Financial sector reforms, macroeconomic instability and the order of economic liberalization: The evidence from Nigeria

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Abstract

Financial sector reforms began in Nigeria with the deregulation of interest rates in August 1987. Since then, far-reaching policy measures including the chartering of new banks, reform of the capital market and a move from direct to indirect monetary controls have been undertaken. The results from the implementation of the reforms have been disappointing, however. Bank insolvency, high inflation and excessively high interest rates have become common phenomena in the economy. This study uses discriminant analysis to demonstrate that the health of banks deteriorated following reforms in Nigeria. The study cautiously identifies a wrong sequencing process as a major factor in the poor performance of the financial sector reforms, but agrees that a lot more research needs to be done in this area.

1. Introduction

For more than two decades after independence, the Nigerian financial system was repressed, as evidenced by ceilings on interest rates and credit expansion, selective credit policies, high reserve requirements, and restriction on entry into the banking industry. This situation inhibited the functioning of the financial system and especially constrained its ability to mobilize savings and facilitate productive investment.

In 1987, the authorities commenced an extensive reform of the financial system as part of a structural adjustment programme (SAP). (Refer to Table 1 for a summary of Nigeria's declining macroeconomic indicators.) Reforms involved liberalizing interest and exchange rates, promoting a market-based system of credit allocation, enhancing competition and efficiency in the financial system, and strengthening the regulatory and supervisory framework.

Table 1: Some macroeconomic indicators

YEAR	Fiscal deficit (% of (GDP)	Current account deficit (% of GDP)	Real GDP growth rate	Investment/ GDP ratio	Real effective exchange rate (1990 =100	Growth rate M1	Rate rate of infla- tion
1980	4.0	3.2*	5.3	22.4	352.2	50.1	9.9
1981	7.9	5.6	-36.6	22.8	390.4	5.6	20.9
1982	12.8	6.9	-0.32	18.8	400.8	3.1	7.7
1983	9.7	4.7	-5.6	13.0	473.5	12.3	23.2
1984	4.5	0.04*	-5.3	6.6	652.3	8.2	39.6
1985	4.5	3.2*	8.5	7.0	594.4	17.6	5.5
1986	10.4	4.2	3.0	10.5	326.1	-1.2	5.4
1987	5.4	0.4	-0.5	8.8	105.0	13.7	10.2
1988	8.4	1.2	9.0	6.4	121.0	41.9	38.3
1989	6.7	9.8*	7.3	8.1	108.1	21.5	40.9
1990	8.2	49.5*	7.6	11.9	100.0	44.9	7.5
1991	12.4	13.4*	4.5	10.9	84.3	32.6	13.0
1992	9.8	40.0*	3.5	10.6	69.9	66.4	44.6

*indicates a surplus.
Source: CBN *Statistical Bulletin*, 1993.
Data for investment/GDP ratio and real effective exchange rates obtained from IMF International Financial Statistics, 1994.

The implementation of financial reforms in Nigeria has raised academic interest in two related areas:

- The proper timing of financial reforms within the overall adjustment programme.
- The appropriate sequencing of financial reform policies.

These issues are now of particular concern because the implementation of financial reforms has been accompanied by variable rates of inflation and an increase in the number of problem banks. There are worries that these undesirable phenomena may have arisen from the improper timing and wrong sequencing of the Nigerian reform policies. This study thus focuses on the timing and sequencing of the reforms. Although a lot of research has dwelt on the impact of general economic reform on specific sectors of the Nigerian economy, surprisingly, not much has been done to examine the timing and sequencing of reforms.

On the basis of the foregoing, this study examines the deviation of Nigeria's financial sector reform programme from the feasible sequencing framework suggested in the literature and the implications for bank solvency and macroeconomic stability. This focus derives from our contention that there is a correlation between the timing and order in which reforms are implemented and the success of such reform programmes.

The rest of this report proceeds as follows. Section 2 briefly reviews pertinent literature and provides a theoretical framework for this study. In Section 3, the method of analysis is outlined. Section 4 describes the financial sector reform programme in Nigeria, bearing in mind the theoretical framework outlined in Section 2. The deterioration in the banking sector's performance following financial sector reform is captured in Section 5 using simple statistical procedures. In Section 6, we attempt to relate this observed deterioration to the improper sequencing outlined in Section 4. Finally, in Section 7 we examine the main lessons from the reforms and in Section 8 present a proposed agenda for further research.

2. Literature review and theoretical framework

It took the seminal works of McKinnon (1973) and Shaw (1973) to highlight the adverse effects of "financial repression" on economic development. Financial repression refers to the distortion of domestic financial markets through measures such as ceilings on interest rates and credit expansion, selective allocation of credit, and high reserve requirements. McKinnon and Shaw pointed out that such misguided policies have damaged the economies of many developing countries by reducing savings and encouraging investment in inefficient and unproductive activities. The standard recommendation is then that positive real interest rates be established on deposits and loans by eliminating interest rate and credit ceilings, stopping selective credit allocation, and lowering reserve requirements. The true scarcity price of capital could then be "seen" by savers and investors, leading to improved allocative efficiency and faster output growth.

These recommendations have been implemented in several developing countries but with mixed results. While some studies have reported that certain countries experienced higher savings and investment following liberalization (see Fry, 1978; de Melo, 1986; Khatkhate, 1988), others have chronicled disasters in other economies that undertook financial liberalization (Diaz-Alejandro, 1985; Corbo and de Melo, 1985; Barandiaran, 1987; Atiyas, 1989; Larrain, 1989). Countries in the latter category experienced considerable macroeconomic instability, massive capital outflows and widespread bank failures following financial liberalization.

Dornbusch and Reynoso (1993) also underscored the importance of attaining macroeconomic stability prior to financial liberalization. They noted that high and unstable inflation often increases the demand for financial liberalization, but this might trigger further increases in inflation especially if fiscal deficits are large and the exchange rate is depreciating rapidly. As the government finances its deficits through money creation, the higher interest rates resulting from financial liberalization would reduce government revenue from money creation; with a given budget, this induces further increases in inflation. The recommendation is therefore that fiscal deficits be substantially reduced and the exchange rate stabilized before financial liberalization is embarked upon. Thus, Dornbusch and Reynoso (1993: 85) conclude that for Latin America, after a decade of financial instability,

> The path that will return the region to rapid long-run growth is awesomely orthodox: realistic exchange rates, balanced budgets, and a favourable investment climate.

Thus they emphasize a return to orthodoxy—stabilization policies as a prerequisite for successful financial reform policies.

The issue of sequencing stabilization policies vis-a-vis structural adjustment policies has received a lot of attention in recent times. Smith and Spooner (1992) identified a number of reasons why stabilization measures are expected to precede supply-side measures in adjustment programmes. First, it is argued that the results of supply-side measures take time to be realized. Without demand restraints, the initial increase in balance of payments deficit that accompanies demand-side measures may become explosive and uncontainable, especially where there is a constraint on external inflows. Second, stabilization measures are required to bring about a substantial improvement of the balance of payments. This is made possible by a drastic depreciation of the exchange rate to promote exports in order to provide funds for the importation of essential imports. In order to sustain the exchange rate adjustment, appropriate monetary, financial and income policies have to be put in place as a prerequisite to the expansionary supply-side policies. Third, to enhance the growth of savings and hence investment, it is necessary to control inflation. The initial impact of devaluation and restrictive monetary policies is in most cases an increase in the level of prices (Crockett, 1981; Porter and Ranney, 1982). More often than not, when these policies are combined with huge fiscal deficits, which are inevitably financed by borrowing from the central banks, the result is quite destabilizing.

Chapple (1990) dwelt on the timing of financial liberalization within an overall adjustment programme. He outlined an economic liberalization framework with the following sequence:

1. Reduce fiscal deficits
2. Liberalize the financial system
3. Liberalize the trade account
4. Liberalize the capital account

According to Chapple, financial liberalization can only be successful if implemented after monetary stability has been attained. In developing countries, fiscal deficits constitute the major source of monetary expansion. Hence, particular attention should be paid to achieving a significant reduction in the size of the public sector deficit prior to the introduction of a financial liberalization programme. Chapple further argued that unless this is done, liberalizing interest rates in an unstable macroeconomic environment would lead to explosive increases in both deposit and loan rates. It is only after monetary stability has been achieved and financial reforms are well under way that the trade and capital accounts can be liberalized, in that order.

Financial reforms and banking crises

Attempts to link banking crises to financial sector reforms have met with a number of controversies. It is quite easy to enumerate reform measures and instances of crises in the system, but a lot of caution is required here in establishing causality.

Sundararajan and Balino (1991) identified several ways by which financial reforms could increase the fragility of both financial and non-financial firms. These include:

- The relaxed freedom of entry into the financial sector and freedom to bid for funds through interest rates and new instruments, which could lead to excessive risk-taking.
- Changes in the institutional structure of the banking system that emerge during reforms, which could lead to concentration of power in banking, and interlocking ownership and lending patterns.
- Excessive increases in interest rates arising from sharp increases in credit demand because of high business expectations and unsound liability structures—distress borrowing results and the end result is financial crisis.
- Inadequacy of instruments of monetary control or insensitivity to the need for the control of interest rates during deregulation.
- Instability in the credit markets during deregulation, arising from inelastic demand for credit or credit rationing.
- Excessive reliance on economic rather than prudential regulations, which should focus on bank solvency and credit risk.
- Mismatch of investments—the deregulation of interest rates could affect financial institutions that have a large exposure to long-term assets funded by short-term liabilities, which carry fixed interest rates.

There is no doubt that the prior existence of an unstable macroeconomic environment and weaknesses in the institutional structure for banking could have existed prior to the operation of these channels during reforms, but the manner of the implementation of the reform may facilitate the occurrence of any of the aforementioned events, leading to banking crisis.

One reason deregulation has been closely linked with bank failure is the simultaneous occurrence of the two events. The rapid rise in bank failure often takes place at a time of substantial deregulation of the financial sector. But because two events occur at the same time, it may not necessarily mean that one has caused the other—neither does it mean that one has not caused the other! Deregulation is often accompanied by increased market competition. As deregulation compels banks to compete with one another for core deposits, their level of exposure to risk may increase as the spread between the cost of funds and the return on funds is narrowed. Moreover, banks may tend to assume more risk in order to keep profitability measures up, either by diverting funds in their loan and investment portfolios to higher risk/return opportunities, or by becoming more leveraged (Pantallone and Platt, 1987).

In particular, the timing of the deregulation of interest rates in most developing countries has received a lot of attention in recent times. The theoretical construct of Stiglitz and Weiss (1981) served as the reference point for Villanueva and Mirakhor's (1990) later analysis and must therefore be our starting point. Stiglitz and Weiss developed a model in which interest rates not only clear the market for loanable funds but also serve as a selection device to affect the quality of borrowers. Too high an interest rate would attract riskier borrowers (adverse selection) and would give the current pool of borrowers incentives to choose riskier projects (adverse incentives) to cover the higher financing

costs. Villanueva and Mirakhor then showed how macroeconomic instability could aggravate such a situation. It was first noted that those countries that avoided the adverse consequences of financial liberalization were characterized by stable macroeconomic conditions, a strong and effective system of bank supervision, and the gradual removal of interest rate controls.

According to Stiglitz and Weiss, the interaction of macro-instability and inadequate bank supervision often results in an increase in real interest rates to risky levels. If deposit insurance is not properly priced in the face of weak supervision, the unstable macroeconomic environment intensifies adverse selection, adverse incentive and moral hazard as both bank customers and bankers themselves transact risky loans at higher interest rates, with all parties behaving like risk-lovers. Ultimately, the situation causes general financial breakdown with bank panics and failures plus bankruptcies in the non-financial private sector.

With this background, Villanueva and Mirakhor proposed the following strategies for successful financial reform:

- Countries with unstable economy and weak bank supervision should achieve macro-stability and strengthen the supervisory framework before liberalizing interest rates.
- Unstable economies having adequate bank supervision should stabilize while maintaining firm supervision. Gradual deregulation could then be attempted.
- Stable economies with inadequate supervision should maintain stability while boosting regulation and supervision. Interest rates should be temporarily regulated.
- Only countries that can boast of macro-stability plus adequate bank supervision should proceed directly with financial liberalization.

From the foregoing, we note, first, the importance of stabilization prior to liberalization, and second the requirement for the ordering of reform measures within the financial sector itself. Attention has been focused particularly in recent times on the need for a strong and effective bank regulatory and supervisory framework (Peterson and Scott, 1985). The inability of regulators to perceive and correct such other causes of failures as management laxity, poor performance ratios, excessively rapid growth, lack of control of overheads, excessive loan losses, etc., could be a major cause of a crisis in the financial sector.

Feasible sequencing of financial sector reforms

A feasible sequence of financial liberalization is set out in Appendix A. Step 1 underscores the need to restore macroeconomic and financial stability before the commencement of large-scale financial liberalization. Pursuing macroeconomic stability will involve dampening inflationary pressures through a reduction in fiscal deficits and the tightening of monetary and credit policies. Efforts should also be made to stabilize the balance of payments and restore appropriate exchange rates.

While attempts are being made to stabilize the economy, the sanitation of the financial system should begin. Weak financial institutions should be strengthened while those

beyond help should be liquidated. This will serve to strengthen the system in preparation for the full liberalization, which is to come later.

Step 2 involves the introduction of indirect monetary instruments and a reinforcement of the regulatory framework and prudential bank supervision. The need for indirect monetary instruments arises from the fact that tools of monetary policy under the repressed regime are direct, depending principally on the ability of the authorities to improve controls on financial institutions. With financial liberalization, however, direct monetary controls become anomalous, and in their place there is the need to develop indirect, market-based tools of monetary policy. The reliance on primary securities in government securities in most developing countries as a means of implementing monetary policy generally calls for supporting changes in domestic public debt management, policies and procedures. Thus, the transition from direct to indirect controls involves parallel reforms in central banking functions, money market structures and public debt management (Khan and Sundararajan, 1992). For this purpose, money market instruments such as treasury bills are appropriate. Since these instruments have to be attractive to the public, there is need to make interest rates on them free and set up auctioning procedures. As market agents become familiar with these instruments, the monetary authorities are offered an alternative way of controlling liquidity before direct controls are fully dismantled later on. Simultaneously, efforts should be made to revamp the bank regulatory and supervisory framework. Rules and guidelines must be specified on loan classification, provision for bad debts, capital adequacy standards and limits to loan concentration. This will allow the authorities to develop an effective monitoring system so that they are able to take corrective action before a bank's condition deteriorates beyond redemption.

The foregoing policy measures serve to prepare the ground for enhancing competition in the financial sector (step 3). Since banks have to adapt to competition in a deregulated environment and might take unnecessary risks, the installation of effective prudential regulation and supervision assures that risky excesses do not arise. The promotion of competition would then involve the extension of more bank licences, allowing non-bank financial institutions (NBFIs) to compete directly with banks and the divestment of government holdings in domestic banks. Foreign banks could also be allowed to set up.

With all these in place, the final step in financial liberalization should involve the abolition of all direct controls on interest rates and credit ceilings (step 4). With macroeconomic stability and strong bank supervision already in place, lifting credit ceilings will enable banks to attract long-term deposits and extend long-term loans in an atmosphere of financial stability. If indirect instruments have not attained the desired level of effectiveness, however, credit ceilings might be retained while the system settles down and adapts to the new environment.

3. Method of analysis

Qualitative analysis

Two main approaches are used to attain the objectives of this study. The first is purely qualitative; it simply narrates the sequence of financial sector reform in Nigeria between 1987 and 1993. The emphasis is on the deviations of the Nigerian experience from the feasible sequence discussed in Section 2.

Quantitative analysis

The second approach attempts to isolate the impact of financial reforms on bank solvency using simple statistical techniques. This approach uses the CAMEL rating as an analytical device for explaining the behaviour of banks before and after reforms. (CAMEL stands for capital, assets, management, earnings and liquidity, each of which forms an element of the rating.) Statistical tools such as the discriminant analysis and composite peer bank index are derived from the CAMEL ratios to arrive at measurable magnitudes that can then used to explain the pre- and post-reform behaviour of banks.

CAMEL analysis

The goal here is to establish that bank performance actually worsened immediately after the reform exercise. Monetary authorities undertake on-site and off-site examinations as a means of monitoring the soundness and safety of the banking system. In off-site surveillance, the regulator uses prudential reports from the banks and direct contacts with bankers to review performance and issue recommendations or directives. On-site examination is a direct verification of the books and prudential returns through visits to banks. This may prove very useful when there is likelihood that banks may conceal information on their actual position.

To determine the financial position of a bank, examiners rate banks on a scale of 1 to 6 in each of the five CAMEL areas. Each institution is marked by the supervisors according to the performance in a series of aspects that make up each of these areas.

A number of financial ratios have been defined in the literature to proxy the major components of a CAMEL rating using balance sheet and income statements from annual reports of banks. Some of these capture variables identified as crucial elements in the

determination of bank failures. The choice of the ratios chosen for a particular study will be influenced by the requirement for sound theoretical reasoning and the immediate availability of optimal data for the time period as well as the particular interests of the researcher. Since the question we seek to answer here is the behaviour of banks during deregulation, our variables must reflect this line of enquiry. More importantly for our analysis, such ratios must be capable of being defined for a fairly large representative sample in our study.

Five ratios are described for our analysis. The first, designated by CAPTA, is the ratio of bank equity capital less bad loans to total assets. CAPTA is a good measure of enterprise-contributed capital since it adjusts for the effect of bad loans. We expect to observe deterioration in this variable, which is our main measure of bank solvency, particularly after the commencement of financial sector reforms. The second variable is LOANT, measured as the ratio of bad and doubtful debts to total bank loans. Our expectation is that with increased distressed borrowing during the reform period, this ratio would have risen. The third variable is OVRHDT, which is our measure of the total as well as quality of overhead expenses as a proportion of total assets. This ratio indicates the bank's operational efficiency; it relates operating expenses to a bank's revenue and this provides an indicator of management's ability to operate a sound and efficient organization (Korobow et al., 1977). Our expectation for this ratio is that given the rapid increase in the number of banks/offices, it would have risen during the period of analysis. Fourth is ROA, return on assets, commonly measured in the literature as the ratio of net income after taxes to total assets. This to us is a better measure of a bank's survival than return on earnings (ROE). We also expect that ROA would have declined with reforms.

The final variable is LIQ, liquidity, measured as the ratio of non-deposit liabilities to cash and investment securities. Measuring liquidity is difficult. There is a lack of consensus on how to accomplish it, yet it is an important variable in the failure equation (Stillinger, 1983). A lack of liquidity subjects a bank to vulnerability resulting from sudden changes in funds movement. Sudden swings in interest rates, which affect the return on loans or cost of deposits, lack of diversification in a bank's loan portfolio (loan concentration), or excessive concentration on a particular class of loans are all factors that may infringe on the liquidity of a bank. All these will affect the portfolio of a bank tied up in non-liquid assets backed by the cash and investment securities portfolio. Thus we expect that our measure here captures some of the elements described above that are also characteristic of bank behaviour during the reform period.

Discriminant analysis

In addition, we also used discriminant analysis to come out with measurable yardsticks of performance before and after the reforms. Discriminant analysis is a statistical technique that allows us to study the degree of discrimination between the average scores of the two groups as well as how closely the scores are clustered around their respective group averages. A number of studies have applied this technique to the examination of bank failures (Altman, 1968; Dince and Forston, 1972; Stuhr and Wicklen, 1974). We have

modified their approach to suit our objective in this study: This is not a project on identifying weak and strong banks; this we assumed has been done, whether rightly or wrongly, by the Central Bank of Nigeria (CBN). Our main objective is to see, using our ratios, whether we can fairly discriminate between the periods before and after reforms through a simultaneous study of the effects of our variables.

Our first series of DISCRIM procedure classifies banks into two groups—group 1 (banks 1–13), the distressed banks, and group 2 (banks 14–25), the non-distressed banks —and observe whether there is discrimination between the periods 1980–1986 (pre-reform) and 1987–1992 (post reform) in the ratios. The hypothesis we have tested here using the chi-square statistic is that:

$$H_0 : \sigma_1^2 = \sigma_2^2$$

$$\mu_1 = \mu_2$$

$$H_1 : \sigma_1^2 \neq \sigma_2^2$$

$$\mu_1 \neq \mu_2$$

where,

σ_1 = X-square value (1980–1986)

σ_2 = X-square value (1987–1992)

μ_1 = means (1980–1986)

μ_2 = means (1987–1992)

Our null hypothesis is that the standard deviation and means are not significantly different for the two periods, so we accept H_0 and reject H_1. Rejecting H_0 and accepting H_1 is tantamount to saying that there is a significant variation in the means and standard deviation of the variable in the two periods.

Peer group composite bank index

To provide further evidence in pursuance of our objective, we use a third approach that does not classify banks as distressed or non-distressed. Rather, we apply the notion of a peer group composite bank index, which is very popular in the analysis of bank failures (Korobow et al., 1977; Korobow and Stuhr, 1983). Here we briefly review the process of constructing a composite score or index. First we determine a peer group baseline average for each year. To calculate a bank's score on a ratio, the bank's deviation from the baseline

average is divided by the standard deviation of the peer group's average ratio. A score above the average is assigned a negative sign for all ratios except CAPTA and LIQ. The resulting scores for each bank's ratios are added algebraically to form a composite score. Since the assigned algebraic sign indicates strength or weakness for each variable, the resulting composite score is able to capture the cumulative effects of strengths or weaknesses in all the key ratios. Banks with high positive scores are considered strong, and those with large negative scores are considered weak. For our purpose, instead of computing this index for only one year and reaching conclusions on strengths or weaknesses based on this single result, we have done this for a period of six years (1983–1990).

4. The sequencing of financial liberalization in Nigeria

The sequence of the financial liberalization programme in Nigeria is shown in Appendix B. The programme began with the establishment of a second-tier foreign exchange market (SFEM) in September 1986 as an auction-based forum for the sale and purchase of foreign exchange. Previously the sale of foreign exchange was rigidly controlled through the use of import licences and the exchange rate was fixed by fiat. To restore appropriate exchange rates and correct the over-valuation of the domestic currency, the authorities began the auction sales of foreign exchange to licensed dealers. A first-tier market was retained to take care of transactions related to government debt servicing, contributions to international organizations and transfers to Nigerian missions abroad.

The liberalization of exchange rates was followed in 1987 by the full deregulation of both deposit and loan rates. In January 1987, a partial deregulation was attempted but by August, all rates had become market determined. Interest rate liberalization was aimed at enhancing the ability of banks to charge market-based loan rates, and hence guarantee the efficient allocation of scarce resources.

Simultaneously with the interest rate deregulation, conditions for licensing new banks were relaxed. In response, the number of banks increased dramatically, from 40 in 1986 to 119 by the end of 1991. A comparable increase in the number of NBFIs also occurred.

The two foreign exchange markets were also unified in 1987 with the establishment of a single foreign exchange market (FEM). In 1988, the government permitted the establishment of private foreign exchange bureaus. This step intended to provide a mechanism for absorbing some of the demand pressures for foreign exchange and also to accord recognition to small dealers in foreign exchange. The *bureaux de change* were to be operated by private entrepreneurs, providing free access to foreign exchange by small dealers in an informal manner.

During the same year, efforts were made to give banks expanded powers in the range of assets and liabilities they could acquire. Banks were permitted to hold stock in non-financial enterprises and to engage in insurance brokerage. The intent was to invigorate the system by encouraging serious competition among financial institutions.

Another significant step was taken in 1988 with the establishment of the Nigerian Deposit Insurance Corporation (NDIC), charged with the responsibility of inducing bank deposits by promoting public confidence in the safety of the banking system and protecting depositors' interests. With this development, it was expected that financial stability would be maintained while progress was made with the other aspects of financial sector reforms.

In 1989 bank powers expanded further as permission was granted to pay interest on deposits. At the same time, efforts began to mop up excess liquidity in the system. The

cash reserve requirement was raised and the practice whereby banks granted domestic loans on the security of foreign exchange deposits held abroad or in domiciliary accounts with domestic banks was prohibited. A directive that all federal and state government ministries, departments and parastatals transfer their deposits from commercial and merchant banks to the Central Bank head office or its branches in the state capitals complemented the measure. Further, in preparation for the eventual removal of direct credit controls, the auctioning of treasury bills was commenced. The instruments began to carry market-based yields as a way of making them useful for open-market operations (OMO) later in the liberalization programme.

To further strengthen the banking system against unforeseen shocks, the capital funds adequacy ratio was reviewed. Banks were mandated to maintain a ratio of not less than 1:10 between adjusted capital funds and total loans and advances, as against the previous ratio of 1:12. All banks were also directed to adopt a uniform reporting of all inter-bank flows (money-at-call, term deposits, etc., commercial papers, and loans and advances) in order to ensure proper monitoring of bank activities.

The year 1990 witnessed a series of measures designed to strengthen bank regulation and supervision in response to the rapid expansion of financial institutions and the perceived higher risk of bank failure. First, the Central Bank began to enforce a risk-weighted measure of bank capital adequacy. Risk weighting is only in respect of perceived credit risk in each category of asset including off balance sheet items. The structure of weights is essentially based on value judgements on the relative riskiness of asset categories in broad terms. In this regard, five broad risk weights are specified: 0%, 10%, 20%, 50% and 100%. A summary of the major provisions of the guidelines is in Appendix C. All banks were directed to maintain capital funds not less than 7.26% of total risk-weighted assets. Further, at least 50% of a bank's capital must be in the form of core (primary) capital—paid-up or equity capital and disclosed reserves, i.e., shareholder's fund. Equity capital for this purpose is defined as issued and fully paid ordinary shares and non-cumulative perpetual preferred stock. The required paid-up capital for commercial banks was increased from ₦20 million to ₦50 million, and that for merchant banks went up from ₦12 million to ₦40 million. Beginning in January 1992, banks were expected to maintain the ratio of capital to total risk-weighted assets at a minimum of 6%.

Also in 1990, the CBN issued prudential guidelines for licensed banks to enhance the quality of their risk assets and the soundness of their operations. Among others, the guidelines require all banks to make adequate provisions for perceived losses based on portfolio classification so as to reflect their true financial positions. Specific provisions are to be made for non-performing credit identified as substandard, doubtful or lost. Banks are also to cease accruing interest on non-performing credit facilities, while interest accrued on such accounts should not be counted as income. In order to detect early any deterioration in the quality of credit portfolio, banks are also under the guidelines mandated to review such credit portfolio on a continual basis (Ojo, 1993).

In addition, a uniform accounting standard for banks was introduced to ensure the accuracy, reliability and comparability of their financial statements. The new accounting framework defined and standardized methods of treating credit risks, syndicated loans, non-performing loans and off balance sheet items. A major aim of the new accounting

standard was to ease the task of regulators in assessing the financial condition of banks in the face of increasing risks within the sector.

Efforts to stabilize the economy took a new turn in 1990 as well, following the introduction of stabilization securities. These are non-negotiable and non-transferable debt instruments of the Central Bank that banks are mandated to purchase at intervals in order to control their excess reserves. The securities carry yields slightly higher than the treasury bill rate and quickly became the Central Bank's principal weapon of monetary control.

There arose widespread concern in 1991 about the health of the financial system (see Table 2). Many argued that the ongoing liberalization programme had increased systemic risk to alarming levels. The authorities responded with some regulatory measures. First an embargo was placed on further licensing of both commercial and merchant banks to prevent the banking industry from expanding beyond the authorities' regulatory capabilities. Two new decrees, the CBN Decree, No. 24 of 1991 and the Banks and Other Financial Institutions Decree (BOFID), No. 25 of 1991, which repealed the CBN Act 1958 (as amended) and the Banking Decree 1969 (as amended), respectively, came into existence. The new CBN Decree enlarged the powers of the Central Bank with regard to the maintenance of monetary stability and a sound financial system. To curtail the persistent excess liquidity in the system, the decree substantially reduced the size of the advances that the CBN may grant to the federal government in any one year. BOFID, on the other hand, concentrated on regulations that can promote the development of the financial sector in a deregulated regime. Some high points in the decree are the centralization of the functions of bank licensing, regulation and supervision in the CBN; allowance for changes to be made to the decree without recourse to new legislation; and strengthening the regulatory powers of the CBN regarding keeping of proper books of accounts by financial institutions. The decree also provided for the control of distressed banks and winding-up of failed institutions; enlargement of the duties and responsibilities of directors and external auditors of banks; and regulation of any financial sector operators in the informal sector whose activities influence the economy in a significant way. Attempts at restructuring distressed banks also commenced later during the year; eight technically insolvent banks were identified between 1990 and 1991. To safeguard their assets, some holding actions were imposed on them while the management of one of the banks was taken over by the CBN in January 1992. Another set of five banks was taken over by the CBN in 1993 following from the same factors.

Mounting complaints about the high level of loan interest rates led to the re-imposition of interest rate controls in 1991. A ceiling of 21% was placed on lending rates and a floor of 13.5% for deposit rates. The maximum permissible spread between deposit and loan rates was fixed at four percentage points. As a way of controlling the excess liquidity in the system, credit ceilings were redefined to include call money and certificates of deposit. In 1992, all interest rates were again deregulated and the Central Bank announced its desire to focus only on maintaining a given spread between lending and deposit rates. This margin was fixed at 5 percentage points.

The privatization of government owned banks began in 1992, with government equity interest in seven banks offered for sale. The withdrawal of government interest was

Table 2a: Non-performing loans/frauds in the Nigerian banking industry

YEAR	Total loans in ₦b (1)	Non-performing loans in ₦b (2)	2 as % of 1 (3)	Bank losses from frauds in ₦m (4)	4 as a % of total assets (5)	No of distressed banks (6)
1989	23.2	9.4	40.8	104.9	0.12	5
1990	26.9	11.9	44.1	804.2	0.96	5
1991	32.8	12.8	39.0	643.5	0.54	8
1992	41.4	18.8	45.1	401.7	0.34	14
1993	80.0	33.1	41.0	1419.5	0.78	33

Computed from Nigeria Deposit Insurance Corporation Annual Reports: 1991,1993.

Table 2b: Risk exposure of Nigerian commercial banks

	1970–74	1975–79	1980–84	1985–89	1990–94
Loan/assets (%)	37.3	38.8	39.2	34.7	22.7
Govt. sec/assets (%)	26.2	14.8	20.0	10.9	6.5
Other invest/assets (%)	0.7	5.4	2.2	1.7	9.9
Capital/assets (%)	4.5	2.6	3.0	3.8	3.5
Core dep/liability (%)	57.3	61.6	51.8	44.8	44.7

Computed from Central Bank of Nigeria Statistical Bulletin December 1993.

intended to facilitate the autonomy of bank's management, thereby improving efficiency and encouraging innovation. Previously, political interference from the government had obstructed the efficient performance of these institutions, causing them to fare worse than their privately owned counterparts.

To complete the deregulation of the financial markets, all controls on the capital market were removed in December 1992. Importantly, the pricing of new issues in the market was now to be carried out by the various issuing houses, instead of the Securities and Exchange Commission (SEC). Also, an over-the-counter market was allowed to operate freely within the normal rules governing such markets.

The foreign exchange market was completely overhauled in March 1992, with a major attempt made to transform the market from an auction-based one to a full inter-bank market. Weekly auctions of foreign exchange were abolished and banks were permitted to obtain foreign exchange from any available source. The Central Bank itself became an active participant, free to buy and sell foreign exchange at market determined rates. These arrangements functioned until December 1992, when they were suspended following allegations of malpractice levelled against many banks.

With the increasing ineffectiveness of direct credit controls, all credit ceilings were dismantled in December 1992. The deregulation of credit, however, applied only to banks that met the Central Bank's criteria relating to capital adequacy, asset quality, managerial

competence, adequate earnings and liquidity levels. Thus, credit ceilings were enforced only for those banks classified as distressed by the Central Bank.

In June 1993, open market operations (OMO) were introduced. Under the scheme, OMO was to be conducted exclusively through licensed discount houses, which are supposed to constitute the open market for government securities. The principal instrument for OMO was treasury bills, with auctions taking place once a week. Banks submit open bids to discount houses, which in turn make bids to the Central Bank. The process ends when discount houses allot treasury bills to successful dealers. The introduction of OMO was meant to replace the use of direct controls for managing liquidity in the economy.

5. Empirical results

Our sample of commercial banks includes two categories of banks. First is the non-distressed banks (12) and second, the distressed banks (13), making altogether 25 commercial banks. We have selected banks that were in existence at least three years before and after reform. The banks here defined as distressed follow from the CBN call reports in 1989.

The approach we have adopted for using the ratios defined here to highlight changes in the conditions of banks follows popular procedures in the literature. First, we examine the trend in the behaviour of these variables before and after reforms. Where adverse trends are observable, we attempt to highlight sequencing errors in the liberalization process that may have contributed to such occurrences. Our first category of banks is the distressed banks. For these banks, CAPTA declined consistently, turning negative for some between 1988 and 1991. The exceptions to this general pattern are banks 03 and 04. Banks 08 and 10 have now been officially declared "failed" by the CBN. Also for all banks (both non-distressed and distressed), LOANT rose consistently over 1983–1992 and has worsened since. ROA worsened and turned negative for most banks in the first category (the distressed banks) during the reform period. The trend in LIQ is not well enough defined to enable us to make a definitive statement about its pre- and post-reform performance.

The first part of our DISCRIM result is summarized in Table 3. For the distressed banks, our results indicate that there is a significant difference between the period before and after the reforms in all variables except OVRHDT. Our Chi square statistics indicate that we can reject H_0 and accept H_1 at the 1% level of significance for CAPTA, LOANT, LIQ and ROA.

The second category of banks is the non-distressed banks. The result of the discriminant analysis for the two periods is shown in Table 4. On the basis of the results of our Chi-square value, we reject H_0 and accept H_1 at the 1% level of significance for LOANT, ROA and OVRHDT.

Our results enable us to conclude tentatively that there is a significant variation in the pre- and post-reform performances of the banks, though more prominent for the distressed banks. However, this still does not establish our position. The direction of change is not indicated. The cause of the difference for the distressed banks could have been the result of a worsening performance post-SAP. Table 5 confirms this position as we report the results of the DISCRIM analysis for the two groups of banks, first for the period 1980–1986, and then 1987–1992. For the first period (1980–1986), the two groups are dissimilar in all respects except for the variable LOANT, whereas for the second period the two

Table 3: Discriminant analysis (1980–86 vs 1987–93) distressed banks

Financial ratios	Chi-square stat		Wilkin's Lambda		No of observations
	σ	Sign. level	μ	Sign. level	
CAPTA	33.0	0.0001*	0.9374	0.0025	144
LOANT	338.49	0.0001*	0.9215	0.0008*	141
OVRHDT	5.441	0.0197*	0.9712	0.0419	143
ROA	6.51	0.0001*	0.9718	0.0429	143
LIQ	18.12	0.0001*	0.9678	0.032	143

*Significant at less than 5% level.

Table 4: Discriminant analysis (1980–86 vs 1987–93) non-distressed banks

Financial ratios	Chi-square stat		Wilkin's Lambda		No of observations
	σ	Sign. level	μ	Sign. level	
CAPTA	0.1213	0.7275	0.9903	0.2670	129
LOANT	162.18	0.0001*	0.9024	0.0005*	121
OVRHDT	5.552	0.0188*	0.9713	0.0858	125
ROA	60.194	0.0001*	0.9896	0.2592	125
LIQ	0.179	0.6719	0.9384	0.1636	119

*Significant at less than 5% level.

Table 5: Discriminant analysis (distressed vs non-distressed) 1980–1986

Financial ratios	Chi-square statistics		Wilkins Lambda		No of observations	Classification error	
	σ	Sign. level	μ	Sign. level		% misclassified	
						Into group 1	Into group 2
CAPTA	5.264	0.0218	0.9299	0.0016	139	11.29	53.25
LOANT	0.0463	0.8295	0.9997	0.8652	144	53.57	36.84
OVRHDT	16.61	0.0001*	0.9906	0.4553	140	98.39	2.57
ROA	16.96	0.0001*	0.9915	0.2552	140	98.39	2.56
LIQ	28.16	0.0001*	0.9155	0.0008	130	14.55	72.37

* Significant at 5% level.

Table 6: Discriminant analysis (distressed vs non-distressed) 1987–1992

Financial ratios	Chi-square statistics		Wilkins Lambda		No of observations	Classification error	
	σ	Sign. level	μ	Sign. level		% misclassified	
						Into group 1	Into group 2
CAPTA	6.207	0.0901	0.8728	0.0001	134	19.4	70.1
LOANT	42.496	0.0001*	0.9846	0.1599	130	4.6	84.6
OVRHDT	5.2804	0.0216	0.9456	0.0082	128	23.4	66.15
ROA	5.628	0.0217	0.9675	0.0081	128	22.22	66.55
LIQ	1.269	0.2599	0.9959	0.4575	130	29.69	47.76

* Significant at less than 5% level.

groups are similar in CAPTA, ROA and OVRHDT, making it increasingly difficult to distinguish between strong and weak banks with the acceleration of reforms. The results of our misclassification taken alongside the foregoing results of the discrimant analysis enable us to draw some conclusions. The misclassification here for our first analysis stems from the possibility of misclassifying an observation as belonging to Group 1 (distressed) based on the magnitude of its ratio when actually it should be in Group 2 (non-distressed). There is the misclassification resulting from classifying a bank whose rating is high as distressed and classifying as non-distressed a bank whose rating is low. The summary of this measure is reported in tables 5 and 6. For both categories, it is quite high. Particularly from Table 8 (1987–1993), the possibility of classifying a Group 1 bank (distressed) as a Group 2 (non-distressed) is consistently high in all five variables. In other words, most of the banks (mis)classified into Group 2 (non-distressed) should actually have been classified as distressed after the reforms.

Our results for the peer group composite index are summarized in Table 7. For each particular year, we have summary statistics on the number of strong (S) and weak (W) banks based on the score index for the bank for each year of our analysis. This table enables us to capture the trend in the deterioration in the relative positions of banks before and after reforms. Just before the commencement of reforms in 1986, out of a sample of 24 commercial banks (there were altogether 28 commercial banks in existence then), 11 were classified as weak and 13 as strong based on the score index. As at 1990, 19 of these banks had become "weak" and 5 "strong". We realize here that the assumption underlying the use of the baseline average, that is, that the average behaviour within an appropriately representative group constitutes a "norm" against which all banks in the group can be measured, is not without its shortcomings. But taking this result in conjunction with the other outcomes of our analysis so far enables us to reach some tentative conclusions in the following section.

Table 7: Composite bank score index

Banks	1983	1984	1985	1988	1989	1990
1	W	S	W	W	W	W
2	W	W	W	W	W	W
3	S	S	S	S	W	S
4	W	W	W	S	S	S
5	W	S	W	W	W	W
6	S	S	S	W	S	W
7	W	W	W	W	W	W
8	W	W	W	W	W	W
9	S	S	S	W	W	W
10	W	W	W	W	W	W
11	W	W	W	S	S	S
12	W	W	W	W	W	W
13	W	W	S	W	W	S
14	S	S	S	W	W	W
15	S	S	S	S	W	W
16	S	S	S	W	S	W
17	S	S	S	S	W	W
18	S	S	S	S	W	W
19	W	W	W	S	S	S
20	S	S	S	S	W	W
21	S	S	W	W	W	W
22	-	-	-	-	-	-
23	S	S	S	S	W	W
24	W	W	S	W	W	W
25	S	S	W	S	W	W

Summary of ratings

	1983	1984	1985	1988	1989	1990
W	12	10	11	14	19	19
S	12	14	13	10	5	5

W = Banks whose composite score indicates weakness
S = Banks whose composite score indicates strength

6. Relevance of empirical analysis for sequencing of financial sector reforms

So far, we have tried to identify the main determinants of bank insolvency using some major indicators. In this section we will attempt to relate each of these indicators to specific measures undertaken during the financial sector reforms in Nigeria as discussed in Section 4. Notably, we argue that inappropriate sequencing of financial reforms had adverse effects on banks' health via its impact on the identified determinants. We must reiterate here that our contention is not that financial sector reform leads to bank insolvency. Rather, our argument is that given the sequence in which these reforms were implemented, it is not impossible that policy mistakes were made that may have hastened the demise of some already weak banks.

The ratio of bank equity capital less bad loans to total assets (CAPTA) consistently declined in our analysis. The deterioration in CAPTA can be attributed to three main factors: inadequate regulatory measures prior to licensing of more banks; capital erosion following deterioration in asset quality, earnings, liquidity and operational efficiency; and an unstable macroeconomic environment.

Although financial sector reforms effectively began in 1987, adequate regulatory measures were not put in place until 1991 with the promulgation of the Bank and Other Financial Institutions Decree (Decree 25) of 1991. Appropriate regulation would have established minimum and adequate capital requirements necessary for entry into the banking industry. Minimum capital requirements appropriately specified would have been a first step towards the restructuring of existing banks prior to the establishment of new ones at the commencement of SAP in 1986. Setting a limit on equity capital as a proportion of deposits, as was the practice prior to 1991, is not a sufficient guideline against insolvency. Minimum equity capital should be referred to the risk assets of a bank rather than to the deposits. A weighting system for each kind of risk should be used. Such guidelines link a bank's capital linearly with the structure of its assets based on inherent credit risks in such portfolios. Thus, a more appropriate measure of capital adequacy is the average risk-weighted asset ratio. Measured in this way, most banks would have been exposed as grossly undercapitalized at the beginning of the programme and adequate measures could have been taken to restructure them before liberalization of interest rates and other measures were started. This argument underlines the need for financial repair before reforms. It is on record that when appropriate asset classifications were done and capital/asset ratios measured accordingly, most banks (among these were some banks in Group 2) went under in 1991 and 1992.

Deterioration in CAPTA also followed from deterioration in asset quality. The preponderance of non-performing loans in the asset portfolio of banks greatly eroded the

capital base of many banks. Where this was not properly reflected in the bank's accounting system, it created a lot of problems, which in the end hastened insolvency. The decline in earnings as well as the falling liquidity positions of banks helped to accentuate the erosion in the capital base of most banks. Finally, the unstable macroeconomic environment (huge fiscal deficits, high and variable inflation) had adverse effects on banks' overall performance, while the high degree of competition in the industry, following the chartering of more banks and the liberalization of interest rates, posed problems for banks' risk-taking and their safety and soundness.

An important factor in bank insolvency is the variable LOANT, measured as the ratio of bad and doubtful debts to total bank loans, which is a proxy for the asset quality of banks. Deteriorating assets quality was hastened by the high interest rate regime that greeted the premature liberalization of interest rates in 1987. The liberalization of interest rates in the face of huge fiscal deficits led to high and uncontainable nominal interest rates. The literature on the twin problems of adverse selection and moral hazard emphasizes the need for price stability as a prerequisite for financial liberalization. The major sources of macroeconomic instability in most reforming countries are large fiscal deficits and rapid currency depreciation, the latter a consequence of the policy package implemented during the adjustment programme. The occurrence of this problem underlines the reasoning that liberalization measures should be preceded by stabilization policies.

The deterioration in the quality of assets in the banking industry mainly as a result of the growing size of non-performing loans derives mostly from the tendency for banks to provide risky loans at high interest rates. They do so either in the expectation that large losses will be covered by deposit insurance, or in the vain hope of recouping past losses through high interest rates charged to a customer who on the surface possesses the capability of paying such interest rates. The outcome is a plethora of distress borrowing at high interest rates and the roll over of maturing debt as well as the capitalization of interest payments by banks. Prior to the enactment of the prudential guidelines in 1990, banks charged accruing interest on non-performing credit and counted interest on such credit as income, a situation that gave a false image to the health of most banks (Aristobulo, 1991).

The poor earnings performance of the corporate sector in the face of biting stabilization policies and the increasing number of firms unable to service their debts contributed immensely to the stock of non-performing loans in the industry. The weakened condition of non-financial firms as a result of stabilization measures further increased the vulnerability of banks. The 1993 annual report of the Nigerian Deposit Insurance Corporation (NDIC) puts the non-performing assets of the distressed banks at about 60% of the total loans and advances portfolio and for some banks the ratio was as high as 90%. Two factors were identified for this growth: imprudent lending practices by distressed banks and inability of their debtors to repay due to the economic downturn.

In addition, the deregulation of interest rates without a substantial reduction in the size of the fiscal deficits significantly increased the size as well the costs of servicing the public debt. Also, since the scope for borrowing from abroad to finance a deficit has become severely limited in Nigeria, a situation where the outflow of capital may exceed

the inflow given mounting debt service requirements and repeated devaluations may occur. When this is coupled with a reduced access to the automatic capitalization of interest payments by private creditors who hold a substantial part of Nigeria's debt stock, external debt service is likely to lead to increased deficit finance where it is not possible for the country to earn extra resources for external finance. The tendency will be for the government to issue more money to purchase more foreign exchange, or embark on a real depreciation in order to improve the current account. The larger the stock of debt to be financed, and the severer the depreciation, the more biting will be the inflation (Dornbusch, 1992). Again in terms of the overall sequencing programme, the possibility of this occurrence underlines the need to first stabilize the balance of payments and restore appropriate exchange rates before embarking on financial liberalization, particularly where it is perceived that severe external disequilibrium might interfere with the reform process in the financial sector.

In Nigeria, moreover, direct credit controls were dismantled in 1992 even when indirect tools of monetary policy had not been put in place. Although open market operations were introduced a year later, it takes time for such tools to become effective. In the light of these policy errors, there was a loss of control over the money supply and the growth rate in narrow money for 1993 (71.1%) was unprecedented going by the record of the previous decade and a half (CBN Annual Report, 1992). It needs be highlighted, though, that some of the loss of control over money supply was self-inflicted by the government through the Central Bank financing of its deficit. The growth in the monetary base during the same period (146.6%) provides an indirect reference to this. Nominal interest rates were increased accordingly in a bid to achieve positive real interest rate. (See Table 1.)

It is on record that the distressed banks have recorded very little success in their debt recovery efforts due to the unsound manner in which the loans were granted. Most of the loans were unsecured, and even where collateral was pledged, it was not protected. In the state-owned banks, limits to large exposures and to connected lending, a guide against loan concentration, were abused where they existed at all. Adequate legal procedures to recover loans did not exist at the commencement of the financial sector reforms. An appropriate sequencing would have ensured the overhaul of foreclosure and bankruptcy laws (see step 2 of Appendix A) before this period.

Management efficiency is measured by the operating efficiency variable (OVRHDT). Increased competition in the banking industry has become an important factor in shaping the success of management, making efficiency indispensable to the survival of banks following deregulation. Between 1986 and 1992, a total of 79 new commercial and merchant banks, with 1,086 bank branches, had opened for business. In the previous six years (1983–1985), only 14 new banks with 644 branches had opened for business. Thus at the end of 1992, the total number of banks was 120, compared with 40 at the end of 1982. The total number of branches increased from 1,323 to 2,391 within the same period. This expansion in the banking industry exerted immense pressures on the number and quality of the industry workforce.

Poor bank management often leads to excessive risk-taking in a bid to cover up management errors. Studies have confirmed the high degree of correlation between inefficient management and weak internal controls (Pantallone and Platt, 1987; Peterson

and Scott, 1985). The occurrence of fraud and insider abuse is rampant in a situation of weak management. Fraud and forgeries have far-reaching implications in undermining the safety, soundness and stability of the banking industry. In aggregate terms, the sum of ₦1,377.15 million was involved in commercial bank frauds and forgeries in 1993 compared with ₦351.9 million in 1992, an increase of about 291%. A careful look at the major categories of fraud reported by the NDIC annual report in 1993 (presentation of forged cheques, conversion of bank's money, unauthorized overdrafts, fraudulent transfers and withdrawals, posting of fictitious credit, suppression of cheques, granting of unauthorized loans, raising of spurious vouchers and illegal cash advances, defalcation of customers' cheque/cash lodgements) will attest to the fact that where there are effective internal controls, adequate supervision and loyal staff, fraud can be minimized. Failure to strengthen internal controls prior to liberalization could account for the high wave of fraud in the system. It is true that frauds and embezzlements cannot be detected from the set of financial ratios that we have chosen.

Deregulation may have aided this in more ways than one. Before deregulation and the subsequent chartering of more banks, banks with poor management and less than average performance could survive since large profit margins ensured that management errors and poor performance were obscured (Aristobulo, 1991). With deregulation and competition, however, banks that can no longer maintain large profit margins because of ineffective management must seek excessively risky alternatives to bring up their profit margins. In some cases the banks fail or, alternatively, management becomes involved in fraud and embezzlement to stay afloat and in most cases these do more damage than envisaged and lead to a quicker death of the bank. It is no surprise, therefore, that among all our variables in this study, OVRHDT discriminated most effectively between the pre- and post-reform periods.

Earnings are commonly measured in the literature as the return on assets, i.e., the ratio of net income after taxes to total assets (ROA). The earnings in the banking industry during the structural adjustment programme were adversely affected by: management mobilization of funds through high interest rates to finance non-performing loans; increased leverage by domestic firms at the brink of bankruptcy; fall in private sector earnings; and bank management's efforts to retool capital requirements in order to satisfy regulatory authorities' minimum requirements after 1991. The build-up of non-performing assets constrained the income-generating ability of banks. With increased expenses, losses were accumulated. To conceal these poor operating results, some banks declared unearned profits, which they appropriated as provisions for bad and doubtful debts.

If we define liquidity as a measure of a bank's ability to meet unforeseen deposit outflows, a liquidity crisis could result in the failure of even a solvent bank. Liquidity has become a problem for most banks mainly as a result of the timing of restrictive monetary measures undertaken during the period of structural adjustment. In 1989, the CBN attempted to reduce what it perceived as excess liquidity in the banking system by directing that banks transfer the deposits awaiting payment for imports to its coffers (CBN's). This measure stimulated the demand for funds by banks in the system. In the same year, public sector deposits were withdrawn from the commercial banks to the CBN. In the process, the banking system lost ₦8.27 billion in deposits, which further

worsened the position of illiquid or marginally liquid banks. Banks that had hitherto relied on the funds of government agencies for their operations were hardest hit by this action.

A most worrying policy action since 1990 has been the persistent issue of stabilization securities as a means of mopping up excess liquidity in the banking system. The initial rationale for this CBN action was to accommodate banks' reckless bidding for foreign exchange in the CBN auction market, a situation that is often pinpointed as the cause of the persistent depreciation in the exchange rate. Most of the measures adopted led to a sharp decline in money supply and caused an increase in the demand for money. The persistence of the depreciation of the exchange rate caused tremendous increase in demand for money. These pressures accounted for the high level of inter-bank lending rates, which rose to about 112% in June 1993.

One issue here is worthy of note. First, how effective are measures designed to tighten monetary and credit policies that strike directly at the liquidity of banks during a stabilization programme, a major component of which is exchange rate depreciation, particularly in a period of expanding fiscal deficits? A distinction ought to be made between the liquidity of the banking system and that of the economy. In the case of a developing economy where the banking habit is poor, and most of the money in the economy is outside the banking system, liquidity mop-up exercises can only lead to high interest rates, increase the volume of bad loans, and reduce credit to non-financial firms that depend on banks for the finance of their raw materials and intermediate capital goods. They also accentuate the problem of moral hazard, and hasten the deterioration of their asset quality. Again, this underlines the need to prelude financial sector reforms with stabilization programmes.

7. Conclusions

We have attempted to show in this study that the success or failure of a financial sector reform programme depends on, among other factors, the implementation of an appropriate sequence of the various policies in the programme package.

Appropriate sequencing can be in two areas. First is the need to precede financial sector reforms with stabilization measures, in order to situate the reforms within a stable macroeconomic environment. Huge fiscal deficits, persistent depreciation of the exchange rate and tight credit policies may create or worsen an existing inflationary situation and make realistic interest rate levels difficult to achieve. This may lead to moral hazard and adverse selection on the part of banks, generate excess demand for money, hasten bank insolvency, and bring about a general downturn in the economy.

Second, financial liberalization proper has to be sequenced and properly timed. There is a need to restructure or liquidate defunct financial institutions and strengthen regulatory and supervisory activities before granting new licences in an attempt to enhance competition in the system. These measures will help to improve asset quality, stimulate operating efficiency and check bank frauds. More importantly, they will prepare the banking system to withstand some of the shocks that may come with financial repairs.

8. Agenda for future research

Two issues emanating from this study constitute our agenda for further research. The first has to do with the need for a more scientific and less error-prone method for classifying banks as distressed or non-distressed. From the magnitude of the misclassification errors reported by our discriminant analysis, it is obvious that the present classification suffers from some shortcomings. And yet, an appropriate first step towards the restructuring of distressed banks is the proper identification of such banks. This issue has generated a lot of concern within financial and academic circles in Nigeria.

The second issue has to do with the necessity for the development of an "early warning system" as an instrument in the hands of policy makers. Bank failures and panics are destructive to the economy. They are even more so to a fledgling financial system. An early warning model will go a long way toward helping to identify early enough those characteristics that point to a weakening of a bank's position and thus ensure that immediate corrective actions can be taken before the wounds fester. This we hope will moderate the rapid decline in the nation's banking system and its attendant impact on the economy.

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Appendix A: Feasible sequencing of financial liberalization programmes

Step 1: Restoration of macroeconomic and financial stability
1. Reduce fiscal deficits
2. Tighten monetary and credit policies
3. Stabilize balance of payments and restore appropriate exchange rates
4. Restructure or liquidate defunct financial institutions

Step 2: a) Development of indirect monetary instruments
1. Introduce or reactivate indirect monetary instruments
2. Liberalize interest rates on these instruments
3. Set up auctioning procedures
4. Introduce central bank refinancing facilities

b) Strengthening of the regulatory environment and bank supervision
5. Establish rules and guidelines for loan classification
6. Make provisions for bad debts, interest rate capitalization, capital adequacy and limits on loan concentration

Step 3: Enhancement of competition among banks
1. Extend more bank licences
2. Allow foreign banks
3. Allow non-bank financial institutions to compete with banks
4. Privatize banks

Step 4: Removal of direct controls
1. Fully liberalize lending and deposit rates
2. Abolish direct credit ceilings

Source: Partially based on Turtleboom (1991), Villanueva and Mirakhor (1990), Wong (1991), and Leite and Sundararajan (1990).

Appendix B: Sequencing of financial liberalization in Nigeria

1986
Two foreign exchange markets established

1987
- Interest rate controls completely removed
- Bank licensing liberalized
- Foreign exchange markets unified

1988
- Foreign exchange bureaus established
- Bank portfolio restrictions relaxed
- Nigerian Deposit Insurance Corporation established

1989
- Banks permitted to pay interest on demand deposits
- Auction markets for government securities introduced
- Capital adequacy standards reviewed upward
- Extension of credit based on foreign exchange deposits banned

1990
- Risk-weighted capital standard introduced and banks' required paid-up capital increased
- Uniform accounting standards introduced for banks
- Stabilization securities to mop up excess liquidity introduced

1991
- Bank licensing embargoed
- Central Bank empowered to regulate and supervise all financial institutions
- Interest rates re-administered

1992
- Interest rate controls removed once again
- Privatization of government-owned banks begun again
- Capital market deregulation commenced
- Foreign exchange market reorganized
- Credit controls dismantled

1993
- Indirect monetary instruments introduced
- Five banks taken over for restructuring

1994
- Interest and exchange rate controls re-imposed

Source: Various CBN publications and government proclamations.

Appendix C: Summary of major provisions of the guidelines on bank assets and risk weights

Asset type	Prescribed risk weights
1. (a) Cash and claims collateralized by cash (b) Claims and guarantees by central government	(%)
2. Claims on and guarantees by public sector entities	0, 10, 20 or 50 (depending on national discretion)
3. Cash items in process of collection	20
4. Loans fully secured by mortgage on residential (owner-occupier) property	50
5. (a) Claims on private sector (b) Fixed assets (c) Real estate and other investments (d) Other assets	100

Source: Basle Committee Report on International Convergence of Capital Measurement and Capital Standards, Basle.

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