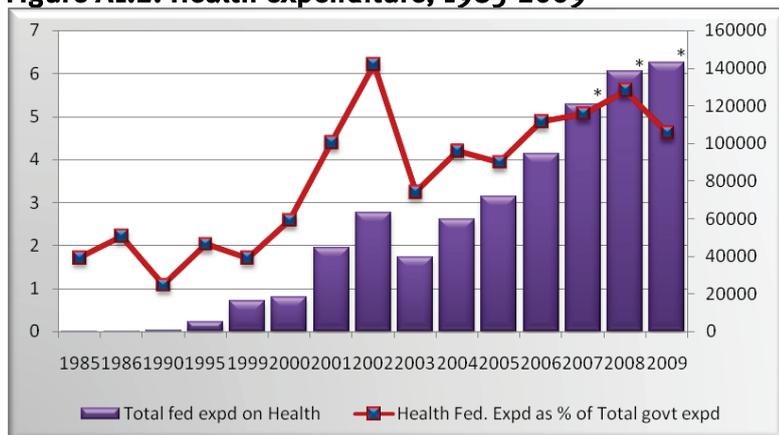
**Figure A1.1: Social services expenditure, 1985-2009**



*Note:* \* Represents estimated values.  
*Source:* CBN (2006).

The figures below present total federal expenditure on education and health. Figure 2 shows that the trend of the share of education expenditure between 1985 and 1999 (military regime) was on the decline. There was an increase between 1999 and 2004, and this continued until 2008 when it declined. If the crash in the oil price continues, we would expect a further cut back in the share of education. In a similar vein, the share of the health sector in total expenditure between 1985 and 1999 was insignificant. Specifically, it was 1.09% in 1990. This share increased from 1999 until 2002, when it dropped. The rise picked up again, but only gradually until 2008. Just as in education, the share of health in total expenditure in 2009 dropped from 6% to 4.6% (see Figure 2).

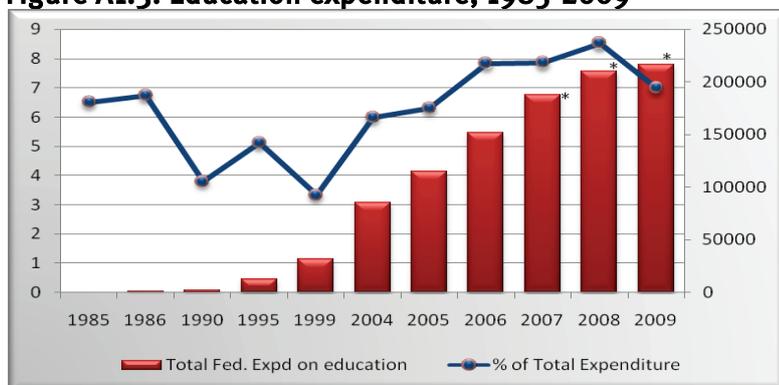
**Figure A1.2: Health expenditure, 1985-2009**



Note: \* Represents estimated values.

Source: CBN (2006).

**Figure A1.3: Education expenditure, 1985-2009**



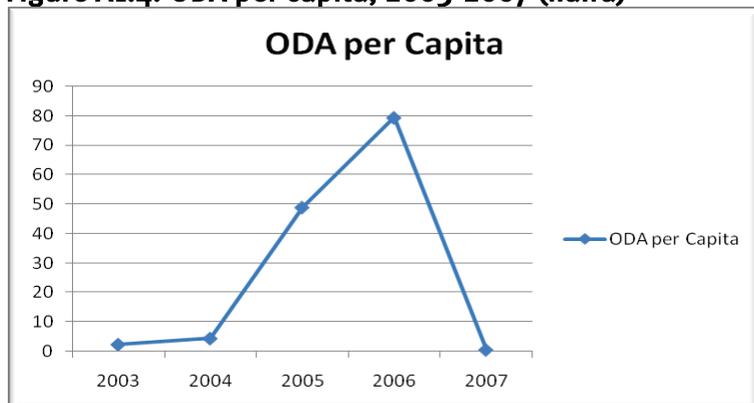
Note: \* Represents estimated values.

Source: CBN (2006).

## Public spending on social services

A detailed examination of Figure A1.4 below shows that, in the early years after Independence, ODA per capital levels were low, averaging US\$0.65 between 1960 and 1963. These rose more or less steadily to \$2 in 1970. Thereafter, aid per capita fell steadily, reaching a low of \$0.388 in 1979, then rising again, reaching a peak of \$3.7 in 1989. Thereafter, it fell to a low of \$1.2 in 1999. Aid per capita began to rise in the new millennium and amounted to \$2.33 in 2003. Nigeria has received foreign aid from a wide array of agencies and countries.

**Figure A1.4: ODA per capita, 2003-2007 (naira)**



Sources: CBN (2006); WDI Omnibus CD-ROM 2007 edition.

## Overview of government policies

The impact of the global financial crisis on vulnerable groups, including women and children, cannot be overemphasised. Government is continuing to appropriate N110 billion, the savings from Paris Club debt relief, for specific projects and programmes to support that attainment of the MDGs. In addition, the statutory allocation of Universal Basic Education increased from N30.48 billion in 2006 to N35.3 billion in 2007. This further increased to N39.7 billion in 2008. This implies that an important element of social welfare, school feeding programmes and free education, will continue even in the midst of the global financial crisis. It is our belief that, before the completion of this project, facts about the exact impact of the crisis on social protection issues in Nigeria, particularly in the areas of vulnerable groups, unemployment, education, health and other social welfare issues, will have emerged for a clearer picture.

### Policy thrust

The main goal of social protection in Nigeria should be to reduce poverty and protect vulnerable groups through an effective and sustainable prevention mechanism thereby achieving sustainable social protection.

### Specific objectives

Assist the population who are poor to get out of poverty, especially when they are not able to carry out economic activities and also when economic activities that they engage in are not enough to provide their families with minimum subsistence:

- Protect the vulnerable against poverty when their economic activity is not enough to provide their families with minimum subsistence;
- Provide income support to the poorest;
- Increase pre-primary enrolment;
- Keep children in school;
- Promote regular attendance among poor students;
- Develop workplace skills and competencies;
- Address short-term employment needs;
- Provide income during illness, disability or retirement;
- Reduce damage to property.

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## Annex 2: Oil price shock impacts in Nigeria

**Table A2.1: Macro and sectoral impacts of oil price shock resulting from the global crisis under the 12.2%, 51.2%, 63.4% and 69.5% oil price decrease scenarios**

| Summary of parameter results in % deviation from base period values |                   |                       |                       |                       |                       | Marginal reductions                |                                    |                                    |                                    |
|---|-------------------|-----------------------|-----------------------|-----------------------|-----------------------|------------------------------------|------------------------------------|------------------------------------|------------------------------------|
|   | Sim 1             | Sim 2                 | Sim 3                 | Sim 4                 | Sim 5                 | Sim 2                              | Sim 3                              | Sim 4                              | Sim 5                              |
|   | Jan 2008-Jul 2008 | Aug 2008-Dec 2008     | Jan 2009-Jun 2009     | July 2009-Dec 2009    | 2010                  | Aug 2008-Dec 2008                  | Jan 2009-Jun 2009                  | Jul 2009-Dec 2009                  | 2010                               |
| Macro and sectoral items  | Base period value | 12.2% over base value | 51.2% over base value | 63.4% over base value | 69.5% over base value | 12.2% over Jan 2008-Jul 2008 value | 44.4% over Aug 2008-Dec 2008 value | 25.0% over Jan 2009-Jun 2009 value | 16.7% over Jul 2009-Dec 2009 value |
| <b>General price level</b>  |                   |                       |                       |                       |                       |                                    |                                    |                                    |                                    |
| Consumer price for domestic commodity                               | 1.31              | 3.4                   | 14.8                  | 18.6                  | 20.6                  | 3.4                                | 11.4                               | 3.8                                | 0.2                                |
| Composite price of output by activity                               | 1.33              | 3.6                   | 15.9                  | 2.0                   | 22.1                  | 3.6                                | 12..3                              | 4.1                                | 2.1                                |
| <b>Trade</b>  |                   |                       |                       |                       |                       |                                    |                                    |                                    |                                    |
| Output exports  | 7.125             | 0.91                  | 4.1                   | 5.2                   | 5.78                  | 0.91                               | 3.19                               | 1.1                                | 0.58                               |
| Price of exports  | 13.9              | -4.4                  | -19.0                 | -23.8                 | -26.3                 | -4.4                               | -4.6                               | -4.8                               | -2.5                               |
| Imports   | 35.307            | -3.097                | -12.574               | -15.38                | -16.75                | -3.097                             | -9.477                             | -2.806                             | -1.37                              |
| Price of imports  | 6.95              | 2.2                   | 11.1                  | 14.8                  | 16.9                  | 2.2                                | 8.9                                | 3.7                                | 2.1                                |
| <b>Growth</b>   |                   |                       |                       |                       |                       |                                    |                                    |                                    |                                    |
| Domestic output (GDP)   | 18.237            | -0.96                 | -4.3                  | -5.43                 | -6.02                 | -0.96                              | -3.34                              | -1.13                              | -0.59                              |
| Savings/inv. expenditure  | 12.762            | -0.824                | -3.556                | -4.449                | -4.905                | -0.824                             | -2.732                             | -0.893                             | -0.456                             |
| Exchange rate   | 0.695             | 6.2                   | 13.1                  | 16.8                  | 18.9                  | 6.2                                | 8.9                                | 3.7                                | 2.1                                |
| Inv. consumption vol.   | 12.678            | 0.818                 | 3.532                 | 4.42                  | 4.872                 | 0.818                              | 2.714                              | 0.888                              | 0.452                              |
| <b>Household welfare</b>  |                   |                       |                       |                       |                       |                                    |                                    |                                    |                                    |
| Household income  | 38.025            | -0.931                | -4.046                | -5.074                | -5.599                | -0.931                             | -3.115                             | -1.028                             | -0.525                             |
| Household consumption   | 27.59             | -0.676                | -2.936                | -3.682                | -4.063                | -0.676                             | -2.26                              | -0.746                             | -0.381                             |
| <b>Government revenue</b>   |                   |                       |                       |                       |                       |                                    |                                    |                                    |                                    |
| Govt. income  | 5.338             | -2.09                 | -8.59                 | -10.54                | -11.49                | -2.09                              | -6.5                               | -19.5                              | -9.5                               |
| Govt. acc bal   | 6.762             | -0.585                | -2.48                 | -3.08                 | -3.38                 | -0.585                             | -1.895                             | -0.60                              | -0.30                              |

Source: Computed using CGE model

## Annex 3: Simulation exercise using CGE model

### Description of the CGE model

In this study, the CGE model is developed and simulated with respect to various oil price scenarios. The model is rigorously macro- and micro-founded in the sense that agents are fully optimising and form their expectations in a rational manner. The CGE modelling approach belongs to the class of new open-economy macroeconomic models, which have become the main tool used in modern international and developmental macroeconomics and increasingly sought by international organisations around the world for determining policy options and their effects. It is a state of the art model that uses cutting-edge techniques to address positive and normative issues, including those related to the effects of financial shocks and oil price shocks (Hérault, 2005; McDonald and van Schoor, 2005). The model is flexible enough that it can capture the complex realities of the Nigerian economy.

In order to apply the framework to the Nigerian economy, the model was modified to fit the real data and to handle the policy issues. The model is calibrated using data for 2006, existing social accounting matrices (SAMs). The SAMs have the following accounts: commodity accounts, activity accounts, household accounts, value-added accounts (sale tax and export duty accounts), government accounts, capital (savings–investments) accounts and rest of the world accounts. The Nigerian SAM was updated to 2006 base values to suit our current analysis. In updating the macro SAM data, the SAM was weighted by GDP share and its average annual growth rate from 1994-2006. Each entry was normalised to shares of GDP at market prices. The constant elasticity of substitution (CES) and the constant elasticity of transformation (CET) values used in the calibration of the model were derived from the literature (Devarajan et al, 1999; IFS, 2005; WDI, 2005).

Thus, for a given set of macroeconomic policies, the model generates a set of wages, sector-specific profits and relative prices that are mutually consistent. The link with poverty analysis is made in this study when the model's projected oil shock impact is considered on consumer price index, household income and household consumption volume. The study calculates the impact on household income and household consumption volume to capture the welfare impact of a shock on poverty. The model analyses the impact of declining oil shock by assessing, mainly, the macroeconomic and poverty effects, on the Nigerian economy; poverty effect is captured by the impact of oil shock on household income and household expenditure.

The exogenous variables specify the external or policy shocks in the experiments (e.g. export and import prices are exogenous, making the domestic (market clearing) price result from policy choices and consumer preferences). The trade elasticities are generally defined at the outset of an experiment and the parameters such as the share and scale values of the CES and CET functions are calibrated just once for both the base case and the current simulations. The base year period in our model is January 2008 to July 2008, while the current simulations are the negative effects of oil shock from August 2008 to 2010. The CET of oil export is used to establish a common external shock effect within the Nigerian economy.

Thus, whether macroeconomic variables decrease or increase in response to an oil price shock depends on the CET. We analyze the impact of a 12.2%, 51.2%, 63.4% and 69.5% export oil price shock (reflecting cumulative oil price shocks for the period of global financial crises transmitted to world oil prices) on macroeconomic variables of Nigerian economy base on the trade elasticities, which fall within the range  $0 < \sigma < 1$  for the world price of imports of oil ( $p_{wm}$ ) and  $0 < \Omega < 2$  for the world price of exports ( $p_{we}$ ). The direction of change of the oil price shock determines how the rest of the economy will adjust in our counterfactual experiments. If, for example, oil price exports decline, we expect negative impacts on the Nigerian economy and the analysis is predicated on a flexible exchange rate regime.

## Model specification

This study ascertains the negative impacts of oil price shock caused by the global financial crises, on some macro and sectoral variables and national poverty levels, by evaluating the overall impact of the shock on the national household income and household consumption volume. The analysis and specifications of the shock scenarios in this model are done with a standard model structure derived from Dervis (1984) and Devarajan et al. (1990; 1994). It is general an equilibrium model in which the tradable sector is divided into importables and exportables. The following sub-sections contain definitions of variables and parameters of the model.

## Definition of variables and parameters of the model

### Endogenous variables

GAB = Government account balance  
CD = Household consumption volume  
DD = Domestic demand for commodity  
E = Domestic output exported by activity plus oil  
ER = Exchange rate (domestic per world unit)  
GDP = Domestic output supplied to domestic market by activity  
INVD = Investment consumption volume  
INVE = Investment expenditure  
M = Imports of commodity  
PDD = Consumer price for domestic supply of commodity  
PDS = Producer price for domestic output of activity  
PE = Domestic price of exports by activity  
PM = Domestic price of competitive imports of commodity  
PQ = Consumer price of composite commodity  
PX = Composite price of output by activity  
Q = Supply of composite commodity  
TSAV = Total savings  
YG = Income to government  
YH = Income to household  
WAL = Slack variable for Walras's Law  
EXSUB = Export subsidy expenditure  
HTAX = Household direct tax revenue

### Exogenous variables

CAB = Current account balance  
CAPHOSH = Household savings rate  
GD = Government consumption volume  
govwo = Transfers from ROW to government  
howo = Transfers from ROW to households  
 $pwe$  = World price of exports of oil shock Rate  
 $Pweo$  = World price of exports of oil  
 $pwm$  = World price of imports of oil shock  
 $pwm_o$  = World price of imports of oil  
STAX = Sales tax revenue  
TE = Export subsidy rate  
TM = Import tariff rate  
TS = Sales tax rate  
TY = Household income tax rate

## Parameters

$\gamma$  = Share parameter for Armington CET function  
 $\delta$  = Share parameter for Armington CES function  
 $ac$  = Shift parameter for Armington CES function  
 $at$  = Shift parameter for Armington CET function  
CABo = Current account balance  
CAPHOSHo = Household savings rate  
CDo = Household consumption volume  
DDo = Domestic demand for commodity  
Eo = Domestic output exported by activity plus oil export  
ERo = Exchange rate (domestic per world unit)  
EXSUBo = Export subsidy expenditure  
GABo = Government account balance  
GDo = Government consumption volume  
govwor = Transfers from ROW to government  
GPDo = Domestic output supplied to domestic market by activity  
howor = Transfers from ROW to households  
HTAXo = Household direct tax revenue  
INVDo = Investment consumption volume  
INVEo = Investment expenditure  
Mo = Imports of commodity  
PDDo = Consumer price for domestic supply of commodity  
PDSo = Producer price for domestic output of activity  
PEo = Domestic price of exports by activity  
PMo = Domestic price of competitive imports of commodity  
PQo = Consumer price of composite commodity  
Predelta = dummy used to estimated delta  
pwe = World price of exports of Oil Shock Rate  
Pweo = World price of exports of oil  
pwm = World price of imports of Oil Shock Rate  
pwmo = World price of imports of oil  
PXo = Composite price of output by activity  
Qo = Supply of composite commodity  
rhoc = Elasticity parameter for Armington CES function  
rhot = Elasticity parameter for Output Armington CET function  
STAXo = Sales tax revenue  
TARo = Tariff revenue  
TEo = Export subsidy rate  
TMo = Import tariff rate  
TSo = Sales tax rate  
TSAVo = Total savings  
TYo = Household income tax rate  
WALo = Slack variable for Walras's Law  
YGo = Government income  
YHo = Income to household

## Specification of equations of the model

A non-linear programming (NLP) model of five blocks of simultaneous equations is specified as follows.

### Price block

PMDEF:  $PM = E = pwm \cdot (1+TM) \cdot ER$  (2.1)

PEDEF:  $PE = E = pwe \cdot (1+TE) \cdot ER$  (2.2)  
PDSDEF:  $PDS = E = PDD$  (2.3)  
PQDEF:  $PQ \cdot (1-TS) \cdot Q = E = (PDD \cdot DD) + (PM \cdot M)$  (2.4)  
PXDEF:  $PX \cdot X = E = (PDS \cdot GDP) + (PE \cdot E)$  (2.5)

### Supply block

CET:  $X = E = at \cdot (\gamma \cdot E \cdot \rho + (1-\gamma) \cdot XD \cdot \rho) \cdot (1/\rho)$  (2.6)  
ESUPPLY:  $E = E = XD \cdot ((PE/PDS) \cdot ((1-\gamma)/\gamma)) \cdot (1/(\rho-1))$  (2.7)  
ARMINGTON:  $Q = E = ac \cdot (\delta \cdot M \cdot (-\rho) + (1-\delta) \cdot DD \cdot (-\rho)) \cdot (1/\rho)$  (2.8)  
COSTMIN;  $M = E = DD \cdot ((PDD/PM) \cdot (\delta/(1-\delta))) \cdot (1/(1+\rho))$  (2.9)  
(where  $\rho = \rho$ ,  $\gamma = \gamma$ ,  $\delta = \delta$ )

### Income block

YHEQ:  $YH = E = (PX \cdot X) + \text{hogovconst} + (\text{howor} \cdot ER)$  (2.10)  
YGEQ:  $YG = E = \text{TAR} + \text{STAX} + \text{HTAX} + (\text{govwor} \cdot ER)$  (2.11)  
TSAVEQ:  $\text{TSAV} = E = (\text{CAPHOSH} \cdot (YH \cdot (1-TY))) + (\text{CAB} \cdot ER) + \text{GAB}$  (2.12)

### Expenditure block

CDEQ:  $CD \cdot PQ = E = (YH \cdot (1-TY)) \cdot (1-\text{CAPHOSH})$  (2.13)  
INVEQ:  $\text{INVE} = E = (PQ \cdot \text{INVD})$  (2.14)  
TAREQ:  $\text{TARIFF} = E = (TM \cdot \text{pwm} \cdot ER \cdot M)$  (2.15)  
STAXEQ:  $\text{STAX} = E = (TS \cdot PQ \cdot (CD+GD+\text{INVD}))$  (2.16)  
HTAXEQ:  $\text{HTAX} = E = (TY \cdot YH)$  (2.17)  
EXSUBEQ:  $\text{EXSUB} = E = (TE \cdot \text{pwe} \cdot ER \cdot E)$  (2.18)

### Market clearing block

QEQUIL:  $Q = E = CD + GD + \text{INVD}$  (2.19)  
DOMEQUIL:  $DD = E = \text{GDP}$  (2.20)  
CABEQ:  $\text{CAB} = E = \text{pwm} \cdot M - \text{pwe} \cdot E - \text{howor} - \text{govwor}$  (2.21)  
GABEQ:  $\text{GAB} = E = YG - (PQ \cdot \text{GD}) - \text{hogovconst} - \text{EXSUB}$  (2.22)  
WALEQ:  $\text{TOTSAV} = E = \text{INVE} + \text{WAL}$  (2.23)  
where;

### Price block

PMDEF = Domestic price of competitive imports of commodity  
PEDEF = Domestic price of exports by activity  
PDSDEF = Producer price for domestic output by activity  
PQDEF = Consumer price of composite commodity  
PXDEF = Composite price of output by activity

### Supply Block

CET = Constant elasticity transformation function for domestic production  
ESUPPLY = Export supply function (FOC)  
ARMINGTON (CES) = Composite commodity aggregation function  
COSTMIN = Cost minimisation for composite commodity (FOC)

### Income block

YHEQ = Household income  
YGEQ = Government income  
TSAVEQ = Total savings

## Expenditure block

CDEQ = Household commodity consumption

INVEQ = Investment expenditure

TAREQ = Tariff revenue

STAXEQ = Sales tax revenue

HTAXEQ = Household direct tax revenue

EXSUBEQ = Export subsidy expenditure

## Market clearing block

QEQUIL = Commodity market equilibrium

DOMEQUIL = Domestic supply and demand equilibrium

CABEQ = Current account balance (foreign trade equilibrium)

GABEQ = Government account balance (internal balance)

WALEQ = Capital account balance

## Oil price parameter

$pwe = PEO / ((1 + TEO) \cdot ERO)$ ; (2.24)

$pwm = PMO / ((1 + TMO) \cdot ERO)$ ; (2.25)

where  $TEO$  is an oil export shock parameter

## Elasticity-related parameters

CES: Trade substitution elasticity:  $\rho c = \left( \frac{1}{\sigma} \right) - 1$  (2.26)

CET: Export transformation elasticity:  $\rho t = \left( \frac{1}{\Omega} \right) + 1$  (2.27)

Where  $\sigma$  =sigma and  $\Omega$  =omega

Thus, our model has 27 equations, with 16 being endogenous variables. Equations 2.1-2.6 capture the impact of oil price shock on the prices, while equations 2.10-2.12 define household income, government income and total savings, respectively. Equation 2.12 captures the exogenous oil shock. Note that all income is spent on the single composite good. Equations 2.13 and 2.18 determine expenditure of the model, including household and investment expenditure, while equation 2.22 explains the impact of oil price shock on government account balance (internal balance). Equations 2.24-2.27 define the exogenous equation of the world price of export and import of oil and their elasticity-related parameters.

## Simulations and results

### Introduction

A terms of trade shock arising from the global financial via through oil price decreases, for example, can alter the existing macroeconomic equilibrium in the economy. The process by which the impacts are transmitted to the relative prices, macro variables and the effect on the welfare of the households are certain in an economy.

The main determinants of oil shock effects are the values of oil export and export elasticities of countries, the share of imports and exports, the cost of inputs and the general equilibrium effects of supply and demand. The elimination of domestic distortions caused by the shocks leads to more efficient factor reallocation between sectors to the benefit of the initially less protected sectors. In this study, we emphasise the effects associated with oil price shocks in terms of an exogenous change in the world price of imports of oil.

### **Definition of policy simulation experiments**

This study carried out five experiments of oil shock scenarios, including the base experiment, on the Nigerian economy. The 'base' in the set serves as comparator. These experiments change the scaling factors on the oil price shocks. Hence, relative price shocks remain constant. These experiments assign values to the world price of exports of oil. One assignment value is needed for each member of the simulation experiments

Set simulations for policy experiments (oil price shocks scenarios) are as follows.

Simulation 1 is the base experiment of the average world price of exports of oil from January 2008 to July 2008, which has an average value of US\$82. The base period value has an index of 1.00.

Simulation 2 is the average decrease in the world price of exports of oil from August 2008 to December 2008 in relating to the base period value. The decrease averaged 12.2% and hence the oil price index is 0.88, that is, 12.2% below the average base period value of world price of exports of oil from January to July 2008.

Simulation 3 is the average decrease in the world price of export of oil in 2009 in relating to base year period. The decrease averaged 51.2% and hence the oil price index is 0.49, that is, 51.2% below the average base value of world price of export of oil from January 2008 to July 2008.

Simulation 4 is an assumed decrease in the world price of export of oil for June 2009 to December 2009. The decrease averaged 63.4% and hence the oil price index is 0.37, that is, 63.4% below the average base value of world price of export of oil from January 2008 to July 2008.

Simulation 5 is also an assumed decrease in the world price of export of oil for 2010. It is assumed that the average price decrease relative to the base year period is 69.5%. Hence, the oil price index is 0.31, that is, 69.5% below the average base value of world price of exports of oil January 2008 to July 2008.

### **Analysis of simulation results**

This section discusses the findings on the impact of decreasing world price of oil on the main macroeconomic variables in Nigeria. The variables of interest are general price level, domestic output, government account balance, government income, exchange rate, household consumption, household income, savings/investment expenditure, investment consumption volume, import and export prices, import and export of commodities. The simulations are performed under a flexible exchange rate regime. Five oil shock simulations are considered under our scenarios. These scenarios are the average decrease in the world price of exports of oil for the period July 2008 to 2010. Thus, the second, third, fourth and fifth simulation experiments add a terms of trade shock (deviates from the base run, January 2008 to June 2008). These deviations are static impacts from July 2008-2010.

The results of the simulations indicate the variables that contract and those that expand under different scenarios and the net effect on the overall economy. In each simulation, we focus on the variation of the endogenous variables in relation to the base year period values. On poverty assessment, household consumption expenditure and income are used to capture the welfare and poverty impact of a decreasing oil price on the Nigerian economy. On the macroeconomic and poverty impact of a negative oil shock on the Nigerian economy, we impose one component of export price of oil. The exogenous world price of export is reduced by 12.2%, 51.2%, 63.4% and 69.5% across the board. These experiments capture the essence of the events that occurred from 2008-2010. The simulation results came out as expected. An unexpected decline (shock) of oil export price led to a decline in savings–investment expenditure, a decline in domestic output (GDP), measured at current market price (for a sufficiently large shock in August 2008 to December 2008). With an increase in the general price level, increase in import prices and decrease in export prices with the depreciation of the

naira and a rising exchange rate and a deterioration of the government account balance and government income and a fall in household welfare.

The results of the policy simulations for all the macroeconomic indicators and household welfare are summarised in Annex 2. The tables show the magnitudes of changes in the major components of the Nigerian economy, with the assumption of a flexible exchange rate.

### **Base scenario**

Our starting point is a static base simulation which provides a benchmark against which the other scenarios are compared. Base parameter values are simulated from the SAM. The base growth path therefore includes the projected effect of all the relevant variables of the impact of oil shock on the Nigerian economy. The base year period parameter share is maintained throughout the simulation period for the variables given the shock disturbance. The macro aggregates, including real household consumption and income, have parameter share values between -16.75% and 4.87% (Annex 2 provides the result summaries). The base scenarios for commodity prices (including the world price of export of oil (pwe)) are normalised, at values of one.

### **Macro and sectoral impacts of oil price shock**

#### *Impact on general prices level*

The simulated results of the impact of oil shock on **commodity prices** are reported in Annex 2. The table shows the impact of oil shock on consumer price indices (relative to the model numéraire). With the oil shock simulation scenarios under 12.2%, 51.2%, 63.4% and 69.5%, the consumer prices for domestic supply of commodities in Nigeria increased by 3.4%, 14.8%, 18.6% and 20.6% on a cumulative basis for the period, August-December 2008, January-June 2009, July-December 2009 and 2010, respectively. The impact of oil price shocks ranges from 3.6% to 22.1% under the same scenarios and over the same period 2008-2010 for the composite price of output by activity. This increases producers' price.

In relative terms, with the decrease in oil prices, the poor households are likely to be more adversely affected as they spend a larger proportion of their income compared with the wealthiest households, although the latter spend more in absolute terms on energy than poor households. The largest impact tends to be borne by the poorest households because the poorest households lack wage indexation during inflations.

#### *Impact on growth*

Regarding the impacts on growth, the results of the experiments show that a negative oil price shock has negative impacts both in the short and medium term on growth items. Annex 2 presents the summary of the results on GDP, savings/investment, exchange rate and investment consumption volume (the percent deviations from the base run parameters and their marginal changes over the period of investigation) for the Nigerian economy.

An examination of Annex 2 indicates that the simulated average level of the parameter results for **GDP** differ significantly from the average base run level. With the shock simulation scenarios under 12.2%, 51.2%, 63.4% and 69.5%, GDP deteriorated cumulatively by 0.96%, 4.3%, 5.43% and 6.02%, respectively, on average for the period August-December 2008, January-June 2009, July-December 2009 and 2010, respectively. Specifically, the 51.2% negative oil shock between January 2009 and June 2009 will lead to a 4.3% fall in the average of Nigerian GDP. However, the impacts will tend to increase in the period except otherwise, such that the marginal reductions in the Nigerian GDP are 3.34%, 1.13% and 0.59% from January-June 2009, July-December 2009 and 2010, respectively.

On impact on **investment expenditure**, the results in Annex 2 show that between 2008 and 2010 the simulated levels of investment with the oil price decreases were invariably lower than the base values.

From the table, it can be seen that the average level of investment expenditure in Nigeria fell by 0.82% in August-December 2008, 3.56% in January-June 2009 and would fall by 4.45% and 4.91% in July-December 2009 under the 12.2%, 51.2% and 63.4% adverse negative oil price shock scenarios, respectively. For the period 2010, a 69.5% decrease in oil prices in relation to the base year would reduce Nigeria investment expenditure by 4.91%. The results further show that on average Nigerian investment reduced by 2.94% over the period August 2008 to June 2009.

A look at the results also revealed that the impact of the global financial crisis via the adverse negative oil shock raises the **exchange rate** (domestic per world unit) value and the **investment consumption** volume in Nigeria. Specifically, the 51.2% negative oil shock between January 2009 and June 2009 will lead to an average of 13.1% and 3.53% increases in exchange rate and the investment consumption volume in Nigeria.

#### *Impact on government revenue*

Annex 2 has the simulation results with respect to the impact of the negative oil price shocks on the **government account balance** and government income. With the oil shock simulation scenarios under the 12.2%, 51.2% and 63.4% scenarios, the government account balance deteriorated by 0.59% and 2.48% for the period August-December 2008 and January-June 2009, respectively. For the period July-December 2009 to 2010, government account balance would likely to reduce by 3.08% and 3.38%, respectively, if the oil price continued to deteriorate.

Annex 2 also shows the simulation results of the impact of oil price shock on **government income** of Nigeria. The results show that adverse oil shocks have affected government income. The Nigerian government relies mainly on revenue from oil exports to run its economy. From the results, government income fell by 2.09% and 8.59% for the period August-December 2008 and January-June 2009, respectively. For the period, July-December 2009 to 2010, government account balance is likely to reduce by 10.54% and 11.49%, respectively, if the global financial crisis is persistent.

#### *Impact on volume of trade*

The overall effect on trade is largely driven by **imports**. Imports were at a high level in the baseline scenario given in the SAM. On import expectation, the results are consistent with *a priori* expectations. Under the flexible exchange rate regime/fixed current account balance, the impact of oil shock on imports is transmitted through changed prices of imported intermediates and finished goods. Essentially, over the period August 2008 to 2010, the overall decrease in oil prices and its impact on all the sectors results in decreased imports. The results in Annex 2 show a sharp and steady decline of import of commodities and increasing import prices over the period under consideration (see Annex 2 for import prices). The simulations show that from August-December 2008 the average level of commodity imports to Nigeria fell by 3.09%, 12.57% in January-June 2009, respectively, under the 12.2% and 51.2% scenarios. For the period 2010, a further cumulative 69.5% decrease in oil prices would reduce Nigerian import volume by 16.75%.

On the impact on **export**, the results show that the adverse impacts of an oil price shock impacted positively on commodity exports with an increasing exchange rate. Considering the impact in cumulative terms, in August-December 2008 and January-June 2009 the adverse oil price shocks, on average, increased domestic output exported by activity by 0.91% and 4.1%, respectively, but with continuous declining export prices (see Annex 2 for export prices) resulting from naira depreciation.

#### **Household welfare and poverty impacts of oil price shock**

On the impact of oil price shock on poverty, household income and consumption volume (expenditure) are used in this study to assess the impact of the global financial crisis transmitted through decrease in oil price. Figures A3.1 and A3.2 below present the results of the simulations on household welfare. The results show that the oil shocks have led to a significant increase in poverty.

## **Impact on household income and consumption volume**

Starting with **household income**, Annex 2 shows the simulation results of the impact of oil price shock on household income in Nigeria. The results show that adverse oil shocks have severe distributional consequences on the Nigerian economy. Household income is made up of wages, profits, transfers and other income. The last income source is exogenous. The single household saves a fixed fraction of its income, as factor remuneration represents the main source of income for households. The results show an overall decrease in household income in Nigeria. For example, in 2008, a 12.2% adverse oil shock affects the income of Nigeria households by 0.93% on average. Generally, relative to the reference (base) run, household incomes on average (Nigeria) would fall by 5.07% in July-December 2009 under the cumulative 63.5% oil shock scenarios. It would decrease by 5.60% in 2010 if the oil shock is represented by a 69.5% increase over the base period.

Regarding the impacts on **household consumption**, Annex 2 presents the simulation results. The table shows percentage deviations from the base simulation values. On the aggregate, the results show that a decrease oil price shock has negative impacts in both the short and medium term on household purchasing power.

Nigeria is a net oil exporter country. The results indicate that consumption volumes after an adverse oil shock are lower than those on the base growth path. With the oil shock simulation scenarios under the 12.2%, 51.2%, 63.4% and 69.5%, average household consumption volume is seen to deteriorate cumulatively by 0.68%, 2.94%, 3.68% and 4.06%, respectively, over the period under review (August 2008-2010).

In January-June 2009, for example, the 51.2% decrease in oil price reflected a reduction in the average real private consumption per capita of consumers by 2.94% on average. In welfare terms, the poorest households would lose more than 2.94%, because real income would be lower. This implies that household final consumption volume as a percentage of GDP would reduce by at least the same proportion. The deterioration in the household consumption will be 4.06% in 2010 if the oil price declines to US\$30 and \$25 per barrel.

What emerges from the above results is that the oil price shocks have tended to reduce/worsen household consumption or welfare and hence poverty would increase in both rural and urban areas, among the lowest income earners, by the same percentage. At the national level, the reduction in consumption volume of households would increase the number of people living below the poverty line or on the poverty line by the same proportion as the reduction in consumption volume. As the proportion of the poor increases, many poor people who were below the poverty line would further fall below the poverty line. Thus, the largest loss would accrue to the households with the lowest expenditure function and not the wealthiest households.

Figures A3.1 and A3.2 present macro and sectoral items for the Nigerian economy. The vertical axis plots the percentage deviation from the base period value while the horizontal axis plots the year.

## **Findings and conclusion**

Using the CGE methodology, this study has examined the impact of persistent global financial crisis. The impact of the global financial crisis is transmitted through decreased prices of oil exports to the Nigerian economy. Thus, in line with suggestions from economic theory, oil price shocks, in the form of decreased prices, have tended to affect all net energy exporters adversely, some very significantly, depending on their oil intensity, oil export dependence and energy/oil efficiency, among others. The findings from this study tend to confirm *a priori* expectations on the impact of negative oil price shocks on macroeconomic variables and poverty/household welfare in the Nigeria. Oil price shocks have had a stagflationary effect on the Nigerian economy; they slow down the rates of economic growth and increase the domestic price level. Also, they have reduced the level of domestic investment and

worsened the government account and income position. Besides, the shocks have increased the level of poverty and worsened household welfare over the period August 2008 to January 2009 and are expected to worsen them in 2010. In January-June 2009, for example, the 51.2% decrease in oil prices caused Nigerian GDP to fall by 4.3%, the domestic consumer price indices to rise by 14.8%, investment to decrease by 3.6%, current household income to fall by 4.0% and household consumption to fall by 2.9%, all in relation to the January-July 2008 base period value. There have been observations that the Nigerian economy is very vulnerable to oil price shocks.

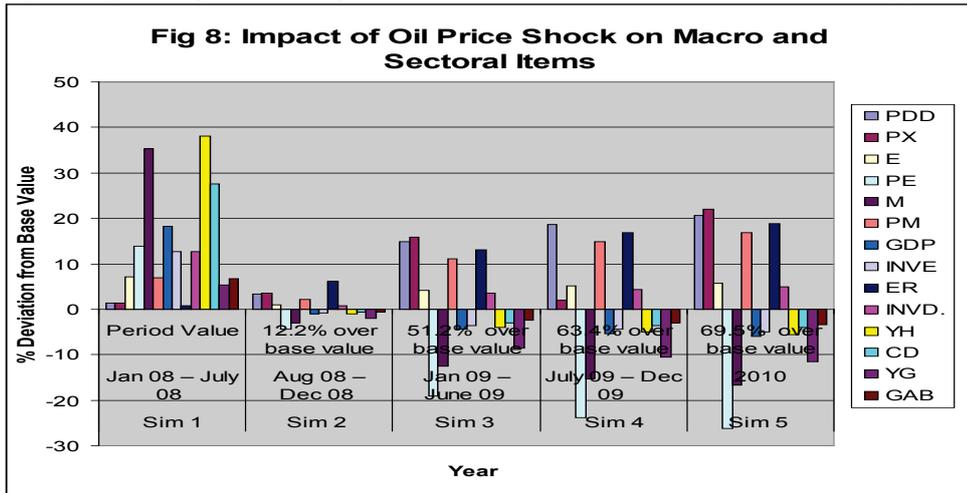
The impact of oil price shocks is felt to be more severe in Nigeria than in other countries in the region because of its almost total reliance on oil revenue to run its economy. The further implication of the above is the need for targeted assistance to the poor under conditions of declining oil export prices to enable them to mitigate adverse consequences. Generally, appropriate fiscal and monetary policy responses to oil prices shocks are crucial in order not to worsen the adverse effects of the shocks and to stimulate both domestic and foreign investment and hence boost growth significantly.

In sum, in view of the serious adverse effects of negative oil price shocks on the Nigerian economy the government needs to determine the appropriate monetary, fiscal and exchange rate policy responses. Also, and very importantly, it needs to institute measures to reduce oil dependence, as some other countries have tried to do, and improve the non-oil sector considerably. Finally, targeted assistance to the poor can help mitigate the impact of oil price shocks on them while avoiding the problems inherent in generalised subsidies.

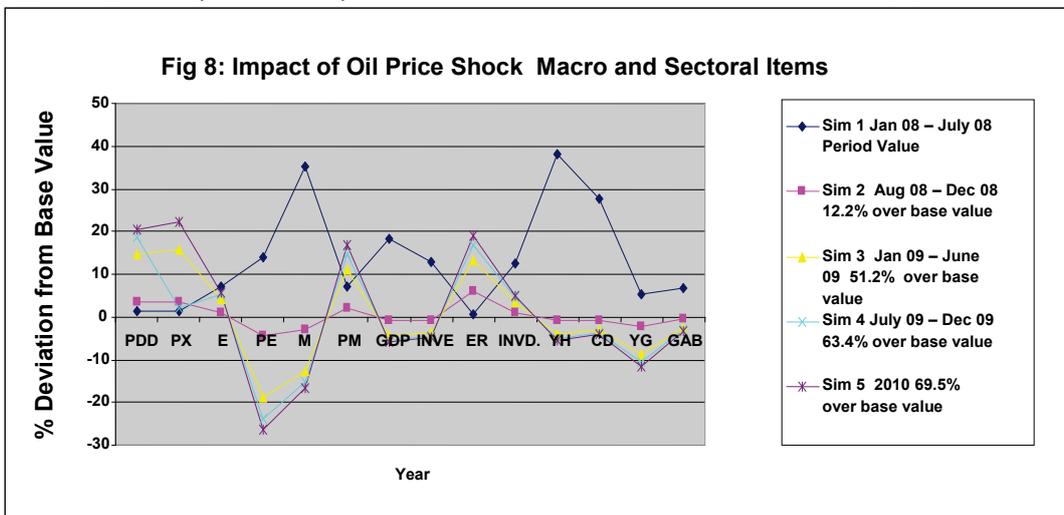
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**Figure A3.1: Impact of oil price shock on macro and sectoral items (a)**



**Figure A3.2: Impact of oil price shock on macro and sectoral items (b)**



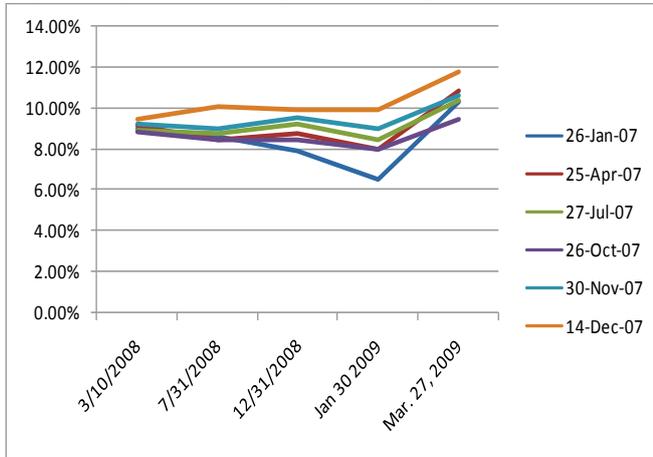
## Annex 4: Federal government bond issuance

| Tenor       | Security description        | Date issued | Mat. date | Coupon | Volume in issue (N'bn) | Buy    | Sell   | Buy    | Sell   | Avg. price (N) | Avg. yield | Modified duration |
|-------------|-----------------------------|-------------|-----------|--------|------------------------|--------|--------|--------|--------|----------------|------------|-------------------|
| Price yield |                             |             |           |        |                        |        |        |        |        |                |            |                   |
| 3yr         | 3rd Fgn Bond 2009 Series 11 | 28-Jul-06   | 28-Jul-09 | 12.50% | 20.01                  | 104.25 | 104.40 | 3.74%  | 3.45%  | 104.33         | 3.60%      | 0.49              |
| 3yr         | 3rd Fgn Bond 2009 Series 12 | 25-Aug-06   | 25-Aug-09 | 12.00% | 29.28                  | 104.25 | 104.40 | 4.36%  | 4.11%  | 104.33         | 4.24%      | 0.53              |
| 5yr         | 3rd Fgn Bond 2011 Series 13 | 29-Sep-06   | 29-Sep-11 | 12.99% | 26.86                  | 110.45 | 110.75 | 8.51%  | 8.39%  | 110.60         | 8.45%      | 2.17              |
| 3yr         | 4th Fgn Bond 2010 Series 1  | 26-Jan-07   | 26-Jan-10 | 10.75% | 40.00                  | 103.90 | 104.05 | 6.61%  | 6.45%  | 103.98         | 6.53%      | 0.93              |
| 5yr         | 4th Fgn Bond 2012 Series 2  | 23-Feb-07   | 23-Feb-12 | 9.50%  | 35.00                  | 98.35  | 98.65  | 10.13% | 10.02% | 98.50          | 10.08%     | 2.49              |
| 7yr         | 4th Fgn Bond 2014 Series 3  | 30-Mar-07   | 30-Mar-14 | 10.75% | 35.00                  | 102.20 | 102.50 | 10.18% | 10.11% | 102.35         | 10.15%     | 3.78              |
| 3yr         | 4th Fgn Bond 2010 Series 4  | 25-Apr-07   | 27-Apr-10 | 9.00%  | 65.00                  | 101.10 | 101.25 | 8.03%  | 7.90%  | 101.18         | 7.97%      | 1.13              |
| 5yr         | 4th Fgn Bond 2012 Series 5  | 25-May-07   | 25-May-12 | 9.23%  | 50.00                  | 96.25  | 96.55  | 10.59% | 10.48% | 96.40          | 10.53%     | 2.73              |
| 7yr         | 4th Fgn Bond 2014 Series 6  | 29-Jun-07   | 29-Jun-14 | 9.20%  | 45.00                  | 94.20  | 94.50  | 10.63% | 10.56% | 94.35          | 10.59%     | 4.10              |
| 3yr         | 4th Fgn Bond 2010 Series 7  | 27-Jul-07   | 27-Jul-10 | 7.95%  | 36.00                  | 99.25  | 99.40  | 8.49%  | 8.39%  | 99.33          | 8.44%      | 1.38              |
| 10yr        | 4th Fgn Bond 2010 Series 8  | 27-Jul-07   | 27-Jul-17 | 9.85%  | 20.00                  | 96.20  | 96.50  | 10.54% | 10.48% | 96.35          | 10.51%     | 5.59              |
| 10yr        | 4th Fgn Bond 2017 Series 9  | 31-Aug-07   | 31-Aug-17 | 9.35%  | 20.00                  | 85.35  | 85.65  | 12.14% | 12.08% | 85.50          | 12.11%     | 5.28              |
| 5yr         | 4th Fgn Bond 2012 Series 10 | 31-Aug-07   | 31-Aug-12 | 9.50%  | 46.00                  | 98.20  | 98.50  | 10.11% | 10.00% | 98.35          | 10.05%     | 2.85              |
| 7yr         | 4th Fgn Bond 2014 Series 11 | 28-Sep-07   | 28-Sep-14 | 9.25%  | 30.00                  | 96.50  | 96.80  | 10.07% | 10.00% | 96.65          | 10.03%     | 4.16              |
| 3yr         | 4th Fgn Bond 2010 Series 12 | 26-Oct-07   | 26-Oct-10 | 7.00%  | 22.80                  | 98.27  | 98.42  | 8.08%  | 7.98%  | 98.35          | 8.03%      | 1.57              |
| 3yr         | 4th Fgn Bond 2010 Series 13 | 30-Nov-07   | 30-Nov-10 | 9.20%  | 30.00                  | 100.20 | 100.35 | 9.07%  | 8.98%  | 100.28         | 9.02%      | 1.63              |
| 3yr         | 4th Fgn Bond 2010 Series 14 | 14-Dec-07   | 14-Dec-10 | 8.99%  | 30.00                  | 98.30  | 98.45  | 10.00% | 9.91%  | 98.38          | 9.95%      | 1.66              |
| 5yr         | 5th Fgn Bond 2013 Series 1  | 25-Jan-08   | 25-Jan-13 | 9.45%  | 20.00                  | 93.25  | 93.55  | 11.61% | 11.51% | 93.40          | 11.56%     | 3.20              |
| 10yr        | 5th Fgn Bond 2018 Series 2  | 30-May-08   | 30-May-18 | 10.70% | 20.00                  | 92.20  | 92.50  | 12.11% | 12.05% | 92.35          | 12.08%     | 5.54              |
| 3yr         | 5th Fgn Bond 2018 Series 3  | 25-Jul-08   | 25-Jul-11 | 10.50% | 35.00                  | 100.80 | 100.95 | 10.13% | 10.06% | 100.88         | 10.09%     | 2.14              |
| 5yr         | 5th Fgn Bond 2018 Series 4  | 28-Nov-08   | 28-Nov-13 | 10.50% | 10.00                  | 100.00 | 100.30 | 10.49% | 10.41% | 100.15         | 10.45%     | 3.71              |
| 20yr        | 5th Fgn Bond 2018 Series 5  | 28-Nov-08   | 28-Nov-28 | 15.00% | 10.00                  | 100.00 | 100.30 | 14.99% | 14.95% | 100.15         | 14.97%     | 6.20              |

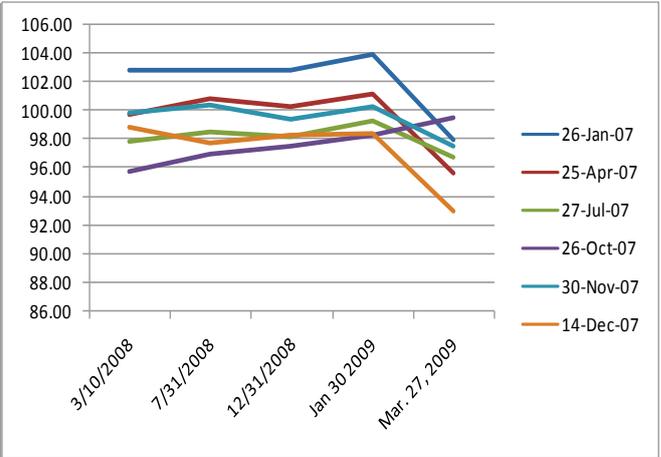
Source: Computed from [www.fsdhsecurities.com](http://www.fsdhsecurities.com).

## Annex 5: The trend of instrument prices and yields

**Figure A5.1: Average yield for 3 year tenor**

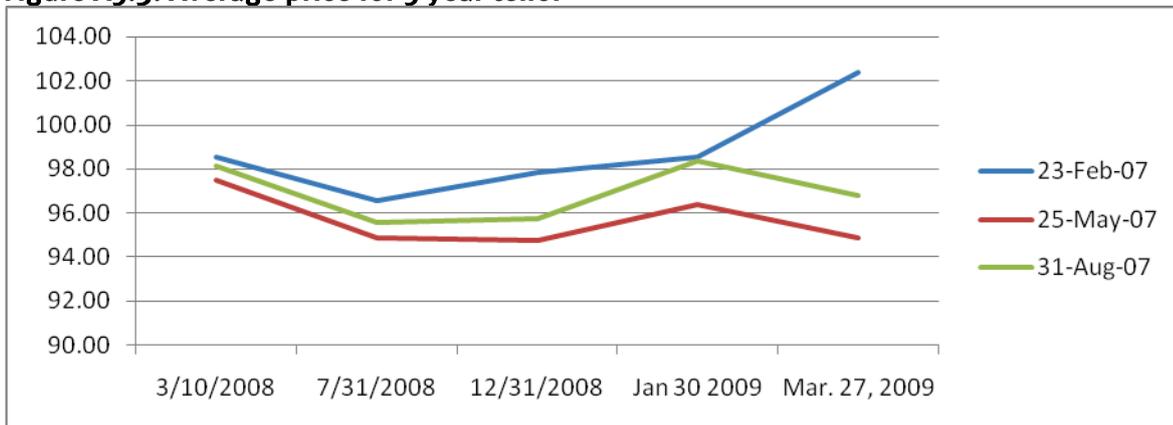


**Figure A5.2: Average price for 3 year tenor**

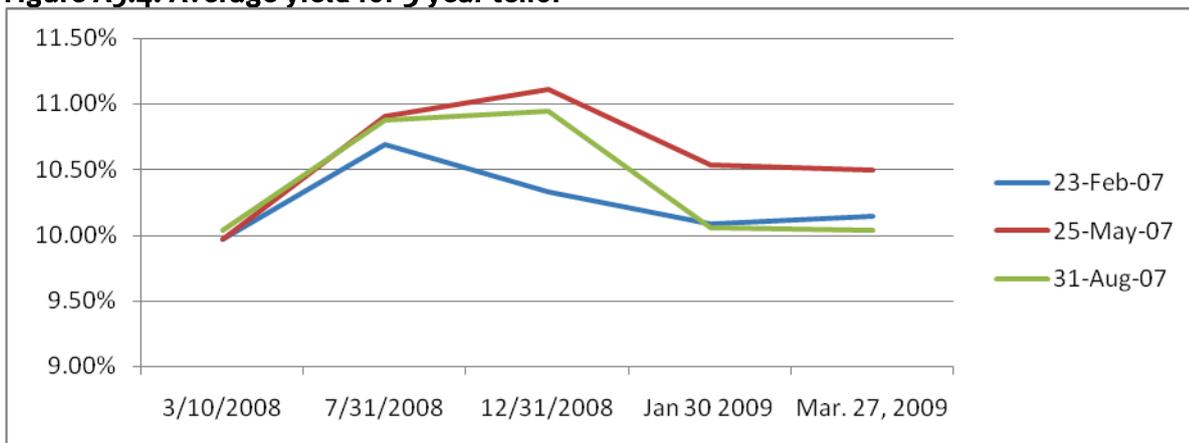


Source: Computed from [www.fsdhsecurities.com](http://www.fsdhsecurities.com) (for all figures in Annex 5).

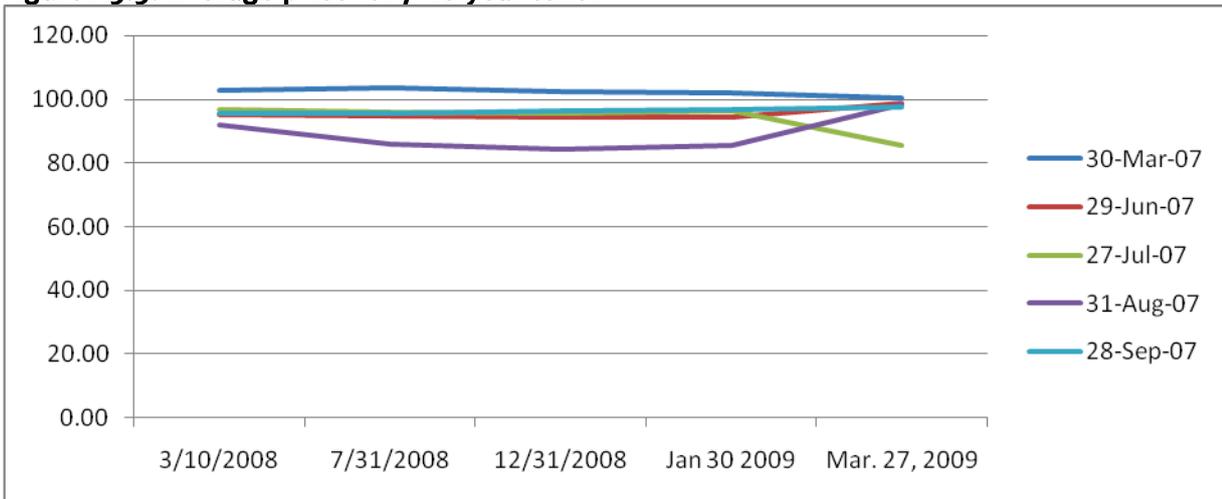
**Figure A5.3: Average price for 5 year tenor**



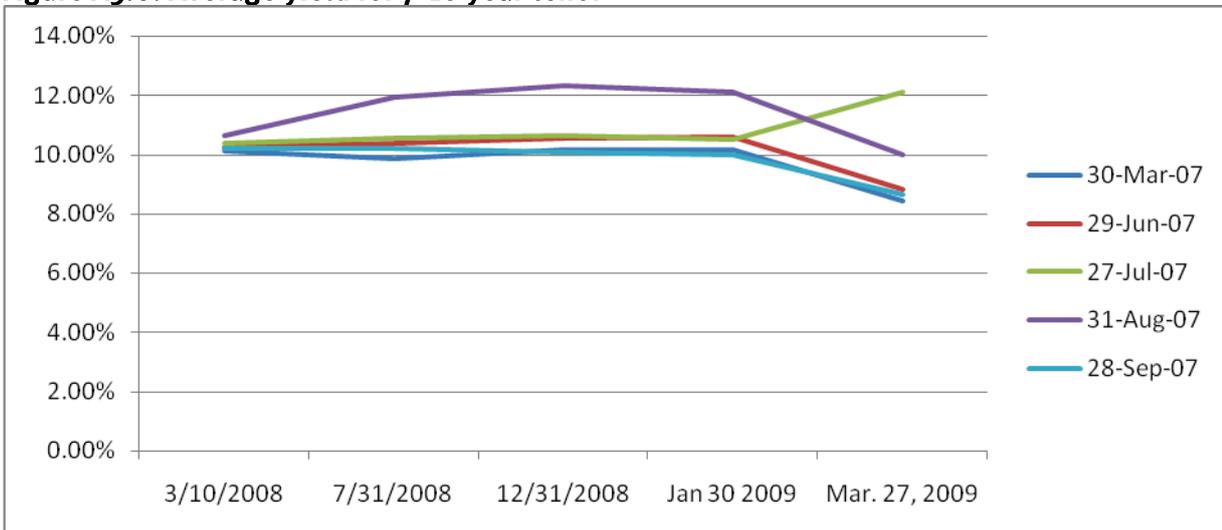
**Figure A5.4: Average yield for 3 year tenor**



**Figure A5.5: Average price for 7-10 year tenor**

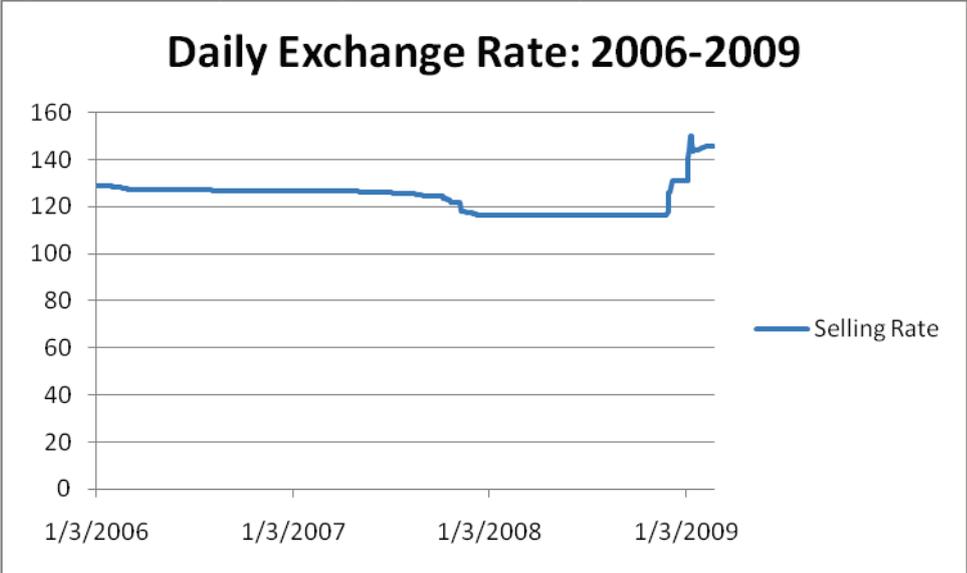


**Figure A5.6: Average yield for 7-10 year tenor**



# Annex 6: Daily exchange rate between naira and US dollar

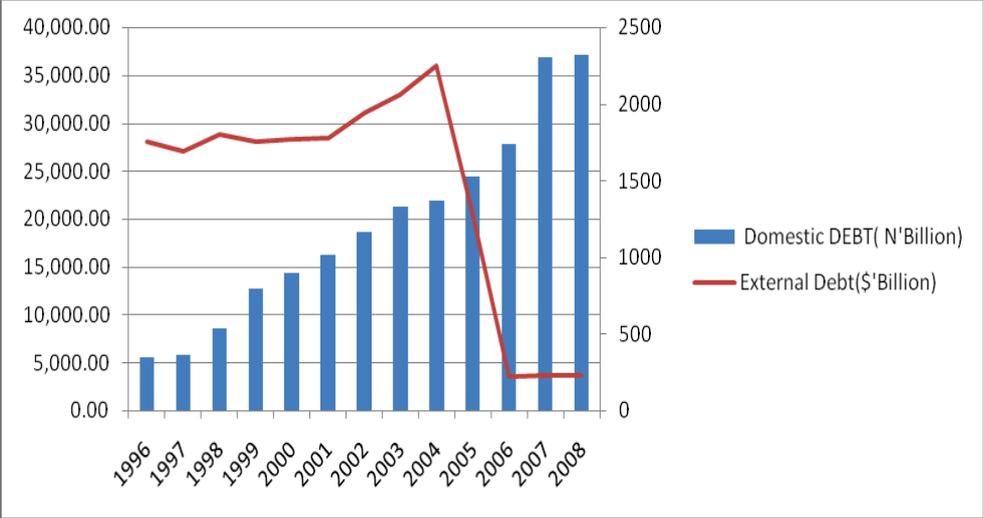
Figure A6.1: Daily exchange rate, 2006-2009



Source: [www.cenbank.org/rates/rateshome.asp](http://www.cenbank.org/rates/rateshome.asp).

# Annex 7: Nigeria debt profile, 1996-2008

Figure A7.1: Nigeria debt profile, 1996-2008



Source: [www.dmo.gov.ng/documents.debtprofile/external](http://www.dmo.gov.ng/documents.debtprofile/external).

## Annex 8: Nigeria key indicators

**Table A8.1: Nigeria key indicators, 2004-2008 (half year)**

| Key indicators                              | HY 2008               | 2007     | 2006     | 2005     | 2004     |
|---|-----------------------|----------|----------|----------|----------|
| GDP at current market price (N trillions)   | 29.60**               | 22.91    | 18.56    | 14.57    | 11.41    |
| Real GDP growth rate (%)                    | 6.65***               | 7.64     | 5.63     | 6.51     | 6.58     |
| Oil sector GDP growth rate (%)              | (5.10)*               | (5.1)    | (4.51)   | 0.50     | 3.30     |
| Non-oil sector GDP growth rate (%)          | 9.67**                | 9.8      | 8.59     | 8.6      | 7.82     |
| Inflation rate (year-on-year) %             | 14.00****             | 6.6      | 8.50     | 11.60    | 10.00    |
| Inflation rate (12-month average) (%)       | 7.80***               | 5.4      | 8.20     | 17.90    | 15.00    |
| External debt stock (US\$ billions)         | 3.397*                | 3.397    | 3.54     | 21.22    | 35.94    |
| Interest paid on external debt (N billions) | 66.00*                | 66.00    | 122.11   | 193.70   | 193.70   |
| Domestic debt stock (N trillions)           | 2.15*                 | 2.15     | 1.80     | 1.53     | 1.37     |
| Interest paid on domestic debt (N billions) | 306.2*                | 306.2    | 212.00   | 200.3    | 203.60   |
| External reserves (US\$ billions)           | 60.31***              | 52.00    | 45.01    | 28.29    | 16.96    |
| Credit to the private sector (N billions)   | 6763.8 <sup>ki</sup>  | 5,042.3  | 2,490.38 | 1,950.38 | 1,507.89 |
| Net domestic credit (N billions)            | 3,701.3 <sup>ki</sup> | 2,212.67 | 753.81   | 2,313.39 | 2,020.17 |
| Total population (millions)                 | 138.28*               | 144.48   | 140      | 134      | 129      |
| Unemployment rate (%)                       | 11.80                 | 5.80     | 5.30     | 11.90    | 11.80    |
| Banks total assets (N billions)             | 10,156.4**            | 10,431   | 6,738    | 4,389.3  | 3,392.9  |
| Banks NPLs (%)                              | 8.44*                 | 8.44     | 8.76     | 18.12    | 21.60    |
| Total banks deposits (N billions)           | 5,358*                | 5,358    | 3,441    | 2,478    | 1,623    |
| Exchange rate, N/US\$1, DAS & WDAS          | 116.63                | 116.80   | 127.00   | 131.60   | 133.3    |
| Appreciation (depreciation), N/US\$ (%)     | 0.15                  | 8.03     | 1.57     | 2.90     | 3.03     |
| Exchange rate, N/US\$1, BDCs                | 119.00                | 120.00   | 129.00   | 142.60   | 140.80   |
| Time deposit (over 12 months) (%)           | 10.33                 | 9.64     | 9.88     | 6.10     | 12.71    |
| Prime lending rate (%)                      | 17.52                 | 17.60    | 17.76    | 17.8     | 18.91    |
| MPR (%)                                     | 10.25                 | 9.50     | 10.00    | 13.00    | 15.00    |
| NSE all share index growth rate (%) N       | (3.52)                | 74.73    | 37.80    | 1.01     | 18.46    |
| NSE all share index growth rate (%) US\$    | 3.37                  | 82.76    | 39.35    | 3.91     | 21.49    |
| 91-day T-bill rate (year end) (%)           | 9.25                  | 8.50     | 7.25     | 11.89    | 14.50    |
| 182-day T-bill rate (year end) (%)          | 9.54                  | 8.75     | 9.99     | 14.50    | 16.00    |
| 365-day T-bill rate (year end) (%)          | 9.20                  | 7.93     | 9.23     | 17.00    | N/A      |

Source: CBN (2008b).