

Nigeria: Selected Issues

This Selected Issues paper for Nigeria was prepared by a staff team of the International Monetary Fund as background documentation for the periodic consultation with the member country. It is based on the information available at the time it was completed on January 22, 2008. The views expressed in this document are those of the staff team and do not necessarily reflect the views of the government of Nigeria or the Executive Board of the IMF.

The policy of publication of staff reports and other documents by the IMF allows for the deletion of market-sensitive information.

To assist the IMF in evaluating the publication policy, reader comments are invited and may be sent by e-mail to publicationpolicy@imf.org.

Copies of this report are available to the public from

International Monetary Fund • Publication Services
700 19th Street, N.W. • Washington, D.C. 20431
Telephone: (202) 623 7430 • Telefax: (202) 623 7201
E-mail: publications@imf.org • Internet: <http://www.imf.org>

Price: \$18.00 a copy

**International Monetary Fund
Washington, D.C.**

INTERNATIONAL MONETARY FUND

NIGERIA

Selected Issues

Prepared by Chad Steinberg (AFR) and
Stephen Swaray and Jennifer Moyo (both MCM)

Approved by the African Department

January 22, 2008

Contents	Page
I. Nigerian Inflation: A Structural Model for Policy Analysis	3
A. The Model	4
B. Assumptions on Equilibrium Values.....	6
C. Baseline Forecast	7
D. Risk Analysis	8
E. Conclusions	9
References.....	17
II. Banking Sector Stability Following Consolidation	23
A. Recent Developments	24
B. Bank Soundness	26
C. Stress Tests.....	30
D. Emerging Risks and Vulnerabilities	33
E. Banking Supervision	34
F. Conclusions	36
Tables	
II.1. Bank Groups.....	24
II.2. Portfolio Quality by Group	28
II.3. Financial Soundness Indicators for the Banking Sector, 2004–07	29
II.4. Comparator Countries: Financial Soundness Indicators, 2007	30
II.5. Sensitivity to Credit Risk	32
II.6. Sensitivity to Interest Rate Risk.....	32
Figures	
I.1. Model Diagram.....	10
I.2. Equilibrium Values.....	11
I.3. Baseline Scenario	13
I.4. Fiscal Expansion Scenario.....	14

I.5. Naira Appreciation Scenario	15
I.6. High Food Price Scenario.....	16
Boxes	
II.1. Stress Tests: Methodology and Results.....	31
Appendices	
I.A1. Complete Model Equations	18
I.A2. Calibration	20

I. NIGERIAN INFLATION: A STRUCTURAL MODEL FOR POLICY ANALYSIS¹

1. **Macroeconomic conditions in Nigeria have improved in recent years.** Inflation has fallen to single digits. An oil-price-based fiscal rule has helped contain government spending to levels consistent with macroeconomic stability. Financial markets have developed; the maturity structure of the domestic bond market is longer and the size and importance of the interbank foreign exchange market have increased, resulting in a more flexible exchange rate. These developments augur well for the implementation of monetary policy.

2. **At the same time, money demand has become increasingly unpredictable.** Financial market development and rapid financial deepening are affecting the relationship between money and prices. Meanwhile, increased foreign investor interest in Nigerian assets has spurred capital inflows. These developments will likely continue, further complicating forecasts of money demand.

3. **Against this backdrop, the Central Bank of Nigeria (CBN) has announced that it intends to adopt inflation targeting (IT).** The authorities are working to put the right conditions in place before implementing the new regime. In examining experience with IT, the Fund's board recommended the following conditions be in place before IT is implemented: (i) target credibility (including central bank independence, target specification, and a communication strategy); (ii) a reasonably good understanding of the inflation process at the central bank; (iii) considerable exchange rate flexibility; and (iv) the absence of fiscal dominance.

4. **This chapter describes a simple forecasting and policy analysis system (FPAS) for forecasting inflation and assessing economic risks in Nigeria.**² The model is designed to support policy analysis in an inflation-targeting regime, which principally aims to provide anchors for inflation and inflation expectations. It should help inform the CBN's view of the inflation process and help the bank structure its communication strategy.

5. **This chapter is divided into five sections.** Section A explains the model's structure. Section B discusses the key assumptions underlying the estimated equilibrium values for inflation, output, interest rates, and the exchange rate. Section C discusses Nigeria's current policy mix and describes the model's baseline forecast. Section D analyzes risks to the baseline forecast and illustrative examples of the impact of a more expansionary fiscal stance, a real appreciation of the naira, and higher food prices. Section E concludes.

¹ Prepared by Chad Steinberg.

² This model calibrates and modifies a model developed by Berg, Karam, and Laxton (2006a, 2006b), which has now been adopted for over 20 countries within the IMF.

A. The Model

6. **The model captures the link between the policy instrument (a short-term interest rate) and the nexus of output, inflation, and the exchange rate in a small-open economy.** The model expresses key variables as deviations-from-equilibrium, and does not try to explain the underlying real equilibrium values. However, the model can address many policy issues that arise routinely in making decisions about monetary policy actions and communicating the reasons to the public.

7. **The model provides a helpful organizing framework for establishing near- and medium-term baseline forecasts.** This approach encourages a more-structured and transparent discussion of current policy. In generating alternative scenarios, the model is a valuable tool for assessing key risks to the baseline forecast and in analyzing the relative importance of various assumptions.

8. **There are four core equations:** (i) an aggregate demand equation (IS curve) that relates the level of real activity to expected and past real activity, the real interest rate, the real exchange rate, and the level of foreign activity; (ii) a price-setting equation (Phillips curve) that relates inflation to past and expected inflation, the output gap, the exchange rate and the relative price of oil; (iii) an uncovered interest parity condition for the exchange rate, with some allowance for backward-looking expectations; and (iv) a rule for setting the policy interest rate as a function of the output gap and expected inflation. Appendix I.A1 provides the full list of model equations. Appendix I.A2 provides details on calibration.

9. **Because Nigeria is an open economy, the model considers the impact of foreign shocks on the domestic environment using the United States as a proxy for the world economy.**³ The equations for the U.S. economy have a similar structure to the Nigerian equations but exclude the open-economy linkages.

10. **The monetary transmission mechanism of the model is depicted in Figure I.1.** The policy rate affects the economy through an internal and external channel. The internal channel is the long run interest rate, which first affects aggregate demand, then output, and finally inflation. The external channel is the exchange rate, which impacts inflation directly (through pass-through) and aggregate demand indirectly through its impact on foreign demand. Inflation expectations are influenced by the inflation outcome and vice versa. The structure of the economy determines the strength of the different arrows in Figure I.1.

11. **The model may not adequately capture the structure of Nigeria's economy in two areas.** First, weather-related supply shocks heavily influence the CPI in Nigeria but are not

³ The United States has the largest links to Nigeria's economy. However, if we exclude oil receipts, by some measures Europe's links to the Nigerian economy are even stronger. Future versions of this model may thus use Europe as a proxy for the world's economy.

captured in the model. Instead, the impact of weather on food prices is captured in the error term, making this a key forecasting variable when rainfall deviates from normal conditions. Second, the strength of the interest rate channel of monetary policy, while evolving, is still relatively weak. There are still difficulties in managing the overnight interbank interest rate, and the link between the monetary policy rate and lending and savings is not well defined. Over time, however, as the financial system develops and global capital flows increase, this channel of monetary policy should strengthen.

12. In line with modeling practices in many policymaking institutions, the parameter values in the model equations were derived based on economic principles, the econometric evidence available, and an understanding of how the economy functions.

The rationale for the coefficient choices are in the descriptions of the four key equations that follow. (The appendices provide additional details).

Aggregate demand equation

13. Domestic output depends on the real interest rate, the real exchange rate, and demand in the rest of the world (represented by the United States). Dynamics are added through past and future domestic output gaps. Parameters on lead and lag values of the output gap are set such that the shocks take two years to work through the economy, based on the norm in emerging markets. The real exchange rate is assumed to have a larger impact on output than real interest rates, because the interest rate channel is still evolving. U.S. output is assumed to have a low impact on domestic demand since U.S. business cycles typically have little relation to conditions in Nigeria.

Phillips curve equation

14. Inflation depends on expected and lagged inflation, the output gap, the exchange rate gap, and movements in the real price of oil. Parameters on lead and lag values of inflation are set such that monetary policy has a low level of credibility, i.e., a high degree of inflation inertia is assumed, since economic agents typically view past inflation as a better predictor of outcomes than the officially announced inflation target. Therefore, the parameter value is set such that only large increases in the policy rate would impact current inflation. Exchange rate pass-through is assumed to be high, but the level of imports in the CPI is relatively low. Because wage contracts and indexation may be less prevalent in economies that are growing rapidly, it is assumed that inflation responds to excess demand without significant lags.

Uncovered interest parity

15. **The exchange rate and interest rates are linked by an interest-parity condition.** This states that, with international capital mobility, the expected return on a short-term investment should be the same at home as abroad, ignoring country-risk premiums. If the exchange rate is expected to depreciate, therefore, an investor will demand to be compensated in the form of a higher domestic interest rate. For forward-looking exchange-rate expectations, the model permits, but does not impose, model-consistent (“rational”) expectations.

16. **The basic FPAS model has been modified to reflect the current trend real appreciation in Nigeria.** In such an environment, in addition to the last period’s value, agents add in the observed rate of trend appreciation to forecast the value of the currency in the next period.⁴

Monetary policy reaction function

17. **The monetary policy reaction function mirrors the specification in many similar models.** The policy instrument is a short-term nominal interest rate; the central bank sets it to anchor inflation to a target rate, π^* . The central bank may also adjust its actions when output deviates from equilibrium. Here it is assumed that (i) given the low level of policy credibility, the monetary stance is aggressive when inflation deviates from the target; (ii) the output gap is less important than inflation in policy decisions; and (iii) the CBN prefers to smooth changes in the interest rate.

B. Assumptions on Equilibrium Values

18. **The results of the model depend on the assumed equilibrium values.** The model expresses each variable in terms of its deviation from equilibrium, but does not attempt to explain movements in equilibrium real output, the real exchange rate, the real interest rate, or in the inflation target. Estimating these equilibrium values is likely more important than getting the model’s parameters accurate, as discussed in the previous section. A key question, therefore, is how to choose these values so that they accurately reflect the Nigerian economy. Figure I.2 provides initial estimates; below are the key assumptions.

- **Inflation target.** It is assumed that the monetary authorities have been setting the interest rate according to a criterion that is similar to inflation targeting. The inflation

⁴ In several transition economy versions of this model, the trend appreciation is also subtracted from the Phillips curve equation such that in the steady state there is a positive rate of real appreciation (e.g., Tiffin (2007)). This would also imply that the trend real appreciation does not reduce inflation. Future versions of this model may consider this extension.

target is assumed to be given by the trend of actual inflation until end-2005.⁵ Since 2005 and the start of Nigeria's reform program supported by the Policy Support Instrument, the target is assumed to be 8.5 percent, the higher end of the authorities' announced target of single digits. Currently, Nigeria's inflation rate is below its inflation target at end-2007.

- **Equilibrium real interest rate.** The equilibrium real interest rate is assumed to be 5 percent, which implies a risk premium of about 300 basis points. While lower than the risk premium of Nigerian sovereign bonds traded in 2006 (before the London Club buyback), this is broadly consistent with issues of African sovereign debt in 2007. The actual real interest rate has fluctuated widely over the years, with the current level below the assumed equilibrium level.
- **Equilibrium real exchange rate.** Staff estimates indicate the naira could be undervalued by up to 15 percent over the medium term. It is unlikely that this gap is adding to aggregate demand through the external sector. To close this gap, therefore, we assume a trend real appreciation in the equilibrium value through 2010; after that, the equilibrium value is assumed to be constant. The historical equilibrium value is given by the trend value as calculated using the LRX filter.
- **Equilibrium non-oil output.** The equilibrium value is calculated using an HP filter on the log level of non-oil output. Potential non-oil output growth is 8 percent. This variable is the most difficult to estimate because data sources are weak: GDP is calculated annually, and the growth series is relatively uniform. There are also few other measures of economic activity with high frequency. Using the HP filter, Nigeria is assumed to be marginally above potential. The historical values show minimal deviations from trend, with the output gap never above 1 percentage point. Swings in the gap in 2003 relate to changes in agricultural output and are correlated with trends in the headline inflation rate.

C. Baseline Forecast

19. **The model is helpful in preparing baseline forecasts.** The model is a relatively simple and tractable representation of the economy; as such, the results are best used to frame discussions about the baseline forecast and to help shape medium- and long-term forecasts, where issues of consistency and dynamics are resolved as economic fundamentals converge to the estimated equilibrium path.

⁵ This is calculated using the Laxton-Rose-Xie (LRX) filter (a more general version of the univariate Hodrick-Prescott (HP) filter), which is described in detail in Appendix IV of Berg, Karam, and Laxton (2006b).

20. **The baseline forecast is a combination of judgment in the near term and a pure model forecast in the medium-term.** 2007 forecasts are judgment. 2008 forecasts are a combination of judgment and model forecast, as model residuals are gradually phased out over the four quarters. Forecasts beyond 2009 are a pure model forecast.

21. **Nigeria's economy is growing robustly, aided by low interest rates** (Figure I.3). Output is above potential, supported by strong fiscal demand and lower interest rates, which are stimulating private sector credit growth. Short-term interest rates are below the neutral rate as Naira appreciation pressures continue and inflation remains well below target (aided by positive weather conditions that helped lower the headline rate in 2006 and 2007). Monetary conditions will add to aggregate demand as the output gap is projected to average 1.6 and 3.7 percentage points in 2008 and 2009, respectively.

22. **Nonetheless, rates in the medium term will need to rise to return the real interest rate to its neutral rate and contain excess aggregate demand.** The rise in interest rates should cause output to dip in the medium term and push the output gap to slightly negative levels in 2011.

D. Risk Analysis

23. **This section describes the results of shocks to the baseline assumptions.** An increase in domestic demand after a fiscal shock, an exogenous appreciation of the naira, and a higher food price scenario are considered. The strength of the model is in evaluating risks to the forecast, appropriate responses to a variety of shocks, and dependencies of the forecast and policy recommendations on various assumptions about the economy (see Figure I.1).

Fiscal expansion (Figure I.4)

24. **An illustrative example of a fiscal expansion in 2008–10, stemming from additional spending of 5 percentage points of non-oil GDP a year, is considered.** This is implemented through an add-on shock to the residual in the aggregate demand equation.

25. **The results show that the additional spending would likely exceed the economy's absorptive capacity.** After initially accelerating, growth slows sharply as the central bank raises interest rates to keep inflation in single digits. Higher interest rates, in turn, squeeze credit and dampen private sector activity, causing the naira to appreciate. The loss of competitiveness further constrains the private sector.

Exogenous appreciation of the naira (Figure I.5)

26. **In this shock, it is assumed the naira appreciates fifteen percent above trend for two quarters.** The net effect in the two quarters is that the naira appreciates to a level below N 110 per US\$1.

27. **This shock dampens inflation and lowers foreign demand and tradable output in the short run.** The policy response is to lower interest rates and keep their path lower than under the baseline, thus muting the shock's impact on aggregate demand.

High food prices (Figure I.6)

28. **In this shock, it is assumed food prices are higher than projected in the first three quarters of 2008.** This is implemented through an add-on shock to the residual in the Phillips curve equation. High food prices are assumed to add 2 percentage points to the headline inflation rate.

29. **To keep headline inflation within its target range, the monetary authorities would need to raise interest rates more rapidly than under the baseline scenario.**⁶ The consequences of this policy are reduced output (and a smaller output gap) and a somewhat more appreciated naira. Over the medium-term, the growth rate decreases more gradually (compared to the baseline), as the build up in excess demand is less pronounced in the short-run.

E. Conclusions

30. **This chapter presents a simple structural model of inflation adapted for Nigeria based on the methodology of Berg, Karam, and Laxton (2006a, 2006b).** The model embodies the principle that monetary policy in an inflating targeting framework aims to anchor inflation and inflationary expectations.

31. **This approach allows different policy options to be considered systematically in a baseline forecasting exercise.** The chapter analyzes the impact of three shocks on the baseline forecast—a fiscal expansion, an unexpected appreciation of the naira, and higher food prices.

32. **The development and calibration of this model are ongoing.** As we learn more about the transmission mechanism in Nigeria, the model will continue to be refined. Given the importance of oil in the Nigerian economy, a more detailed treatment of the price of oil on fiscal policy and the real equilibrium exchange rate could be considered.

⁶ The authorities may choose not to respond to this supply shock if core, rather than headline, inflation is included in the monetary policy reaction function.

Figure I.1. Model Diagram

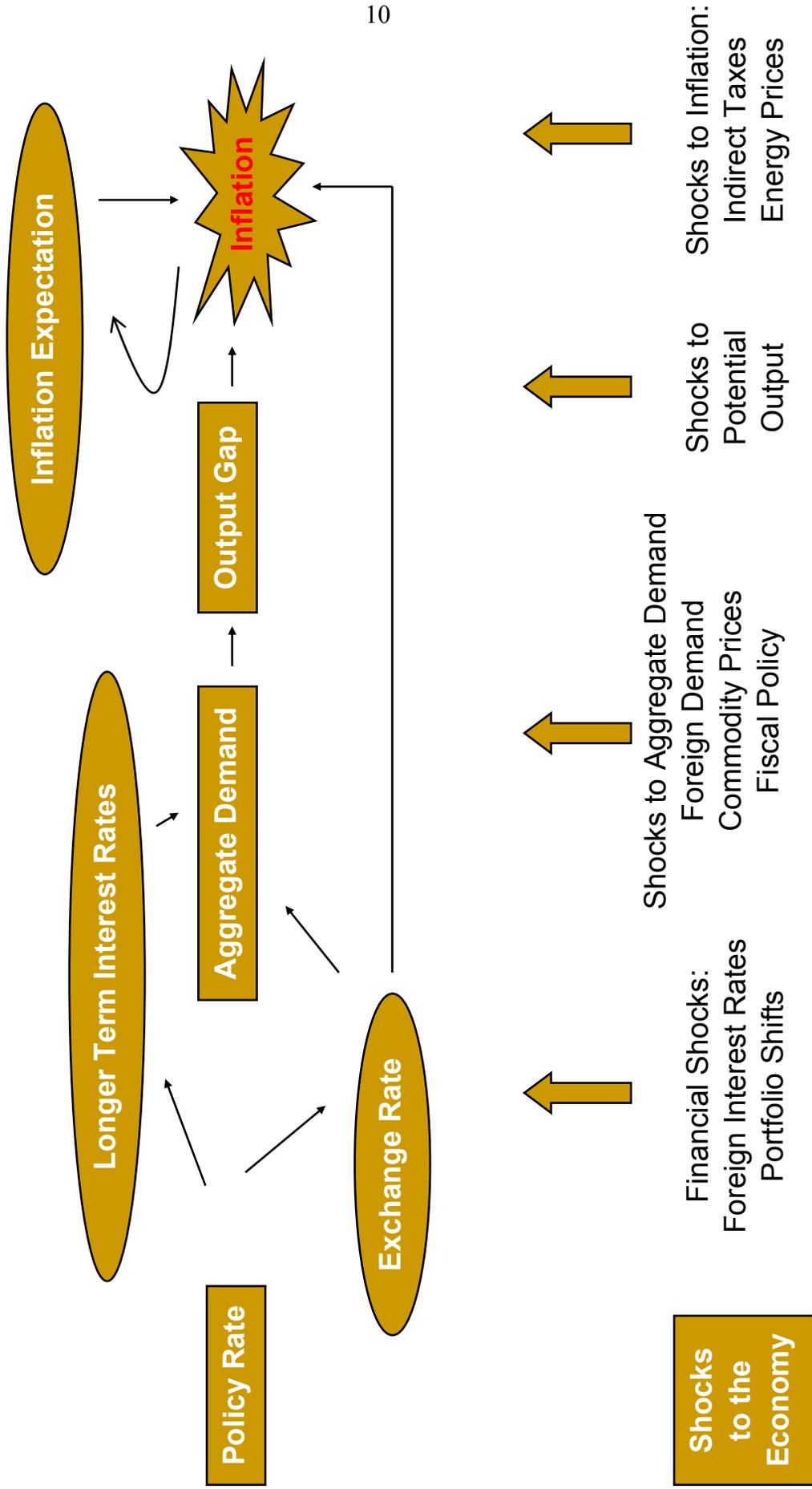


Figure I.2. Equilibrium Values

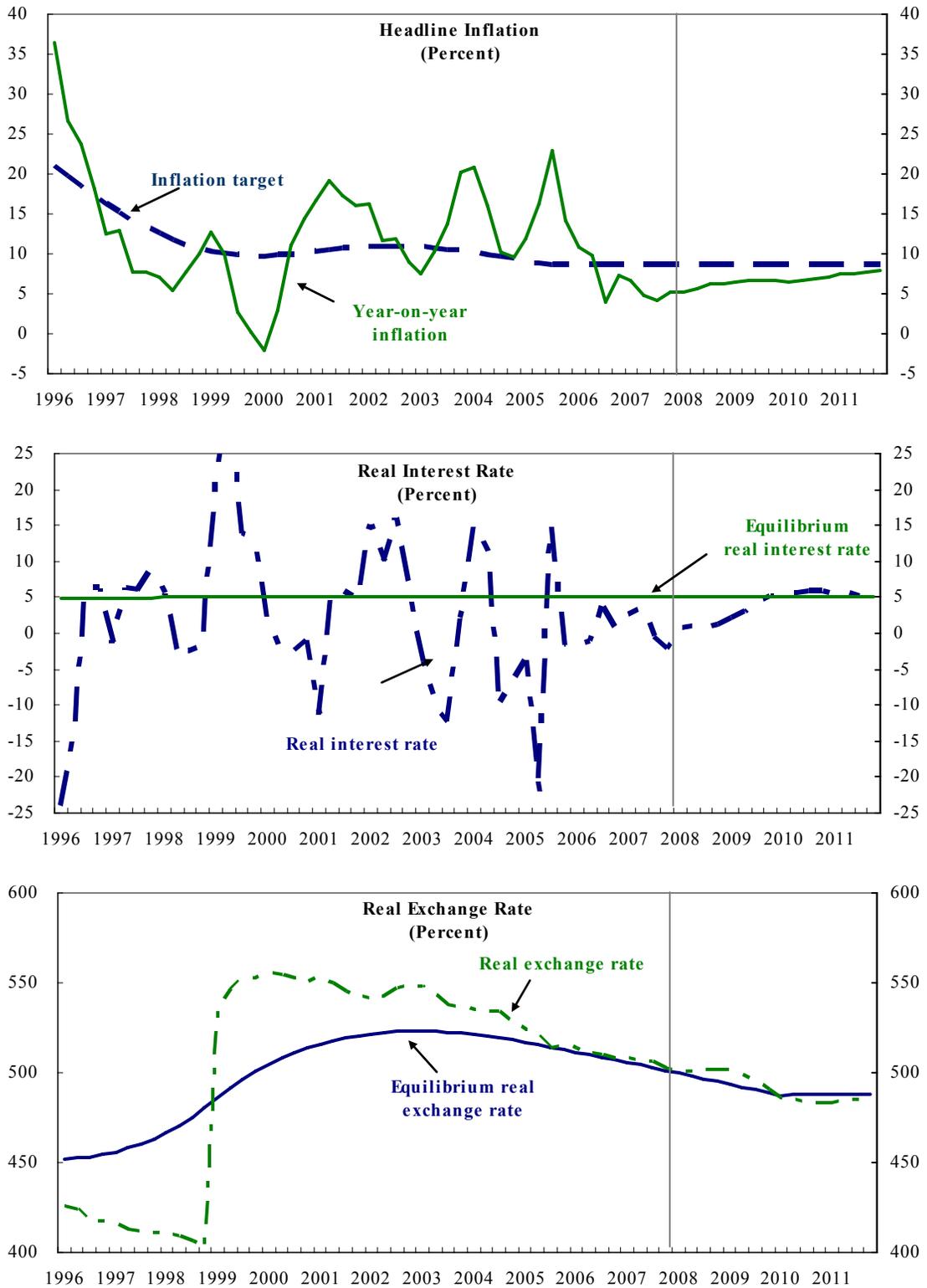


Figure I.2. Equilibrium Values (continued)

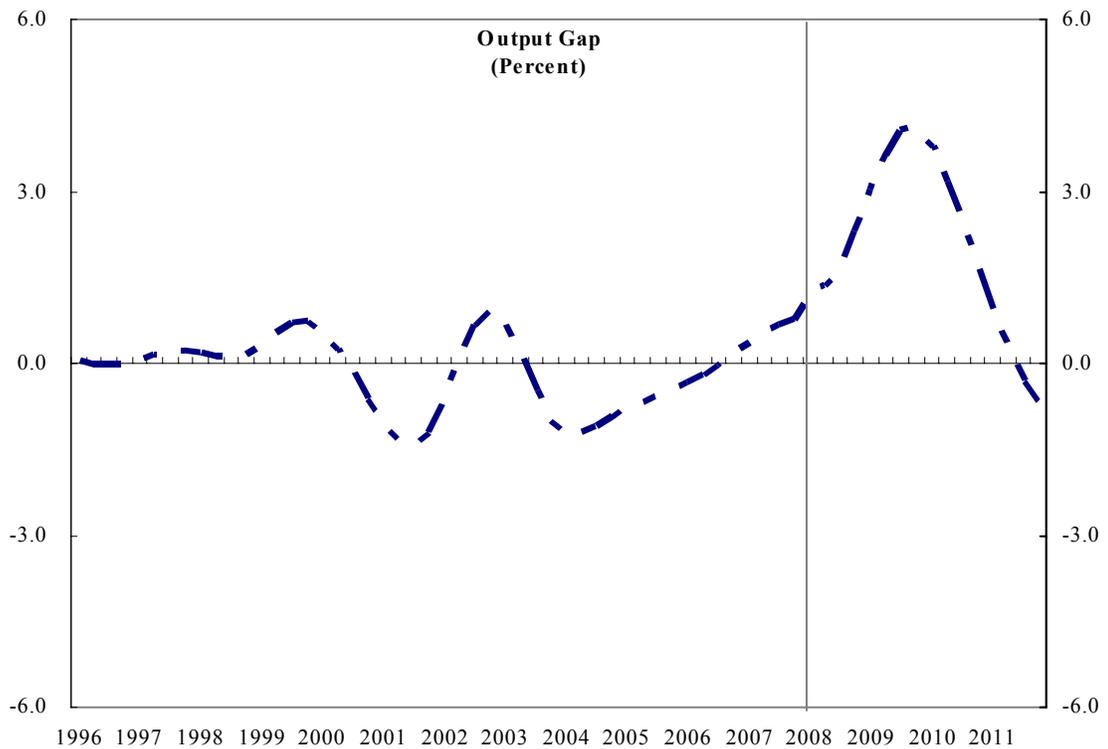
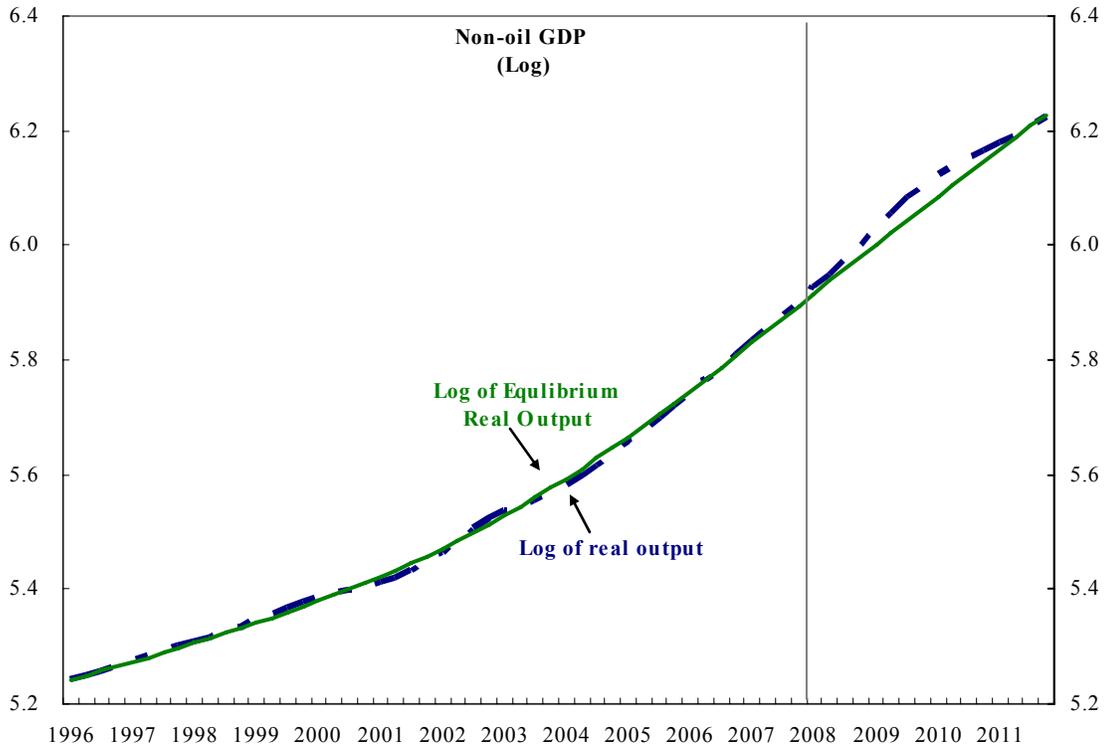


Figure I.3. Baseline Scenario

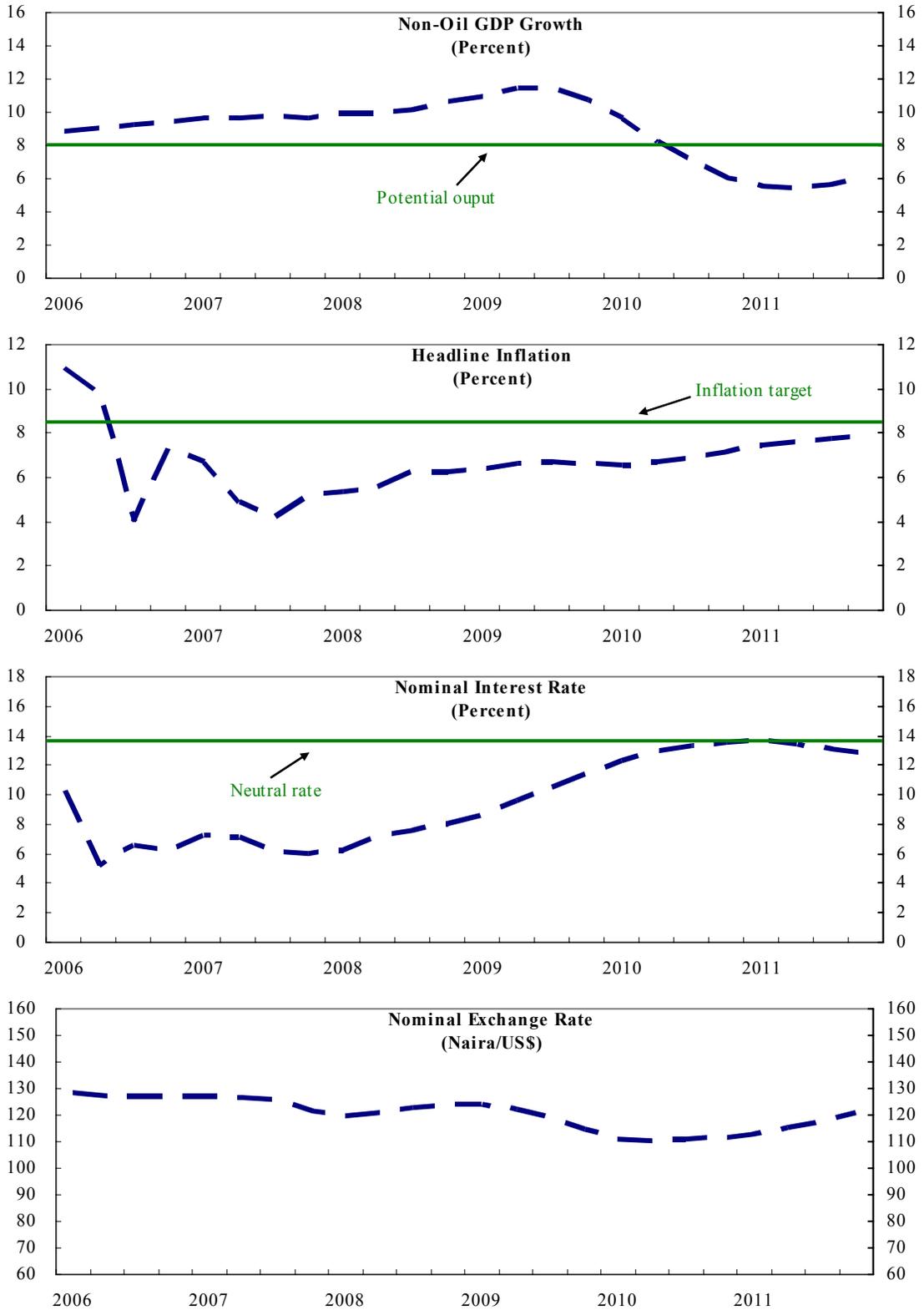


Figure I.4. Fiscal Expansion Scenario

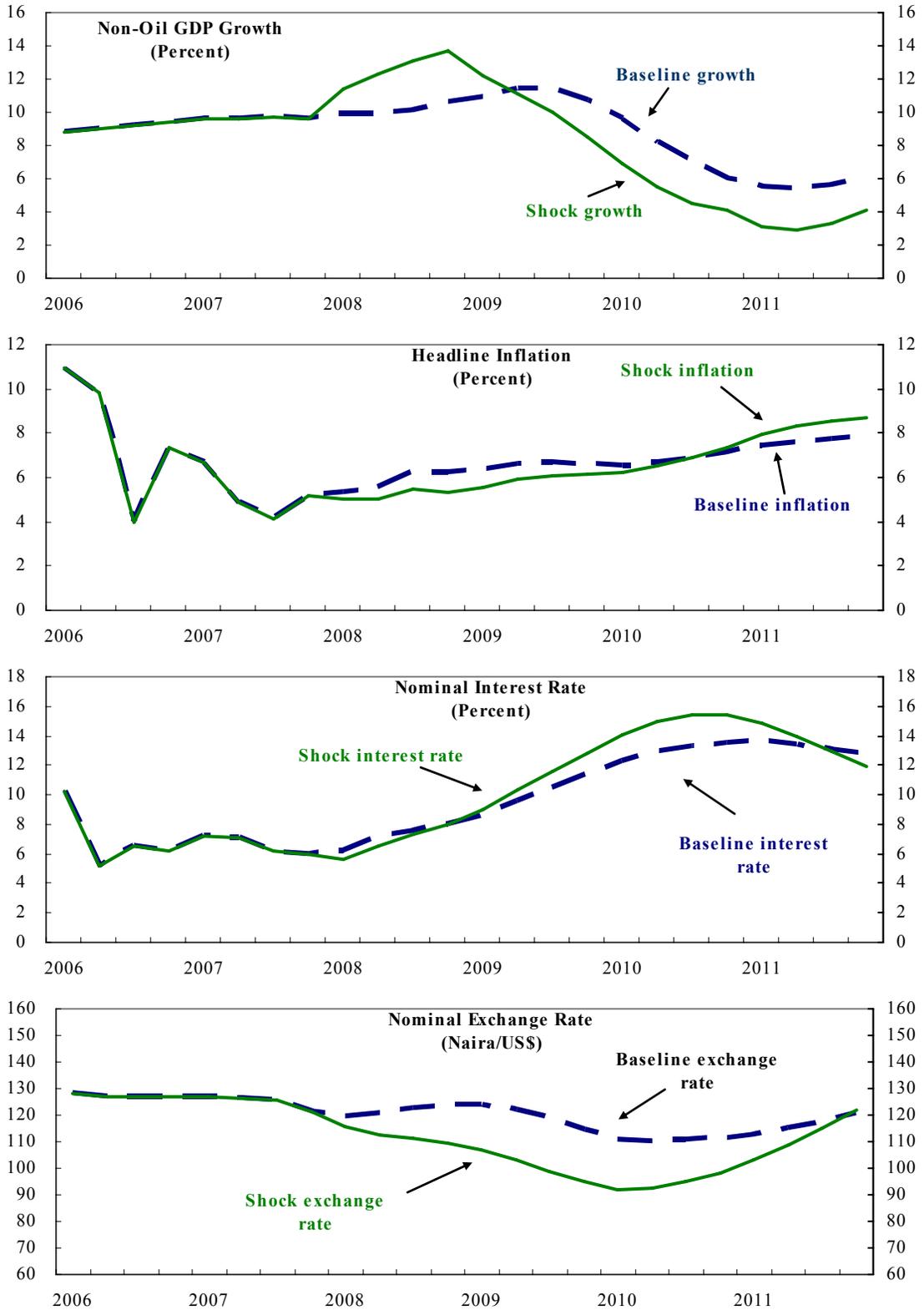


Figure I.5. Naira Appreciation Scenario

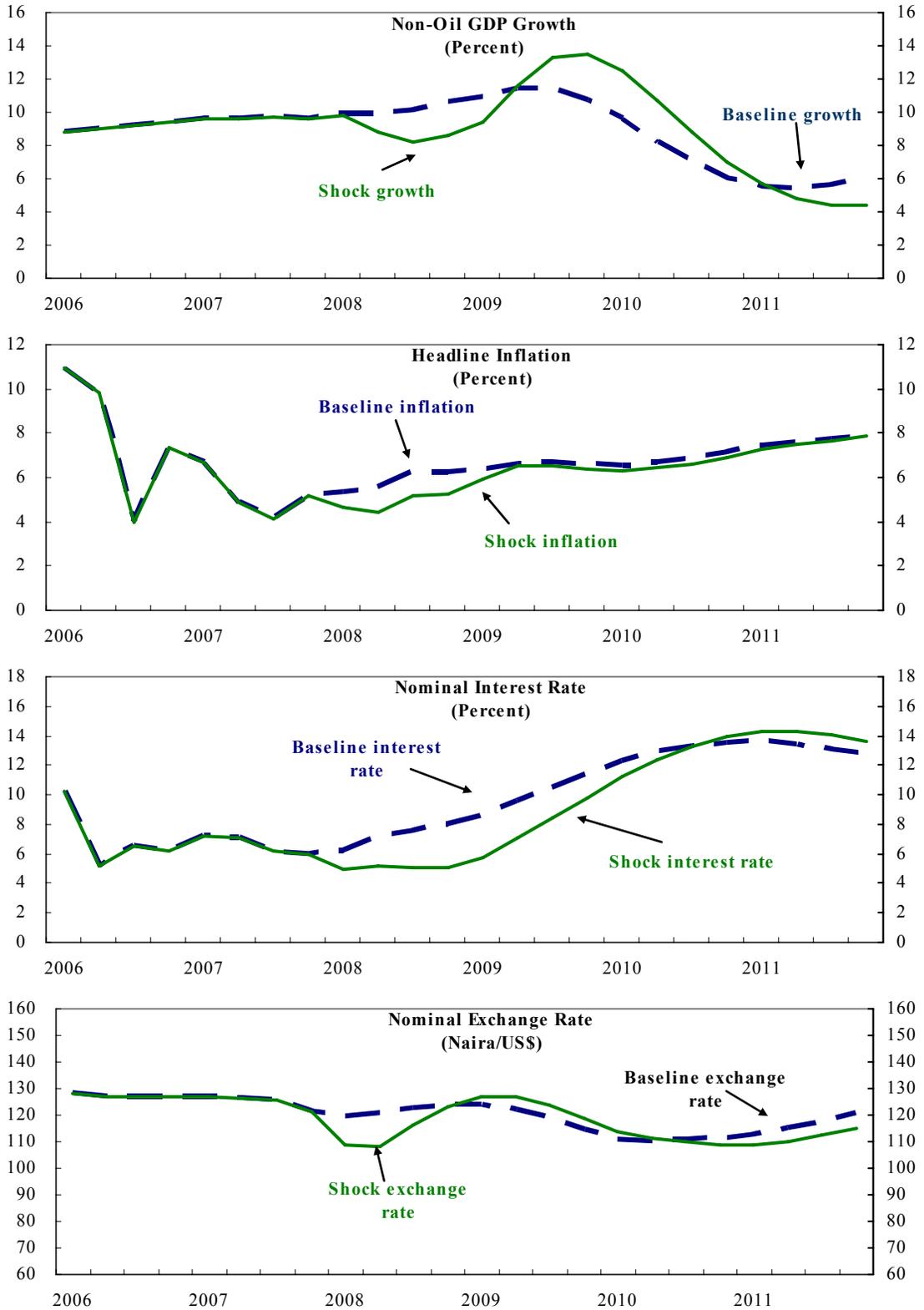
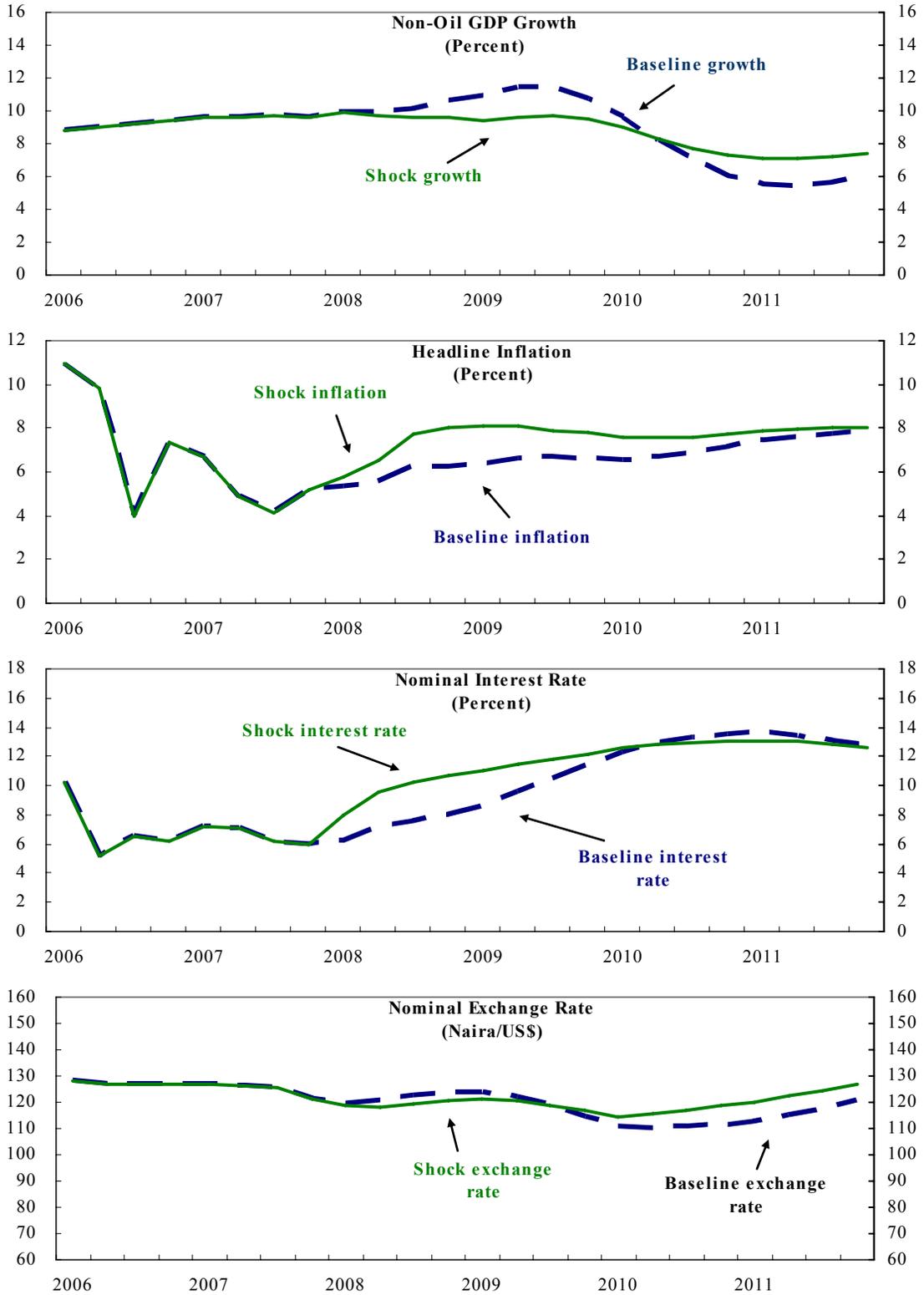


Figure I.6. High Food Price Scenario



References

- Berg, A., P. Karam, and D. Laxton, 2006a, “A Practical Model-Based Approach to Monetary Policy Analysis—Overview,” IMF Working Paper (Washington: International Monetary Fund).
- , 2006b, “Practical Model-Based Monetary Policy Analysis—A How-to Guide,” IMF Working Paper (Washington: International Monetary Fund).
- Epstein, N., P. Karam, D. Laxton, and D. Rose, 2006, “A Simple Forecasting and Policy Analysis System for Israel: Structure and Applications,” in *Israel: Selected Issues*, Country Report No. 06/121 (Washington: International Monetary Fund).
- Harjes, T. and L. Ricci, 2007, “A Quantitative Analysis of Inflation Dynamics in South Africa,” in *South Africa: Selected Issues*, Country Report No. 05/345 (Washington: International Monetary Fund).
- International Monetary Fund, 1999, “Inflation Targeting—Implications for IMF Conditionality,” IMF Policy Paper (Washington: International Monetary Fund).
- , 2006, “Inflation Targeting and the IMF,” IMF Policy Paper (Washington: International Monetary Fund).
- Laxton, Douglas and Alasdair Scott, 2000, “On Developing a Structured Forecasting and Policy Analysis System Designed to Support Inflation-Forecast-Targeting,” in *Inflation Targeting Experiences: England, Finland, Poland, Mexico, Brazil, Chile*, (Ankara: The Central Bank of Turkey), pp. 6-63.
- Tiffin, A., 2007, “Modeling Monetary Policy in Romania,” in *Romania: Selected Issues*, Country Report No. 07/220 (Washington: International Monetary Fund).

Appendix I.A1. Complete Model Equations

The following are the equations used for the Nigerian economy. The equations for the U.S. economy have a similar structure but exclude the open-economy linkages.

Behavioral equations

$$\begin{aligned}
 ygap_t &= \beta_{ld} ygap_{t+1} + \beta_{lag} ygap_{t-1} - \beta_{RRgap} RRgap_{t-1} + \beta_{zgap} zgap_{t-1} + \beta_{USygap} ygap_t^{US} + \varepsilon_t^{ygap} \\
 \pi_t &= \alpha_{\pi d} \pi 4_{t+4} + (1 - \alpha_{\pi d}) \pi 4_{t-1} + \alpha_{ygap} ygap_{t-1} + \alpha_z [z_t - z_{t-1}] + \alpha_0 \pi_{rpoil,t} + \alpha_1 \pi_{rpoil,t-1} + \varepsilon_t^\pi \\
 \pi_{c,t} &= \alpha_{c,\pi ld} \pi 4_{c,t+4} + (1 - \alpha_{c,\pi ld}) \pi 4_{c,t-1} + \alpha_{c,y} ygap_{t-1} + \alpha_{c,z} [z_t - z_{t-1}] + \alpha_{c,3} [\pi 4_{t-1} - \pi 4_{c,t-1}] + \varepsilon_t^{\pi c} \\
 RS_t &= \gamma_{RSlag} RS_{t-1} + (1 - \gamma_{RSlag}) * (RR_t^* + \pi 4_t + \gamma_\pi [\pi 4_{t+4} - \pi_{t+4}^*]) + \gamma_{ygap} ygap_t + \varepsilon_t^{RS} \\
 z_t &= \delta_z z_{t+1} + (1 - \delta_z) [z_{t-1} + 2(z_t^* - z_{t-1}^*)] - [RR_t - RR_t^{US} - \rho_t^*] / 4 + \varepsilon_t^z
 \end{aligned}$$

Steady-state and equilibrium equations

$$\begin{aligned}
 400[y_t^* - y_{t-1}^*] &= g_t^* - \nu_{rpoil} \pi 4_{rpoil,t} + \varepsilon_t^y \\
 g_t^* &= (1 - \lambda_{g^*}) \bar{g}_t + \lambda_{g^*} g_{t-1}^* + \varepsilon_t^{g^*} \\
 \pi_t^* &= (1 - \lambda_{\pi^*}) \bar{\pi} + \lambda_{\pi^*} \pi_{t-1}^* + \varepsilon_t^{\pi^*} \\
 RR_t^* &= (1 - \lambda_{RR^*}) \bar{RR} + \lambda_{RR^*} RR_{t-1}^* + \varepsilon_t^{RR^*} \\
 z_t^* &= tune^* \text{var_tune} + (1 - tune)^* [(1 - \lambda_{z^*}) \bar{z}_t + \lambda_{z^*} z_{t-1}^* + \varepsilon_t^{z^*}] \\
 \rho_t^* &= 4(z_t^* - z_{t+1}^*) + (RR_t^* - RR_t^{US})
 \end{aligned}$$

Identities

$$\begin{aligned}
 ygap_t &= 100(y_t - y_t^*) \\
 RRgap_t &= RR_t - RR_t^* \\
 zgap_t &= z_t - z_t^* \\
 \pi_t &= 400[\log(CPI_t) - \log(CPI_{t-1})] \\
 \pi 4_t &= 100[\log(CPI_t) - \log(CPI_{t-4})] \\
 RR_t &= RS_t - \pi_{t+1} \\
 z_t &= 100 * \log(S_t * CPI_t^{US} / CPI_t)
 \end{aligned}$$

Variable definitions

$ygap$	output gap, percentage points
y_t	log of real GDP
y_t^*	log of potential real GDP
g_t^*	growth rate of potential GDP, quarter/quarter at annual rate, percentage points
\bar{g}	steady-state growth rate of potential GDP, quarter/quarter at annual rate, percentage points
π	cpi inflation, quarterly at annualized rate, percentage points
π_c	core cpi inflation, quarterly at annualized rate, percentage points
π^*	target inflation rate, annualized rate, percentage points
π^4_t	four-quarter change in the CPI, annualized rate, percentage points
$\bar{\pi}$	Steady-state inflation target, annualized rate, percentage points
$\pi_{rpoil,t}$	change in the relative price of oil, quarterly at annualized rate, percentage points
$\pi^4_{rpoil,t}$	four-quarter (moving average) change in the relative price of oil, percentage points
CPI_t	level of the domestic consumer price index
CPI_t^{US}	level of the U.S. consumer price index
RS	nominal interest rate, percentage points
$RRgap$	real interest rate gap, percentage points
RR	real interest rate, percentage points
RR^*	equilibrium real interest rate, percentage points
\bar{RR}	steady-state equilibrium interest rate, percentage points
RR^{US}	U.S. real interest rate, percentage points
RR^{*US}	equilibrium U.S. real interest rate, percentage points
$zgap$	real exchange rate gap, percentage points
z	log of the real exchange rate (an increase implies a depreciation)
S	nominal exchange rate, value of foreign currency in local currency
z^*	log of the equilibrium real exchange rate (an increase implies a depreciation)
\bar{z}	log of the steady state equilibrium exchange rate
ρ^*	equilibrium risk premium, percentage points

Appendix I.A2. Calibration

This appendix outlines the assumptions in the model.

Aggregate demand:

$$ygap_t = \beta_{ld} ygap_{t+1} + \beta_{lag} ygap_{t-1} - \beta_{RRgap} RRgap_{t-1} + \beta_{zgap} zgap_{t-1} + \beta_{USygap} ygap_t^{US} + \varepsilon_t^{ygap}$$

Table I.A2.1. Aggregate Demand Equation

Parameter	Lower range	Upper range	Nigeria	U.S.
Beta_ld	0.05	0.15	0.05	0.10
Beta_lag	0.50	0.90	0.85	0.85
Beta_RRgap	Sum 0.10	Sum 0.30	0.05	0.10
Beta_zgap			0.10	...
Beta_USygap	...	...	0.10	...

- The output gap tends to exhibit substantial inertia (high β_{lag}), which is normally lower in developing than in developed countries, while the effect from lead output (β_{ld}) is usually limited.
- The effect of interest rates is crucial for the monetary transmission mechanism, as a larger β_{RRgap} would imply a more effective monetary policy.
- The effects of exchange rates (β_{zgap}) and foreign output (β_{USygap}) tend to be larger in more open economies.
- Significant lags in the transmission of monetary policy imply that the sum of β_{RRgap} and β_{zgap} should be smaller than β_{lag} .

Phillips curve and core Phillips curve:

$$\pi_t = \alpha_{\pi d} \pi_{t+4} + (1 - \alpha_{\pi d}) \pi_{t-1} + \alpha_{ygap} ygap_{t-1} + \alpha_z [z_t - z_{t-1}] + \alpha_0 \pi_{rpoil,t} + \alpha_1 \pi_{rpoil,t-1} + \varepsilon_t^\pi$$

$$\pi_{c,t} = \alpha_{c,\pi d} \pi_{c,t+4} + (1 - \alpha_{c,\pi d}) \pi_{c,t-1} + \alpha_{c,y} ygap_{t-1} + \alpha_{c,z} [z_t - z_{t-1}] + \alpha_{c,3} [\pi_{t-1} - \pi_{c,t-1}] + \varepsilon_t^{\pi c}$$

Table I.A2.2. Phillips and Core Phillips Curve

Parameter	Lower range	Upper range	Nigeria	U.S.
<u>Phillips curve</u>				
Alpha_pie_ld	>0	1.00	0.10	0.20
Alpha_ygap	0.25	0.50	0.40	0.30
Alpha_z	...	...	0.20	...
Alpha_0	...	...	.074*(1/3)	.018*(1/3)
Alpha_1	...	...	.074*(1/3)	.018*(1/3)
<u>Core phillips curve</u>				
Alpha_c_pie_ld	>0	1.00	0.10	0.20
Alpha_c_ygap	0.25	0.50	0.40	0.30
Alpha_c_z	...	...	0.20	...
Alpha_c_3	0.25	0.50	0.25	0.25

- $\alpha_{\pi ld}$ determines the importance of forward- (and backward-) looking components in inflation expectations. For example, a lower $\alpha_{\pi ld}$ makes it more difficult for the monetary authorities to change inflationary patterns.
- α_{ygap} characterizes the relation between the output gap and inflation. It increases, for example, with the number of firms that adjust prices every period. The larger α_{ygap} , the less output responds to price level fluctuations. Hence, the larger α_{ygap} is, the smaller the sacrifice ratio would be (i.e., the cumulative loss in output as a percent of potential output necessary to permanently lower inflation by 1 percentage point).
- α_z relates directly to the weight of imported goods in the CPI basket and the pass-through of foreign-currency prices (and hence the nominal exchange rate) on to the domestic-currency prices of imports.
- α_0 and α_1 relate to the weight of oil related products in the CPI basket and the pass-through to prices.
- $\alpha_{c,3}$ allows for some feedback from headline inflation to core inflation.

Monetary policy reaction function:

$$RS_t = \gamma_{RSlag} RS_{t-1} + (1 - \gamma_{RSlag}) * (RR_t^* + \pi 4_t + \gamma_{\pi} [\pi 4_{t+4} - \pi_{t+4}^*] + \gamma_{ygap} ygap_t) + \varepsilon_t^{RS}$$

Table I.A2.3. Monetary Policy Rule

Parameter	Lower range	Upper range	Nigeria	U.S.
Gamma_pie	>0	5.00	4.00	2.00
Gamma_RSslag	0.50	1.00	0.50	0.50
Gamma_ygap	>0	...	0.25	0.50

- A key parameter in this function is γ_π , which captures the degree of aggressiveness of the monetary authorities. Hence, a higher value for γ_π implies that the authorities will respond to a given shock with a larger change in interest rates. This tends to frontload the output costs but is appropriate for economies with lower credibility.
- The parameter $\gamma_{RS\text{slag}}$ measures the aversion of the authorities to alter the interest rates, so that a higher coefficient implies monetary reaction to a given shock is relatively slow.
- Given the high degree of uncertainty about the output gap and substantial real-time measurement errors in output, the parameter on the output gap ($\gamma_{y\text{gap}}$) is usually small.

Uncovered interest parity

$$z_t = E[z_{t+1}] - [RR_t - RR_t^{US} - \rho_t^*] / 4 + \varepsilon_t^z$$

$$\text{where } E_t[Z_{t+1}] = \delta_z z_{t+1} + (1 - \delta_z) [z_{t-1} + 2(z_t^* - z_{t-1}^*)]$$

Table I.A2.4. Exchange Rate

Parameter	Lower range	Upper range	Nigeria	U.S.
Delta_z	>0	1.00	0.50	0.50

- The parameter δ (with $0 < \delta < 1$) determines the degree to which exchange rate expectations are forward looking as opposed to backward looking. A value closer to 1 implies expectations are much more forward looking and will thus prompt a much greater exchange rate response to anticipated changes in fundamentals.

II. BANKING SECTOR STABILITY FOLLOWING CONSOLIDATION¹

1. **Nigeria's financial sector has been transformed by the banking consolidation exercise.** The consolidation program required banks to raise their minimum capital to N 25 billion (about US\$190 million) at end-2005 from N 1 billion (US\$ 7 million) at end-2003. The primary objective of the increased capitalization was to encourage the banking system to consolidate through mergers and acquisitions, as a large number of banks were unsound or marginal performers.
2. **The banking sector has grown in various respects even though the number of banks was reduced from 89 to 24.** The product base is broadening and competition is intensifying. The increase in capital levels and the need to boost shareholder returns are prompting banks to move into new areas of operation, including cross-sector and cross-border operations, and to exploit the formerly untapped retail sector. As a result, credit to the private sector and deposits in the banking system have broadly doubled in nominal terms between end-2005 and September 2007. Some banks are tapping international capital markets to fund their activities, including through public offerings, issues of eurobonds, shares on the London Stock Exchange, and Global Depository Receipts (GDR).
3. **This rapidly changing environment enhances economic prospects but poses challenges for financial sector stability.** Increased competition among banks could benefit consumers by increasing the sector's product range, improving its service, and expanding access to better priced services. It could also lead to improved mobilization and application of resources, spurring economic growth. However, if not properly managed, the risks associated with these developments could lead to bank losses and threaten the stability of the financial system.
4. **This chapter assesses the stability of the banking sector in light of these developments.** It assesses the risks and vulnerabilities facing the banking system and assesses the impact of various shocks on banking system stability. It also evaluates the actions being taken to mitigate these risks and vulnerabilities.
5. **The chapter is structured as follows.** Section A reviews the recent developments in the financial sector. Section B evaluates the soundness of banks in light of these developments. Section C examines the resilience of the banks to various quantifiable shocks and reports the result of stress tests. Section D considers possible emerging risks and vulnerabilities to the banking system. Section E discusses the adequacy of banking supervision and other policy actions being taken to mitigate risks. Section F offers some conclusions and policy recommendations.

¹ Prepared by Stephen Swaray and Jennifer Moyo.

A. Recent Developments

6. **Nigeria’s financial system is dominated by private domestically owned commercial banks.** Commercial banks account for 92 percent of the financial system’s total assets. The recent consolidation in the banking sector reduced the number of banks to 24 from 89;² 19 of the new banks arose from mergers and acquisitions, and 6 banks raised additional capital or had already met the revised capital requirement. Only 14 banks accounting for 6.5 percent of deposits failed to meet the higher minimum capital requirement and are at different stages of the liquidation process by the National Deposit Insurance Corporation (NDIC).³ Except for foreign-owned banks, banks’ shareholdings are diverse with no related party having a controlling interest. Direct and indirect government ownership is limited to 10 percent.

7. **Banks can be divided into four groups for analytical purposes** (Table II.1). Group 1 comprises the first generation banks, which were the largest traditional banks that achieved the capital threshold mostly on their own and may have also consolidated long-established affiliates and acquired one or two smaller banks. Group 1 banks, therefore, have significant advantages in terms of franchise and a large resource base. Group 2 constitutes banks that achieved the capital threshold by merging through voluntary partnerships. Group 3 comprises banks that achieved the capital threshold through four or more banks partnering out of necessity. Group 4 is made up of banks with majority or wholly foreign

Table II.1. Bank Groups ¹

Group 1	First Bank, Guaranty Trust, UBA, Union, Intercontinental, Oceanic, Zenith
Group 2	Access, Diamond, Ecobank, ETB, Fidelity, IBTC-Chartered, Platinum-Habib, WEMA, Afribank
Group 3	FCMB, First Inland, Skye, Spring, Sterling, Unity
Group 4	NIB, Stanbic, Standard Chartered

¹ Bank grouping based on initial bank strength, number of banks that merged, and ownership.

8. **The nonbank financial sector accounts for some 8 percent of the financial system’s assets.** The 24 pension funds account for half of this total, with various other institutions accounting for the remainder which consist of 103 insurance companies, 750 community banks (which are being transformed into microfinance institutions), 7 microfinance banks, 91 primary mortgage institutions, a stock exchange, a commodity

² Two banks have merged since the initial consolidation.

³ Some banks that failed to meet the higher minimum capital requirement challenged the NDIC’s petition to liquidate them. To date, approval for liquidation has been granted to 11 banks; 3 banks remain in court.

exchange and 322 bureaux de change. In addition, the system has active money, foreign exchange, and capital markets.

9. **Since consolidation, the banks have acquired diverse cross-sector and cross-border linkages.** Universal banking groups have emerged, with more than half the banks having insurance and securities subsidiaries. As part of a regional expansion drive, about half the banks have cross-border operations in other countries, including the Gambia, Benin, Ghana, Sierra Leone, South Africa, the U.K., and the United States. While still small, these operations are growing and banks are planning to expand them.

10. **Since consolidation, banks' balance sheets have expanded considerably.** From end-2005 to September 2007, the system's balance sheet has expanded by 110 percent, underpinned by increasing public confidence; deposits grew by 92 percent over the same time period. Credit to the private sector has also grown considerably in absolute terms. However, deposits and private sector credit are still relatively small given the size of the economy and compared with that in peer countries.

11. **With banks under pressure to use funds raised from increased capitalization, credit to the private sector has surged.** Banks are moving into new areas, including the retail sector. Several banks have increased their branch network, with bank branches standing at about 4,062 at end-June 2006, up from about 3,000 just after consolidation. Other banks have begun to pursue lending opportunities in new areas, such as infrastructure, construction, oil, and gas financing. The need to tap the retail market and increase service delivery to small and medium-sized enterprises, in particular, has spurred banks to develop tailored products, upgrade IT systems, and expand ATM infrastructure.

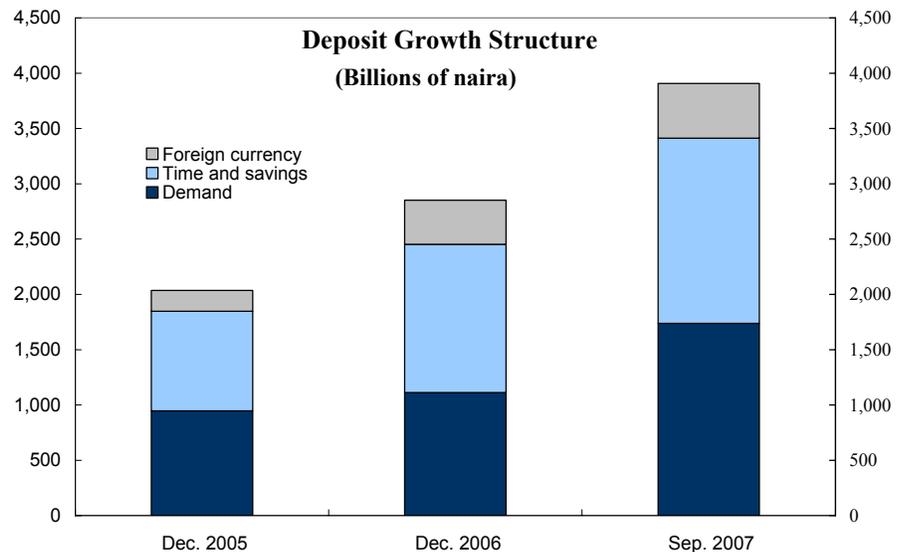
12. **Despite the already high capital levels, banks continue to augment their capital base, aided by significant international capital flows.** Increased capital is being raised through public offerings, issues of eurobonds, shares on the London Stock Exchange, and GDRs. One bank, for example, has been able to raise close to \$1.6 billion from foreign investors. The increased international investor interest is a direct result of the improved confidence in the banking sector. Among banks, the capitalization drive has been motivated by three factors. First, the Central Bank of Nigeria (CBN's) encouraged the formation of larger banks including through the requirement that a bank have N 130 billion in capital to manage foreign reserves. Subsequently, the CBN has removed this incentive. Second, some banks are positioning themselves to aggressively take over other banks in the event of further bank consolidation; an event some see as likely. Third, the increased capital will enable banks to lend for larger projects.

13. **International capital inflows are an important feature of Nigeria's new financial system.** Besides investing in banks, international investors are increasingly investing in government securities, both directly and indirectly through derivatives. Although complete data on the volume of these investments is not available, it is estimated that nonresidents' holding of government securities is substantial, amounting to N 575 billion (US\$4.6 billion) as of August 2007. By asset class, nonresidents held almost 20 percent of Federal Government of Nigeria (FGN) bonds outstanding, and about 6 percent of treasury bills and bonds.

14. **Stronger capital flows to banks have increased activity in the interbank foreign exchange market, while the interbank money market, although strengthened, remains relatively weak.** In the foreign exchange market, new instruments are beginning to emerge, including swaps and forward contracts, prompting banks to strengthen their treasury capacities, mostly through attracting staff from abroad or through collaboration and partnerships with international banks. In the money market, the strengthened capital base of banks has partly helped the interbank money market to develop by raising confidence in the quality of potential counterparties. This greater confidence, in turn, has helped the central bank manage liquidity. Still, there is a tendency for banks to simultaneously hold excess liquidity; therefore, deterring efficient market clearing.

B. Bank Soundness

15. **The banking sector is broadly stable.** Banks are well capitalized, liquid, and profitable. The distress in the banking system before consolidation, when a large number of banks were unsound or marginal performers, has eased; the systemwide balance sheet has almost doubled since December 2005. Confidence has returned with growth in deposits nearly doubling since December 2005.



Source: Central Bank of Nigeria (CBN).

Capital adequacy

16. **Banks are generally well-capitalized with an overall capital adequacy ratio of 18.6 percent (Table II.3), considerably above that in other countries in the region (Table II.4).** The generally high capital adequacy is due largely to the consolidation process, which required banks to raise their capital base; some raised capital beyond regulatory requirements. Three banks, accounting for about 20 percent of total bank assets, were still marginally undercapitalized in June 2007. While the increase in the absolute capital level could support larger exposures, it underscores why prudential limits must be strictly enforced. Given the CBN's exposure limit, which caps lending to a single borrower at 20 percent, banks can make much larger loans (in absolute terms) to a single entity. The resulting potential for larger exposures and increased risk needs close monitoring.

Asset Quality

17. **The quality of the loan portfolio has improved since consolidation (Table II.2),** chiefly because a large proportion of nonperforming loans (NPLs) were written off when 14 banks closed in 2006. These write-offs brought the aggregate NPL-to-total loans ratio to 6.8 percent in 2007, from 18.1 percent in 2005. Total loans also grew considerably, causing the ratio to decline, while the consolidated banks worked to recover outstanding loans. Further, most banks took more prudent measures to ensure that the new loans performed better; but the impact of such measures on NPLs will become evident only over the next 18 to 24 months.

18. **NPLs have also declined in the individual bank groups.** However, because of legacy loans from previously weak banks, the decline in the NPL-to-total loans ratio in Group 3 was lower than would be expected for a growing loan book (Table II.2). This pattern in NPLs needs to be monitored closely.

19. **The pattern of provisioning followed that of NPLs.** In aggregate, after significant provisioning in the period immediately after consolidation, provisioning levels have since declined. The provisions-to-NPL ratio declined from 88.6 percent as of March 2006, to 48.2 percent at June 2007. The ratio declined mainly because the loans within the pool of NPLs migrated upward. This pattern was also reflected in the changes in Group 1 and Group 3 ratios. Group 2 and Group 4 ratios initially increased in December 2006, then declined in June 2007.

Table II.2. Portfolio Quality by Group

	Number of banks	Mar-06	Dec-06	Jun-07	Mar-06	Dec-06	Jun-07
		Nonperforming loans (NPL) ¹			Provisions/ NPLs		
Group 1	7	5.1	5.0	6.4	88.5	58.1	43.6
Group 2	9	10.4	11.0	8.3	65.0	78.2	55.9
Group 3	6	14.5	18.1	11.5	104.7	40.9	46.6
Group 4	3	5.8	4.5	1.2	62.7	91.4	56.2

¹ Net of provisions relative to capital.

Earnings and Profitability

20. **Banking consolidation has resulted in a reduction in net interest rate margins.** These have stabilized at around 3.4 percent, against 4.8 percent for the world on average and 8 percent in sub-Saharan Africa. This drop largely reflects reduced margins in large corporate businesses, reduced treasury bill rates, and an increase in loan-loss provisioning.

21. **Banking sector profitability indices have been dampened owing to declining margins and recent capital raising.** The return on assets (ROA) and on equity (ROE) were almost halved from December 2004 to June 2007; the ROA stands at 1.8 percent and the ROE at 13.8 percent, considerably below rates in comparator countries (Table II.4). The decline in profitability indices can be attributed to the increase in shareholder funds that were used mainly to acquire IT and other facilities, such as new branches, to ensure newly consolidated banks could compete. In addition, some banks, primarily in Group 3, faced post-consolidation administrative challenges, and their efforts were focused on addressing these challenges rather than on improving profitability. Looking ahead, banks will be under pressure to raise profitability to meet shareholder expectations.

22. **Performance, however, varies across the banks.** Generally, the first generation banks (the largest traditional banks that achieved the capital threshold more or less on their own) and the banks that formed through voluntary partnerships appear to fare better than banks where four or more banks came together.

Liquidity

23. **The banking sector's holding of liquid assets has increased since consolidation.** Compared with the 40 percent prudential regulation, the average liquidity ratio increased from 61.1 percent at end-December 2005 to 62.2 percent at end-December 2006. The ratio of loans and advances to deposits over that period increased from 65.1 to 75.6 percent.

Table II. 3. Financial Soundness Indicators for the Banking Sector, 2004–07

(Percent, unless otherwise indicated)

	Dec-04	Dec-05	Dec-06	Jun-07
Capital Adequacy				
Regulatory capital to risk-weighted assets ¹	14.7	17.8	22.6	18.6
Regulatory Tier I capital to risk-weighted assets ¹	13.4	16.5	21.8	17.5
Capital (net worth) to assets	9.9	12.4	14.7	13.3
Asset quality and composition				
NPLs to gross loans ¹	21.6	18.1	8.8	7.7
NPLs net of provisions to capital ¹	90.0	64.4	21.3	23.4
Sectoral distribution of loans¹				
Manufacturing	22.5	18.6	16.9	13.6
Trade and services	23.6	21.1	22.0	19.4
Energy and minerals	9.4	8.9	10.1	11.9
Agriculture	4.9	3.9	2.3	1.9
Construction and property	7.6	7.5	6.2	5.6
Households				
Government	4.2	4.6	7.6	1.9
Other	29.4	35.8	38.0	41.3
Earnings and profitability				
ROA ¹	3.1	0.9	1.6	1.8
ROE ¹	27.4	7.1	10.4	13.8
Interest margin to gross income ¹	37.6	38.1	39.6	43.9
Noninterest expenses to gross income ¹	53.9	59.2	52.7	47.0
Personnel expenses to noninterest expenses	0.0	37.3	42.7	39.0
Trading and fee income to total income	45.1	31.7	33.3	32.4
Liquidity				
Liquid assets to total assets ¹	...	...	61.1	62.2
Liquid assets to short term liabilities ¹	...	...	...	...
Customer deposits to total (non-interbank) loans	...	77.4	73.6	67.3
Foreign exchange liabilities to total liabilities	...	5.9	12.5	6.7

Source: Central Bank of Nigeria (CBN).

¹ Included in the "core set" of financial soundness indicators.

NPL - non performing loans; ROA - return on assets; ROE - return on equities.

Table II.4. Comparator Countries: Financial Soundness Indicators, 2007

(Percent, unless otherwise indicated)

	CAR	Non Performing Loans (NPL) ¹	Return on Assets (ROA)	Return on Equities (ROE)
Brazil ²	17.4	4.4	2.3	24.5
Indonesia ³	19.2	16	2.6	28
Malaysia ⁴	12.7	8.7	1.3	14.1
Nigeria	18.6	7.7	1.8	13.8
South Africa ⁵	12.7	1.1	1.4	18.6

Sources: Central Bank of Nigeria (CBN), and IMF, GFSR.

¹ NPLs to gross loans for Nigeria and Malaysia NPLs to total loans for all others.² CAR , NPL for 2005, ROA and ROE for March 2006.³ CAR Sept. 2006; NPLs include compromised assets ratio, restructured loans, and foreclosed assets for the largest 16 banks. ROE is based on the largest 12 banks.⁴ ROA is before tax.⁵ All entries are for March 2007.

C. Stress Tests

24. **Stress tests using individual bank data at end-June were conducted to assess the impact of full provisioning for NPLs, credit risk, and interest rate risk on the asset quality of banks** (Tables II.5 and II.6). Box 1 describes the shocks and outlines the results.

25. **Overall, banks appear resilient to the shocks measured.** Even the effects of credit risk, the largest quantifiable risk banks face, appear manageable. Only a small number of banks, accounting for less than 25 percent of assets, are undercapitalized after NPLs increase by 100 percent. Two small banks accounting for less than 5 percent of system assets become insolvent. Interest rate risk also appears well-contained.

Box II.1: Stress Tests: Methodology and Results

Stress tests were conducted to assess the impact of both credit and interest rate shocks. The analysis is based on end-June 2007 data for individual banks.

Credit risk is assessed using three shocks (Table II.5). First, an allowance is made for full provisioning. Second, an increase in the NPLs ratios by 25, 50 and 100 percent, possibly reflecting adverse macroeconomic developments is simulated. Third, a migration of 25 and 50 percent of the loans from performing to non-performing loan status, assuming the same distribution of the new nonperforming loans among the substandard, doubtful, and loss categories, is assessed.

The effects of credit risk are manageable. The effect of a correction for under-provisioning of NPLs is minimal. Extra provisioning to provide 100 percent coverage of reported NPLs has a limited impact on banks' capital adequacy. This result is not surprising since the banks have been provisioning more for the NPLs. This shock results in four banks (constituting 23 percent of assets) with capital adequacy ratios (CARs) less than the statutory 10 percent. Further, given that before the shock three banks already had CARs below 10 percent, the effect of the shock is limited. Indeed, for only one additional small bank (banking assets comprising about 2.7 percent of total banking assets) does the ratio fall below 10 percent. The effect of the second category of shocks simulating an increase in NPLs also appears limited: two banks accounting for only 3.5 percent of system assets become insolvent when NPLs double. The effect of the third set of tests relating to the migration of loans to nonperforming status is also limited: five banks accounting for 24 percent of system assets become undercapitalized. No banks become insolvent.

Interest rate risk is assessed using the traditional maturity-gap analysis (Table II.6). Shocks are calibrated for both an increase and decrease in the interest rate by 10 percentage points. The interest rate change is applied on the one-year cumulative gap between assets and liabilities after having accounted for the zero-interest demand deposits, and considering only the flow of funds. This test is based only on the flow impact from a gap between interest-sensitive assets and liabilities.

The effects of interest risk are also manageable. An increase in interest rates by 10 percentage points benefits the banking sector, while a similar decrease in interest rates results in five banks (27 percent of banking system assets) becoming significantly undercapitalized (with three banks having a CAR of about 5 percent). The beneficial effect on the Nigerian sector of an interest rate increase can be attributed to the low-cost demand deposits in Nigeria that attract a zero interest rate, while most interest-bearing liabilities are very short term (three months or less). On the asset side, total credits are mainly short term (three months or less). A 10 percentage point increase in interest rates raise all banks' capital adequacy ratio (including those that were marginally undercapitalized) to levels above the prudential requirement of 10 percent. The benefits, however, of an interest rate increase may be offset partly by the second-round effects of deterioration in asset quality because of higher interest rates. Accounting for the stock impact on the aggregate bank portfolio resulting from the repricing of bonds after a change in interest rates does not alter the result. The capital adequacy ratio remains high at 20.3 percent.

Table II.5: Sensitivity to Credit Risk
(Regulatory Capital to Risk-weighted Assets, percent)

	Before the Shock	Provisioning Brought to Required Levels	NPLs Increase			Migration to NPLs of	
			25%	50%	100%	25% of Performing Loans	50% of Performing Loans
All banks	18.6	17.7	17.2	16.6		17.7	17.6
Group 1	16.6	16.0	15.6	15.2	14.3	16.0	15.9
Group 2	20.2	19.6	18.9	18.2	16.7	19.5	19.4
Group 3	19.9	17.3	16.1	14.8	12.1	17.2	17.2
Group 4	30.9	30.6	30.5	30.4	30.2	30.5	30.5
Banks with CAR < 10%	3	4	5	5	5	5	5
Share of assets	20.7	22.7	24.2	24.2	24.2	24.2	24.2
Banks with CAR < 0	...	...	...	1.0	2.0	...	...
Share of assets	...	...	...	1.5	3.5	...	...

Sources: Central Bank of Nigeria (CBN) data, and IMF staff estimates.

Table II.6. Sensitivity to Interest Rate Risk
(Regulatory Capital to Risk-weighted Assets, percent)

	Before the Shock	Interest Rate Change		10% Increase plus Bonds Repricing ¹
		10% Increase	10% Decrease	
All banks	18.6	23.8	13.5	20.3
Group 1	16.6	21.6	11.7	...
Group 2	20.2	26.1	14.3	...
Group 3	19.9	24.9	14.8	...
Group 4	30.9	34.7	27.0	...
Banks with CAR < 10%	3.0	...	5.0	
Share of assets	20.7	...	27.4	
Banks with CAR < 0	...	...	...	...
Share of assets	...	...	...	...

Sources: Central Bank of Nigeria (CBN), and IMF staff estimates.

¹ Uses total government bonds held by banks and assumes a system average maturity of 4.6 years

D. Emerging Risks and Vulnerabilities

26. **While the banking sector is stable, prospective developments pose risks that need to be managed.** These include the following:

- **Large banks are operating across borders and across sectors without having risk-based and consolidated supervision fully implemented.** Without consolidated supervision and home-host supervision arrangements, the risks assumed by these banks could go undetected. Further, cross-border operations, particularly in neighboring countries that face political instability, expose banks to these countries' sovereign risk.
- **Developments may have outpaced banks' risk management capacities.** The skills and human resources needed to manage complex institutions and assess risks may have lagged the pace of development of financial institutions and products. Banks are working to augment their capacities in these areas, but such efforts are expected to bear fruit only in the medium term.
- **Banks under pressure to deliver shareholder returns might be overly eager to invest capital and deposits in risky activities.** As competition has increased, banks have moved into new and riskier areas of operation, including the retail sector, and have invested in long-term products like railway bonds and in long-term infrastructure investments. If not adequately monitored, such activities could result in bank losses and threaten overall stability.
- **Foreign investment in domestic treasury bills and bonds could present important challenges should investor sentiment change.**
- **Given the banking sector's increasing share on the stock exchange, banking sector instability could quickly spread to the capital markets.** Banks now make up close to 60 percent of the stock exchange's market capitalization. This heavy concentration increases the risk that bank instability could cause a stock market crashes, dashing confidence in the banking system.
- **Potential macroeconomic imbalances could add to financial sector risk.** Excessive spending at the federal or state level leading could impair economic performance and undermine financial sector stability. Nigeria's economy also remains relatively undiversified and heavily dependent on oil, exposing it to terms of trade shocks.

E. Banking Supervision

27. **Efforts are being made to strengthen supervisory capacity to monitor the developing banking system and environment.** The CBN has (i) established a private credit bureau designed to provide a central data base for major credit customers in the banking system; (ii) issued circulars cautioning against the granting of credit to all tiers of government and their agencies and insider related credits; (iii) created prudential guidelines to regulate income recognition and credit classification; (iv) amended the BOFIA to limit the amount of credit extended to a single borrower and requiring insiders to declare their interest; and (v) established a framework for contingency planning for systemic distress, which provides policy actions and trigger points to manage and contain systemic distress.

28. **While these actions have improved banking supervision at the CBN, gaps remain.** The legal, regulatory and operational frameworks for supervising financial institutions needs further strengthening to address risks and deal with emerging conglomerate banking structures. Information sharing and coordination among the domestic and foreign supervisors must also increase. Additional measures might include:

- **Further update the BOFIA.** While the banking sector and supervisory standards have changed dramatically, the BOFIA needs to be sufficiently comprehensive to reflect the changing banking system. In addition to the BOFIA, the CBN should also be a strong advocate for improvements to the system of business laws, including corporate, bankruptcy, contract, consumer protection, private property laws, and a consistently enforced mechanism for fair resolution.
- **Issue new regulations to aid effective supervision.** While a number of regulatory guidelines have been issued over the past three years, mostly in the context of bank consolidation, gaps remain in licensing, authorization and permissible activities, capital adequacy, related parties and large exposures, risk and risk management, internal control and auditing, and other areas. It is critical that the CBN take steps to issue these regulations as soon as possible.
- **Transform the CBN's approach to supervision and strengthen its capacity to effectively supervise the new banks.** Given the accelerated pace of change in the nature and operations of Nigerian banks, the CBN's supervisory practices must change from a backward-looking compliance-based approach to a forward-looking risk-based supervisory approach. This would require appropriate methodology and risk management guidelines to be developed and existing work processes, systems, and quality control mechanisms to be enhanced. In addition, the CBN staff must have adequate resources, including training, to effectively supervise banks. The Fund is providing technical assistance.

- **Implement a consolidated supervisory framework as soon as possible.** The CBN should take steps to implement the consolidated supervisory framework it developed in August 2007. As part of this process, the risk-based model currently proposed by the CBN will have to be modified to reflect elements of consolidated supervision.
- **Expand the signing of memoranda of understanding (MOU) to include all territories in which Nigerian banks operate.** It is important that the CBN undertakes a review of its existing MOUs and initiate arrangements with other relevant supervisors, domestic and cross border, to receive information on the financial condition and adequacy of risk management and controls of the different entities of the banking groups. An MOU must also be signed with the Nigeria Financial Intelligence Unit (NFIU).
- **Strengthen supervisory techniques.** The CBN, recognizing that effective supervision requires full collaboration between on-site and off-site examiners, intends to assign a group of banks to a particular on-site examination team with its equivalent off-site team. The CBN could further strengthen this initiative by assigning each bank to an experienced supervisory team who would be responsible for overseeing that bank. This model has been found to be effective in other jurisdictions and would be relevant to Nigeria given that some supervision groups are in Lagos while others are in Abuja. The CBN should also consider instituting a dedicated macro analysis group that could be involved in benchmarking exercises and peer group analyses.
- **Strengthen the accounting and disclosure practices.** Banks in Nigeria are required to follow the standards of the Nigerian Accounting Standards Board which do not in all aspects coincide with international accounting standards. The industry would like Nigeria to move to International Financial Reporting Standards and have cited difficulties with the treatment of goodwill as being a serious impediment during the consolidation process. The CBN may wish to suggest giving it the power to alter Nigeria's Generally Accepted Accounting Principles (GAAP) as required—the initiation of regulatory accounting practices—which would only be employed in extraordinary circumstances. In addition, the scope of the disclosure required of banks by CBN must be enhanced to include more qualitative information. Such information should extend to risk management strategies and practices, risk exposures, transactions with related parties, accounting policies and basic business, management and governance. The CBN's web site does not contain any information on the performance of the banking system. The CBN should thus, at a minimum, publish aggregate data on the banking system to facilitate public understanding of the banking system and the exercise of market discipline. Such information should, at a minimum, include aggregate data on balance sheet indicators and statistical parameters that reflect the principal aspects of banks' operations.

- **Strengthen the corrective and remedial powers of the CBN.** The CBN should review its sanctioning processes with a view to increase judgment and transparency. The regime should be applied consistently among banks. Further, the disclosure of the supervisory sanctions available to the CBN and a letter of compliance should be published on the CBN's website. The CBN might also benefit from having a sanctions officer or team to ensure that remedial measures are carried out and complied with by the banks.

F. Conclusions

29. **The consolidation of the banking system has transformed Nigeria's financial system and created opportunities for financial institutions and market participants; but, it also poses challenges for financial stability.** Strong and big banks could increase competition in the industry and reduce interest rate spreads as well as reduce market segmentation. These developments could facilitate the monetary policy transmission and support private sector growth. These benefits, however, will materialize only if the authorities work diligently to ensure that past weaknesses do not continue in the post-consolidation era. Efforts must therefore be stepped up to strengthen supervision and regulatory interventions, further build surveillance and oversight of the financial system, and address regulatory gaps.