

Impact of Legal and Regulatory Environments on Financial Intermediation in an Emerging Sub-Saharan Economy:

--- Evidence from Nigerian Commercial Banks¹

Chinedu B. Ezirim and Michael I. Muoghalu

Abstract

The study empirically investigates the impact of the legal and regulatory environments on financial intermediation in an emerging sub-saharan economy, with evidence drawn from the Nigerian Commercial banks. The method employed included the construction, estimation and analysis of econometric models. Using annual time-series data (1970–2000), the models attempted to investigate the relationships between the nominated financial intermediation indices (financial interrelation ratio, FIR and the commercial banking ratio, CBR), and the indicators of the legal environment, geographic, price, and product regulation. The results show that the legal and regulatory environments exert a very significant effect on financial intermediation operations of commercial banks in Nigeria. Particularly, the legal environmental index and the index of geographic regulation, individually, affect financial intermediation significantly as expected. The results suggest programs aimed at reducing banking density in the country; enhancing the legal structures and system; and the promulgation of amiable laws and regulations that would encourage intermediation activities.

Introduction

Financial intermediation occupies the center-stage of the operations and activities of the financial superstructure in the latter are bid to positively and significantly affect the economy. Through it the financial institutions, within the framework of the financial markets and instrumentality of the financial assets, intermediate in funds to bring 'together' the surplus and deficit economic agents in such a manner as to resolve existing financial resources' imbalance among them. This process, if efficiently carried out, would redound to the growth and development of the national economy, *ceteris paribus*. Due to inherent distortive tendencies, structural realities, institutional inadequacies and dysfunction staring in the face of apparent low levels of production, industrialization, and under-development of the financial markets; the financial resource gap between the surplus and deficit agents is expected to become wider and more acute in less developed countries (LDCs) than in their developed counterparts. The Sub-Saharan African countries (SSAC) fall into the former category – the LDCs. That the assertion above is true with the SSACs is manifest in observed economic indicators such as

¹

Initial formulations of this paper was reviewed, accepted and presented at the 30th Annual Meeting of the Academy of Economics and Finance at Pensacola Beach, Florida, USA, February, 2002.

low per capita incomes, high levels of poverty, low capital formation propensities, high rates of inflation, and high rates of currency depreciation, among others (See African Development Report, 1999).

In an attempt to resolve the alarming degree of resource imbalance and put the economics of the SSACs on an even keel, the respective governments and monetary authorities have put in place various structures and pursued designated policies and programs. The underlying aims are to enhance the efficiency and effectiveness with which the financial intermediaries, namely banks and other financial institutions, carry out their financial intermediation function; and to align same with the dictates of growth and development of the economies. Among the structures, policies, and programs are those that characterize the legal and regulatory environments of financial intermediation.

The nature, direction, and magnitude of the effects of forces attendant to these environments on the performance of the intermediation function of financial intermediaries (notably, commercial banks) in the SSACs drawing evidence from Nigeria are the crux of this paper. Pursuant to this objective, the paper reviews existing literature and previous studies related to the chosen topic. This is set forth in Part II. Premising on the reviewed studies and theoretical foundations, the paper develops appropriate econometric models in Part III, which are intended to aid subsequent analysis. In Part IV the estimated models are presented and analyzed, while the fifth part represents the concluding remarks.

Theoretical Nexus and Review of Previous Studies

Doctrines of Repression versus Liberalization and the Economies of SSACs

A controversy still exists in finance and economic literature on whether developing economies should adopt regulatory or deregulatory policies in the financial sector in order to achieve desired level of growth and development. This is true in spite of the fact that several countries of the globe have increasingly moved towards financial deregulation or liberalization over time. Financial liberalization has dictated policies that tended to remove lids incipiently placed on interest rates, reserve requirements, licensing and entry, credit ceilings and preferred lending, and branch networking, among others. Versluysen (1998) listed financial liberalization measures to include removal of restrictions on interest rates ceilings, policies aimed at enhancing competition in the financial sector, improving the functioning of the securities market, increasing the transparency of financial transactions, and harmonizing and/or simplifying the standards of prudential supervision. To him, these measures have remained common policy prescriptions for developing countries undergoing reforms. The experiences of these countries have not reflected a clear-cut pure picture of liberalism. The correct picture as witnessed in such countries, as Nigeria, is that in the midst of liberalization, reasonable degrees of control and/or regulation are still found in certain areas. These areas include minimum capital requirement, prudential regulation and provisioning, and embargo on licensing of new financial institutions. Given these scenarios, what would be the appropriate policy thrusts of monetary authorities in the Sub-Saharan African economics (SSAEs)? A walk along the theory lane

can offer useful insights. Two schools of thought – the liberalists and the conservatives – come to play in this light.

The general argument of the liberalist is summed up in the assertion that financial liberalization is the key to eradicating the condition of financial repression in the financial sector of the economy, which when done, the economy stands a better chance to grow and develop to appreciable levels than otherwise. Financial repression is said to set in, when the government, through its monetary authorities, evolve and pursue policies that disturb the efficient functioning of the domestic financial system by causing returns on financial assets to become lower than the market forces would permit, and by shifting the allocation of available resources (such as in the case of credit transactions) from the market forces to the government. It also can be referred to as the distortive tendency existing in domestic financial markets caused by such measures as imposition of ceilings on credit expansion and interest rates, selective allocation of credit and high reserve requirements. By implications, financial repression is identified with regulatory structures and policies (Adebisi, 2000; Isijola, 2000).

Deregulatory reforms, which characterize financial liberalism are claimed to be the natural answer to financial repression. Leading commentaries who have decried repression and suggested rational basis for liberalization in LDCs include Cameron et al (1967), Fry (1978), Mckinnon (1973 and 1988), Shaw (1973), Ikhida (1990) Carbo and Rojas (1991), IMF (1993), Carprio et al (1993), and Athukorala and Rajapatirama (1993). In their contention, regulatory policies are misguided and have caused serious damages to the economy of many LDCs by reducing savings and encouraging investments in unproductive and inefficient activities, misallocation of lendable funds, and fragmentation of economies of LDCs. On the other hand, financial liberalization enhances efficiency in resource mobilization and allocation, and thus aids in correcting the supply – demand imbalance in the economy of LDCs (Isijola, 2000). One identified gain of financial liberalization to any economy, which adopts it, is the tendency to eliminate conditions of financial dualism given occasion by financial repression. Dualism is said to exist in an economy where the organized and non-organized financial systems lie side by side in mutual operation. The inherent features of such a condition include the preponderance of interest rates differentials between the organized and non-organized markets, with the rates for the latter being usually higher and reflective of the dearth of needed funds in the markets coupled with high risky tendencies of lending and investments in LDCs. In order to eliminate financial dualism and associated problems, a shift ought to be made from financial repressive (or regulatory) policies to financial liberalization (Ikhida, 1990; Adebisi, 2000).

In spite of the above numerous ‘cloud of witnesses’ for financial liberalization policies as panacea for financial repression and catalyst for economic growth and development, the experiences of some LDCs seem contradicting. Certain empirical studies such as those of Diaz-Alenjandro (1985) and Atiyas (1989) conducted on such countries as Chile, Argentina, Uruguay and Turkey; suggest that deregulatory policies have not registered salutary effects on these economies. On the stead, the

economies fared better during regulatory regimes. This is the basic of the thesis of the conservatives. They argue that the economies of the LDCs to which the SSAEs belong are not rife for elaborate liberalism in view of structural realities, institutional breakdown and inefficiencies that characterize the LDCs. In their argument, financial liberalism as a strategy can bring about veritable dividend only to develop and stable economies. Thus, the SSACs can be better off with repression or regulation until the economies come to a stage of appreciable growth and development before liberalization can be fully entrenched to advantage. A similar point was made by Oladipo (2000), when he contended that though, several developing countries adopted the Mckinnon-Shaw hypotheses and implemented programs of financial liberalization and reforms, the experiences of developing countries that have implemented these policies have been rather mixed. As he observed, "while some achieved limited degree of success, for others, the alleged benefits of financial liberalization remained at best an illusion; and thus, after a short-lived liberalization attempt, some have returned to financial repression". It is on the basis of this that he suggested certain conditions that needed to be fulfilled before the liberalization can achieve desired results. These include:

- (a) Adequate prudential regulation and supervision of commercial banks implying some minimal levels of accounting and legal infrastructure.
- (b) Macroeconomic stability and an appropriate valued exchange rate (since overvaluation leads to an upward shift in the consumption function).
- (c) Fiscal discipline taking the form of a substantial government borrowing requirements that avoid inflationary expansion of reserve money by the central bank.
- (d) Tax system that does not impose discriminatory explicit or implicit taxes on financial intermediation.

One point that is clear from these laid down conditions is that they are not exclusively liberal and devoid of controlling influences. It goes on to suggest that pure liberalism is not workable in SSACs, at the moment. It may be, perhaps, on the basis of this that policy-mixes (liberal and repressive types) occupy the center-stage of governmental intervention in developing economies. What is prevalent in most SSACs in recent times seems to be this middle-of-the-road strategy that combines repressive and liberalizing policies, with the latter taking the upper hand depending on the grip the dictating 'invisible hand' has on the particular SSAE. In a regime of apparent scarcity of funds for productive and developmental purposes, unfavorable balance of payment condition, and huge external debt overhang, the SSACs seem to be left with no choice than to adopt more and more deregulatory policies especially if they hoped to get any financial assistance from the international financial organizations such as the IMF and the World Bank.

The legal Environment of Financial Intermediation

This environment ensures a legal institution and system that oversees the control and regulation of the activities and inter-relationship among economic units. Financial institutions are generally creatures of law and the law provides the enabling legal environment for their practice everywhere

(Yerokun, 1991). The legal environment can be defined to include the body of rules and regulations affecting the institutions' operations (such as licensing, capitalization, depository services, lending, foreign exchange transactions and others); the judicial structures put in place for the administration of justice; and the persons that interact within the legal system to make it functional. The body of rules and regulations that govern institutional behavior are contained in the relevant acts, decrees, edits, policy statements and circulars issued and administered by the legal agents who reserve responsibility for such actions. The judicial structures include the courts of law that are manned by legal personnel whose duties are to interpret the law, arbitrate between disputing parties (such as between lenders and borrowers and that generally assist lenders to recover their monies). Included in the system, are numerous legal personnel who judge, solicit, defend, or advocate for parties involved in or interested in the operations of the financial institutions. They are known as judges, lawyers or solicitors. Other key operators in this environment are the government and various regulatory bodies and agents. The regulatory bodies for the banks include the Central Bank, Ministry of Finance, and other relevant monetary authorities such as the NDIC. This last group is perhaps the most important as far as the financial intermediaries are concerned. The intermediation function of the financial superstructure is said to be affected by the interplay of forces in the environment. A more detailed treatment of the nature and degree of influence exerted by this system on bank lending can be appreciated in a better light by reading the section dealing on bank lending regulation in Nigeria in Ezirim and Emenyonu (1998).

For our purposes herein in this paper, however, it is proper to define an appropriate index to capture the effects of the legal environment. Table 1 depicts the distribution of laws, decrees, Acts, and major policy circulars that exerted certain degrees of influence on banks and other financial institutions in Nigeria from 1952 to 2000. The Table summarizes a history of legislation and policies instituted by the government over the years, showing the number of important codes, Acts, and policies in each. The paper assumes that the effect of any legislation or decree is not exhausted in any given one year of its legislation but that the effects can be cumulative, transcending to subsequent years of their existence. Of course the list is not exhaustive but, it is thought by the authors that the essence of the legal environmental effect is captured by the present one. From the Table, it can be seen that the first major landmark in regulating the banking system and their operations is in 1952 with the promulgation of the 1952 Banking Ordinance. This is followed by the Central Bank Act, 1958 and the Banking Ordinance, 1958. The Treasury Bills Ordinance closely came at the heels of the above laws in 1959. A major legal provision that ensured that only incorporated companies transacted banking business was put in place in 1960. 1969 saw the promulgation of a somewhat very comprehensive law that regulated the banking system and their operations. This was the Banking Decree, 1969. It was in this year also that the first monetary policy circular was issued to provide for detailed but simplified requirements of the law through the agency of the CBN. In 1976, the most comprehensive and all pervading Financial Systems Reforms were undertaken by the government using the Okigbo Commission. Another reform was to take place under the Structural Adjustment Program (SAP) in 1986. This ushered in the

'liberalized' foreign exchange market captioned the Second-tier foreign exchange market (SFEM), the domiciliary account provisions, and other economic programs. Other important legal provisions included the Banks and Other Financial Institutions (BOFI) Decree and the CBN Decree, which were all promulgated in 1991. The financial malpractices Decree did not come into limelight until 1994/1995 fiscal years. In 1997, BOFI and CBN Decrees witnessed remarkable amendments. The critical observation, which can be made at this juncture, is that these provisions are not actually harmful to financial intermediation as certain school of thought (the liberals) portray.

Regulatory Environment of Financial Intermediation

This environment is very closely related to, and at times regarded as part and parcel of the legal environment. The regulatory environment of the intermediation function is created by the conscious decision of the government and monetary authorities to intervene in the operations of the superstructure. Cooper and Fraser (1990) and Ezirim (1996) agree on seven rationales for such governmental intervention. These include: (a) developments antecedent to the evolution of financial institutions in the area of unethical conducts and fraudulent maneuvers; (b) attitudes and values of operators such as the obnoxious and unscrupulous practices of profiteering and fraud; (c) protection of the interest of institutional 'publics'; (d) ensuring indigenous control of commanding heights of the economy; (e) encouragement of healthy competition; (f) aligning activities in line with economic objectives; and (g) prevention of market failures and associated problems.

Table 1: Distribution of Laws, Major Provisions Regulatory Policies Affecting the Banking Industry in Nigeria

\	1	Banking Ordinance, 1952
1958	3	CBN Act 1958, Banking Ordinance 1958
1959	4	Treasury Bills Ordinance 1959
1960	5	1960 Act that provides that only companies to transact banking business.
1961	8	Lagos Stock Exchange Act 1961, 1960 Amend to Ordinance, CITA
1962	12	Internal Loans Act, Banking Ordinance Amend, Exchange Control Decree, CBN (Amend)
1963	14	CBN (Amend), Immigration Act,
1964	17	CBN (Amend), Banking Ordinance Amend, Bill of Exchange Act.
1965	18	CBN (Amend)
1966	19	CBN (Amend)
1967	21	CBN (Amend), Capital gains tax Act,
1968	27	CBN (Amend), Company Decree, Banking Ordinance Amend
1969	28	CBN (Amend), Banking Decree, MPC. No. 1, Treasury Certificate Decree.
1970	32	CBN Amend Act, Bankruptcy Prov., Monetary Policy Circular
1971	34	Monetary Policy Circular.
1972	37	Monetary Policy Circular, NEPD
1973	40	Monetary Policy Circular, Change of Currency to Naira & Kobo
1974	41	Monetary Policy Circular

1975	43	Monetary Policy Circular
1976	46	Monetary Policy Circular, Financial Systems Reforms
1977	50	Monetary Policy Circular, NEP. Act, FMBN Decree No. 7.
1978	53	Monetary Policy Circular, Land Use Act
1979	57	SEC Act, Banking (Amend) Decree, CITA, Bankruptcy Act
1980	58	Monetary Policy Circular (MPC)
1981	59	Monetary Policy Circular (MPC)
1982	60	Monetary Policy Circular
1983	62	Monetary Policy Circular, Currency Exchange
1984	65	MPC , Exchange Control (Antisabotage), special Tribunal (Misc. Offences) Decree
1985	67	MPC , Withholding Tax under Finance (Misc.) Tax Prov.
1986	70	MPC , SPFEM, Domiciliary Account Prov.
1987	72	MPC 18, NEP (Issue of non-voting equity share) Decree
1988	78	MPC Sec. Decree, Express Policy on Min. Capital Regt., NDIC Decree, Export Credit Guarantee, Bank Employee (Declaration of Assets) Dec.
1989	83	MPC, Finance Misc. Provs. Decree No. 2, Compulsory transfer of Deposit.
1990	87	MPC, CAMD, Prudential Guidelines, Finance Houses Guidelines.
1991	92	MPC, BOFID, CBN Dec. New equity Regts Reissue of Prudential Guidelines
1992	94	MPC, Bureau De change Guidelines
1993	95	MPC
1994	98	MPC, Financial Malpractices Decree, Tribunal for Distress Banks
1995	99	MPC
1996	100	MPC
1997	103	MPC, Bofi Amendment, CBN Amendment.
1998	104	MPC
1999	105	MPC
2000	106	MPC

Source: Various Publications of CBN, NDIC, and FITC.

Governmental intervention has been broadly divided into two: participation in equity and regulation / deregulation / control. Regulatory / deregulatory tools included the use of Decrees, Monetary Policy Circulars, other policy circulars and statements, etc. Feese (1991) justified the institution of these tools when he exemplified with the institution of one of the policy measures - the prudential Guidelines for Licensed Banks. He asserted “at the end of the day, the prudential regulation would make banks stronger, after they have done their house cleaning”. A major issue facing economic and financial analysts in Nigeria is that of drawing a dividing line between periods of regulation and those of deregulation of the financial system. Some theorists have however provided useful suggestions. For instance, on the clear-cut dichotomy between periods of regulation and those of deregulation in the Nigerian economy, Achinivu (1992) drew a thin line of demarcation when he posited that “the period since 1986 can be described as that of economic deregulation and financial system liberalization, as a result of the introduction of the Structural Adjustment Program on July 1, 1986”. It must be noted that

during the period described as deregulatory, there are ample regulatory measures just as there were forms of deregulatory measures during the period before 1986 - referred to as the period of stiff regulation.

Ezirim (1996) enumerated three forms of regulation / deregulation that affect the operations of financial institutions. The first is price regulation which refers to the imposition / removal of legal restrictions on various financial charges attendant to their operations. The most important of these financial charges are the interest rates on deposits and loans and advances. For the purposes of this study, indices of measurement of price regulation include the deposit rates of interest with time implication (time-deposit rates) or the savings rate; the prime (or maximum or produce) lending rate; or the differentials between the two categories. The direction of impact of price regulation/deregulation on the financial superstructure is seen in the introduction of interest rate and other allied risks, which affect their operations. Price instability caused either by market forces or regulatory change results in variability in returns from operations. This variability in returns as occasioned by such developments in rates is described as interest rates risk. For the purposes of this paper the interest rate differentials between the lending and deposit rates shall represent the indicator of price regulation. The distribution of average rates of interest differential associated with commercial banks intermediation activities in Table 2. The table summarizes some indicators of commercial banks activities in Nigeria that are relevant to our study.. The interest rates differential denoted as RD, are seen to be 4.0% from 1970 to 1974. It fell to 2.0% in 1975 and continued at that level for the next four years. The lowest differential was recorded in 1985 when the lending rate marginally exceeded the deposit rates by 0.25%. With this type of rate, one wonders how these banks would cover their administrative expenses not to talk of profits. The highest rate differential was witnessed in 1993 with a rate of 19.43%.

The second form is known as the product regulation / deregulation. Here it is meant the imposition / lifting of restrictions on the types of services that can be carried out by the institutions. Banks and other financial institutions are by law restricted from engaging in certain activities. Insurance companies, for example, have their investment activities streamlined, with penalty for breach. The banks are no exceptions. The result is that some activities, which could have promised more yields, are not entered into. An index of measurement of product regulation / deregulation could be the number of services / products engaged by each institution or sub-group. Specific areas of product regulation / deregulation can be seen in the area of sectoral allocation or the maximum lending limit, and prudential regulation. Appropriate indices at this point are the compliance rate to the sectoral allocation, to the maximum lending limit, or to the prudential requirements. The difference between the prescribed and the actual performance for instance can measure compliance rate to the sectoral allocation. The same index can be derived for the maximum lending limit. Another important indicator that emanates from product regulation / deregulation is consideration on assets quality. Asset quality is measured by the ratio of classified loans and advances to total loans and advances or the ratio of provision for bad and doubtful debts to total loans and advances.

Product regulation can also be perceived in the light of the restrictions imposed by the reserve requirements of the CBN such as the minimum level of specified liquid assets relative to total deposits liabilities. The resultant minimum liquidity ratio has the effect of limiting the lending and investment activities of banks that characterize the core of their financial intermediation function. It will be interesting to examine the effect of this index on financial intermediation. The distribution of liquidity ratios attained by commercial banks in Nigeria is summarized alongside other indicators of commercial banks activities on Table 2. The Table indicates that the actual liquidity ratios (LQR) of commercial banks stood at 94.5% in 1970 from where it fell to 68.5% in 1975. It further slumped to 47.6% in 1980, 44.3% in 1990, and 43.1% in 1996. Even in the face of the seeming downward trend as described above, it is clear from the Table that there are periods of violent fluctuations. It is noticeable that apart from 1992 and 1993 when the liquidity ratios of commercial banks were less than the prescribed minimum, these ratios were reflective of regimes of excessive liquidity over the years.

Thirdly, we have the geographic regulation / deregulation which refers to the institution/removal of limitations on the geographical spread over which financial institutions operate. The effect on these institutions is felt - when, on the one hand, they are mandated to expand their branch network as is the case with the rural banking scheme; or when on the other hand they are restricted from opening more branches at will or total embargo. When mandated to open branches against their will or policies, the result may be seen in suboptimal operations, too much overheads and operational expenses. Indices of geographical regulation / deregulation include; the number of institutions operating, the number of their branches, or the institutional density. The last is described as the number of offices of the concerned institution divided by the total number of persons in the area under consideration. For example, banking density would represent the total number of bank branches and offices divide by the total population of the country in the relevant period. In Table 2, we see the distribution of banking densities of commercial banks in Nigeria. The commercial banking density, denoted by ID in the Table, is seen to maintain a downward trend falling from 180440 persons per branch office in 1970 to 87432 in 1980, 44714 in 1990, and 40922 in 1996. It should be noticed that decrease density is an evidence of increased or improved intermediation activity. Another way to measure banking density is to relate the total number of branches to the total area of the country. For the purposes of this study the first definition of banking density is preferred.

Table 2: Indicators of Financial Intermediation, Legal and Regulatory Environments of Commercial Banks in Nigeria *

S/No	CBR	BRAN	LQR	NL	CNL	RD	ID	FIR
1	2.10	273.00	94.50	4.00	32.00	4.00	180440	0.02
2	1.90	318.00	73.70	2.00	34.00	4.00	162107	0.02
3	2.10	367.00	61.80	3.00	37.00	4.00	142670	0.02
4	2.40	385.00	63.80	3.00	40.00	4.00	140831	0.02
5	3.40	403.00	65.00	1.00	41.00	4.00	137940	0.03
6	5.40	436.00	68.50	2.00	43.00	2.00	130757	0.05
7	7.20	463.00	59.10	3.00	46.00	2.00	126264	0.06
8	8.90	492.00	52.70	4.00	50.00	2.00	1211850	0.07
9	10.20	614.00	38.40	3.00	53.00	2.00	100130	0.09
10	12.30	672.00	45.10	4.00	57.00	2.50	93824.4	0.11
11	17.00	740.00	47.60	1.00	58.00	1.50	87432.4	0.15
12	27.70	869.00	38.50	1.00	59.00	1.75	76870.0	0.22
13	32.30	991.00	40.50	1.00	60.00	2.75	69021.2	0.24
14	40.20	1108.0	54.70	2.00	62.00	2.50	63808.7	0.29
15	47.70	1249.0	65.10	3.00	65.00	3.00	58446.8	0.34
16	46.40	1297.0	65.00	2.00	67.00	.25	58211.3	0.35
17	55.80	1367.0	36.40	3.00	70.00	1.00	56986.1	0.35
18	70.40	1483.0	46.50	2.00	72.00	3.50	54281.9	0.42
19	74.60	1665.0	45.00	6.00	78.00	2.00	49970.0	0.55
20	77.70	1855.0	40.30	5.00	83.00	10.40	45768.2	0.55
21	91.80	1939.0	44.30	4.00	87.00	6.70	44713.8	0.72
22	124.20	2023.0	38.60	5.00	92.00	5.72	43746.9	0.91
23	186.50	2275.0	29.10	2.00	94.00	13.70	40131.9	0.32
24	251.50	2358.0	24.20	1.00	95.00	19.43	29567.4	1.93
25	312.50	2403.0	48.50	3.00	98.00	7.50	39617.2	2.65
26	399.00	2368.0	33.10	1.00	99.00	7.83	40962.8	2.75
27	450.00	2407.0	43.10	1.00	100.0	7.87	40922.3	2.82

- CBR = Commercial Banking Ratio; BRAN = Branches of Commercial Banks; FIR = Financial Interrelation Ratio; Others as defined in the Text.
- Numbers 1 – 27 represent time-series annual data from 1971 – 1998.

Source: Computed from data sourced as in Table.

Review of Some Related Previous Empirical Studies

Studies on regulation, deregulation, reforms, monetary policy, other development finance topics and their implications for the operations of financial institutions, markets and the general economy are not wanting. Some of these studies that draw evidence from Nigeria include those of Soyibo and Adekanye (1992), Soyibo (1994), Uchendu (1995), Ogunleye (1995 and 1999), Ikhide (1990), Isiyola (2000), Adebiji (2000a and 2000b), Ajakaiye and Odusola (1995), and Sani and Yakpogoro (1997).

Ajakaiye and Odusola (1995) conducted an empirical test on the relationship between “real deposit rates and financial savings mobilization in Nigeria”. The objective of the study was to examine the impact of real rate of interest on financial savings mobilization in Nigeria. The methods of the study included: (a) A review of related studies to sharpen the theoretical framework for the study; (b) Examination of econometric issues involved in the work and (c) Analysis of the empirical results using the least square regression ran on a linear specification. In order to address the issue of effectiveness of monetary policy, their empirical test conducted focused on the savings function earlier specified by Fry (1978) as follows:

$$gfs/y = f(g, rr, sf/y, exr)$$

Where

gfs/y	=	the ratio of gross domestic financial savings to GDP
g	=	growth rate of real GDP
rr	=	real deposit rate of interest
sf/y	=	ratio of foreign savings to GDP, and
exr	=	exchange rate.

Following the arguments of Fry (1978) use was made of gfs/y defined as the average propensity to save) and not gross financial savings (gfs) because of the need to know the effects of financial liberalization on financial deepening in the economy, financial deepening has been defined as increase in the ratio of country’s financial assets to its GDP (Shaw, 1973, and Fry, 1978). Following these considerations, Ajakaiye and Odusola (1995) specified the following model:

$$Sd/y = b_0 + b_1g + b_2rr + b_3sf/y + b_4exr + U_t$$

With prior expectations being: $b_1 > 0$, $b_2 > 0$, $b_3 > 0$, $b_4 < 0$

The major findings of the study based on quarterly data from 1980:1-1993:4 are:

- (1) The expected positive sign between real rate of interest and financial savings could only be detected during the period of financial regulation while it was negative for the period of deregulation.
- (2) The results show that the parameter estimates of real rate of interest are low and their level of significance is rather too weak for the two interest rate regimes: regulation and deregulation.

However, the variable is significant at 19% even though it is wrongly signed when the result of the regression covering the 1980-93 period is considered.

- (3) Foreign savings –GDP ratio played a complementary role on financial savings ratio.
- (4) There is strong evidence that the growth rate of income positively correlate with the savings-ratio while exchange rate correlates negatively with it. They both conform with the a priori expectations.
- (5) The coefficient of the dummy variable exhibits a downward shift, which is statistically insignificant.
- (6) The relative importance of the regressors in ascending order is growth rate of real income, foreign savings ratio, exchange rate and real rate of interest.

Therefore, for savings to be interest-elastic there is a need to maintain a stable real rate of interest. To achieve this, the macroeconomic situation must be very conducive to financial intermediation processes through low and stable rate of inflation. The empirical finding further reveals that in mobilizing savings, efforts should not only be concentrated on interest rate policy but also on policies that will accelerate the growth rate of economic activities, foreign savings and those that will stabilize the exchange rate movements. Indeed, these may even be more crucial than the issue of interest rate deregulation or regulation (Ajakaiye and Odusola, 1995). Uchendu (1995) examined monetary policy and the performance of commercial banks in Nigeria. His purpose was to investigate the impact of monetary policy on the performance of the commercial banking industry in Nigeria. His method included the development of a profit function of the commercial banking industry of the form:

$$P = f(r, er, rv, cr, pl, w)$$

where

- P = Bank performance measure (interest earnings as a ratio of total Assets; ROA - ratio of gross profit to their total assets);
- r = interest rates (savings or lending or their spread);
- er = exchange rates (official);
- rv = commercial banking system's reserves
- cr = concentration ratio used to measure the influence of the 3 big banks in the industry, defined as the ratio of the assets of the 3 big banks to total sector assets;
- pl = variable measuring efficiency, represented by the ratio of provision for loan losses to total loans and advances; and
- w = unit labor cost (ratio of labor cost to number of employees).

The estimable form of the model being:

$$P = a_0 + a_1r + a_2er + a_3rv + a_4cr + a_5pl + a_6w + e$$

Where, the a's are coefficients to be estimated; and e is a normally distributed error term with zero mean and variance equal to 2. It was expected that $a_1, a_2, a_3, a_4, a_6, > 0$ while $a_5 < 0$.

Using the OLS method for the 1970 – 1993 period for 3 groups of data (for all banks, for six banks, and three banks). An analysis of the industry data showed a strong relationship between monetary policy instruments and commercial bank profitability measures, suggesting that appropriate monetary and banking policies are important factors to the continued stability and profitability of the commercial banking industry. More important, the evidence of oligopolistic competition in the commercial banking industry involving the 3 big commercial banks raises questions on their influence on effective transmission of monetary policy in Nigeria, role as financial intermediaries, and the overall stability of the financial system in the event of a pronounced distress in any of them.

The subject of monetary policy influence on bank's profitability was further investigated by Ogunleye (1995) using the single equation approach. The study started with a review of monetary policy in Nigeria under two periods: pre-1986 era and post July 1986 period. He further reviewed previous studies. His profit equation adopted Sealey's (1980) complete model of financial intermediary behavior which integrates risk considerations of the portfolio approach with the market conditions, cost factors and deposit rate-setting behavior of the firm. The basic profit model is of the form:

$$\Pi_{(E,A)} = f(r, q, g, l, s, x).$$

To capture the influence of changes in independent variables on the ROE and/or ROA of a bank, he rewrote the above equation to incorporate a change – change relationship (by taking the total differential of both sides of the equation) to get:

$d\Pi_{(E,A)} = f_r d_r + f_q d_q + f_g d_g + f_l d_l + f_s d_s + f_x d_x$ - with each term of the R.H.S. indicating the amount of change in $\Pi_{(E,A)}$ resulting from an infinitesimal change in one of the independent variables. Thus for banks, the influence of a change in monetary policy variables on its profitability for quarter t was finally captured by combining the two equations above, and finally arriving at an estimable equation:

$$d\Pi_{(E,A)it} = a_0 + a_1(f_r d_r)_{it} + a_2(f_q d_q)_{it} + a_3(f_g d_g)_{it} + a_4 (f_l d_l)_{it} + a_5(f_s d_s)_{it} + a_6(f_x d_x)_{it} + e.$$

where, $a_0, a_1, a_2, a_3, a_4, a_5$ and a_6 are coefficients and e is the estimated residual; Π = profit (Net); r = reserve ratio as stipulated, q = liquidity ratio, g = permissible annual percentage credit growth; l = interest rate spread, s = a dummy variable representing stabilization securities. (The dummy assumes the value of 1 from end of year 1983 to third quarter 1990 and 0 thereafter); x = a dummy variable representing the exchange regime in use. It assumes the value of 0 between end of year 1983 to 1st quarter of 1986 and 1 thereafter.

A priori, the functional relationship were taken as follows

$$\frac{d\Pi}{dr} < 0, \frac{d\Pi}{dq} < ; \frac{d\Pi}{dg} > 0; \frac{d\Pi}{dl} > 0, \frac{d\Pi}{ds} < 0; \frac{d\Pi}{dx} > 0.$$

The data set used to estimate the last equation were sourced from yearly Annual Reports between year-end 1983 to end of 1992 and Monetary Policy Credit Guidelines Circulars for the same period. With a sample of 35 banks, it was found that monetary policy to a large extent influences variation in banks profitability in Nigeria. On the aggregate, 3 significant independent variables interest rate spread, reserve ratio, and exchange rate regime including the constant were able to explain 72% of the variation in ROE, on the other hand, another set of independent variables – changes in reserve ratio, permissible credit growth, and stabilization securities, were significant at different levels – 4 accounting for 33.9% of variation in ROA. The policy implication of the study was deduced from the significance of the different independent variables, whereby in using any of the monetary policy variables for regulation purposes, more attention should be paid to the use of variables that impact significantly on the profitability of banks.

Isijiola (2000) studies the “impact of financial sector reforms on the supply and demand for agricultural credit in Nigeria”. The paper utilize the multiple regression model in specifying agricultural credit supply and demand models of linear, semi-logarithmic, double logarithmic, and exponential forms. Estimations of the models were made using data dichotomized into pre-reforms period (1970-1986) and reform period (1987-1996). The results revealed that nominal interest rates charged on agricultural production loans and savings deposits of commercial banks had a positive and significant effect on the volume of loans supplied to the agricultural sector during the reform period. The number of bank branches and price per tone of fertilizer had positive but not significant influence during the reform period. Exchange rates variable was found to exert negative effect on the demand for agricultural loans during the reform period.

Adebiji (2000a) empirically examined the Mckinnon-Shaw Financial hypothesis (Mckinnon's complementarity and Shaw's financial deepening) on money demand function for Nigeria. Use was made of the 2 stage Least Square procedure to estimate two regression equations based on Nigerian annual data on selected variables from 1971 to 1998. The findings support Mckinnon's assertion that there exist a complementarily relationship between real broad money balances and investment in physical resources. A positive relationship was found between money demand and domestic savings, evidenced by a positive coefficient associated with S_d/Y in the demand-for-money function. Based on these results, Adebiji (2000a) contended that the policy implications of Mckinnon Model are that economic growth can be increased by abolishing institutional interest rate ceilings, by abandoning selective or directed credit programs, and by ensuring that the financial system operates competitively. High and variable inflation destroys existing financial markets and prevents potential financial markets from developing. Thus, he contended, monetary authorities must regulate inflation through a sound monetary control a fiscal discipline.

A critical look at the study, results and conclusions of Adebiji (2000a) reveals the following: (1) inadequate discussion of findings, lack of harmonization of results with conclusions, and (3)

questionability of the appropriateness of analytical tool used. In the first case, one fails to see a discussion of the findings that would integrate the theoretical underpinnings and the results obtained. Secondly, looking at the results and conclusions, the connection between the results and the inference and implications of the Mckinnon's argument is difficult to be seen from the study. The inferences or what Adebisi (2000a) termed policy implications seem to be derived from theory than from the empirical results from the study. There should have been a more coherent discussion to harmonize them if the author contends otherwise. While not being against the use of 2SLS procedure, the results tend to cast doubt on the appropriateness of the models specified. We are not clarified on rationale and basis for the use of the lagged variables for this present study except that they were earlier used in Fry (1978) and Thornton and Pandyal (1990). Perhaps, use could have been made of the partial adjustment mechanism, which has the added advantage of bringing out the long-run and short-run implications, while given vital definitions to the lagged dependent variables.

A follow-up study by Adebisi (2000b) addressed the issues of financial liberalization and banking fragility in Nigeria. The study examines, empirically, the impact of financial liberalization on banking fragility, using quarterly time series data of Nigeria during the period 1986:1 – 1998:4. The regression model was used in the analysis. Results show that banking fragility is affected by multiplicity of factors, including adverse macro-economic developments and bad macroeconomic policies. Adebisi (2000b) contended that a strong institutional environment characterized by a low degree of corruption and higher per capita income can curb the adverse effects of liberalization on the financial system. A good point for this study unlike the earlier one is the attempt by the authors to clearly define the operational variables employed in the specified models. Reservations, however, are made as to use of dummy variable mechanism for the definition and measurement of the dependent variable.

Sani and Yakpogoro (1997) studied the impact of banking reforms on commercial banks' performance in Nigeria. The authors utilized both primary (survey) and secondary data analysis. Two basic models were constructed. The first model related the profitability indices of ROE (and ROA) to indicators of interest rates, liquidity requirements, and exchange rates. The second related the deposit mobilization activity (DMA) to time-deposit rate of interest, the lending rates of interest and the savings deposit rates. The results indicate that interest rate reforms impact more significantly on banks' performance than any other reform measure. This makes interest rates or price reforms as a first-choice policy tool, should the authorities think of redirecting the operations of banks. Another finding is that the effectiveness and efficiency of the CBN in monitoring and implementing reforms are impeded by forces of bureaucratic dysfunction, undue governmental interference, unethical and corrupt tendencies on the part of CBN officials, and inadequate manpower. This study is a fair attempt in capturing the realities and effects of reforms in Nigeria. Its methodology is simple but appropriate. The inclusion of primary evidence to support observed secondary evidence is worth commending. The only worrisome issue is the question of 'poor' regression results for some of the models. Perhaps the

use of additional data for more number of years could help along this line. Another alternative would be the respecification of the model into log-linear form.

Ogunleye (1999) made a review and postscript of the regulatory imperatives for Nigeria. The paper highlighted the various regulatory initiatives that were taken following the introduction of the Structural Adjustment Program (SAP) in 1986 aimed at ensuring the safety and soundness of the financial system. The problems and constraints faced by the Supervisory Authorities in implementing the initiatives are also x-rayed. As a measure for ensuring a sound and sustainable financial system, the paper argued that supervisors should be given adequate enforcement powers to promote responsive corporate governance in financial institutions. This study could have included some rigorous statistical analysis more than the authors utilized in order to support the types of recommendations made.

General Comments on Studies Reviewed

From all the works reviewed above, the following can be observed. There is no general consensus on the effect of liberalization or deregulation on the savings-investment processes on the economy. Some studies confirmed the Mckinnon-Shaw hypothesis while others favor regulatory policies for developing countries. The effect of the regulatory/deregulatory environment on the intermediation function of the financial superstructure appears not properly investigated. The gap is clearly obvious. One does not readily see a representation of the different facets of the regulatory / deregulatory environment except the pricing imperatives that characterize interest rate policies in the arguments of the works reviewed. The various aspects of the geographic, product, and price regulation/deregulation ought to be investigated. One other conspicuously absent factor that seems not to have featured in the models reviewed is an index of the legal environment. For developed countries where the legal system and structures are adequately functional, this may not be important. The case of developing economies, where the legal system exists more in dysfunction and distortion than otherwise must be considered as an important variable to be investigated. This study is an attempt to determine the effect of the forces of the legal and regulatory environment on financial intermediation, taking into account the above-identified factors. It is of note that there is no attempt to separate the regulatory and deregulatory effects as this is not the cardinal objectives but an exercise in determining the general environmental effects.

Methodology

Typology of Model and Estimation Procedure

Beside the desk research method which informs an extensive review of the theoretical underpinnings and empirical works related to the nominated topic, as set forth in part II, the study involves the construction and estimation of econometric models which assist in analyzing the legal and regulatory environmental effects on financial intermediation. The models take the form of multivariate regression and distributed lag models of the partial adjustment sort. Linear and log linear varieties are also employed. Estimation procedure follows the OLS technique using the SPSS software. Analyses of the

estimated models are done in two parts: analysis of global effects and that of partial effects with such first-order statistics as coefficient of determination, F-equation, t-statistic and associated probabilities.

Typology of Data and Sources

The data for the variables are obtained mainly from the publications of the Central Bank of Nigeria (CBN) and NDIC namely, Statistical Bulletin, Annual Reports, NDIC Quarterly, etc. The data requirements include total financial or monetary assets created in the financial system, the total assets of individual financial institutions, the GDP figures, cumulative number of laws affecting financial intermediation, number of branches of financial institutions, total national population, liquidity ratios of individual financial institutions, and interest rates (lending and deposits) of the institutions. The nature of data is the time-series annual data covering the 1970-1998 period. Financial institutions studied include the generality of commercial banks operating in the country.

Model Specification and Variables Definition

The financial intermediation index (FII) of the financial superstructure is hypothesized to be a function of certain factors of the legal and regulatory/deregulatory environment such as the index of legal environment (ILE), geographic regulation / deregulation index (GI), product regulatory/deregulatory index (PDI), and the price regulatory/deregulatory index (PCI).

Thus:

$$FII_t = f(ILE_t, GI_t, PDI_t, PCI_t, U_t) \dots\dots\dots (1)$$

where, U_t is the stochastic disturbance term.

The financial intermediation index (FII) can be redefined in terms of the financial inter-relation ratio (FIR), which in turn, is the ratio of the total financial assets to the aggregate income or output. The FIR relates the assets (TA) of the financial superstructure to the aggregate real sector quantity (Y or Q) defined as the infrastructure (Goldsmith, 1969; Odedokun, 1987; and Ezirim, 1996). The index of the legal environment (ILE) can be represented in one of two ways: One is to the dummy variable approach, where the years in which relevant laws, edits, decrees, or acts are made are assigned the value, 1; while the years when the no such laws are promulgated are assigned the value 0. The second way to capture the effects of the legal environment is by cumulating the number of relevant laws, decrees, acts, amendments over the years. Following the successful application of a similar principle by Cooney (1997) and Ezirim (1999) in capturing the effects of the socio-political developments in the country; the second approach – the cumulative approach is adopted in this paper. A number of indices can be used to measure the geographic regulatory / regulatory index (GI) such as number of branches, rate of change in the number of branches, or the institutional density. The institutional density (ID) can be defined either as the total number of branches / offices per persons in the area served or the total number of branches per square kilometer of the area. For the

purposes of this study, the institutional density defined as the ratio of total number of branches to total number of persons in the country is utilised as the appropriate geographic index.

The product regulatory/deregulatory index (PDI) is measured by such indicators as number of products offered by the financial institutions, growth in the number of products, compliance rate of financial institutions operations with established reform standards such as the deviation of actual from prescribed sectoral allocation of credits, reserve requirements such as liquidity requirements that constraints lending and other activities. For the purposes of this paper the chosen index of product regulation/deregulation is the liquidity requirement (LR) for financial institutions studied. For price regulatory index (PCI), representative measures include deposit rates of interest; prime or maximum lending rate, rediscount rate, or interest premium defined as the differential between lending and deposit rates. The price index indicated for our analysis is the interest rate differentials (RD) between the lending and deposit rates.

Having defined the regressand and the regressors, as we have done above, we can restate equation (1) as:

$$FIR_t = f(CNL_t, ID_t, LR_t, RD_t, E_t) \dots\dots\dots (2)$$

Where E_t is the stochastic disturbance term. Following the arguments of the liberals, legal environments will have repressive tendencies and as such will move in opposite directions with the financial intermediation index (FIR). On the other hand, the conservatives would argue otherwise since adequate legal structure is needed for smooth operations of the financial intermediaries. Thus, the CNL indicator can be either positively or negatively related to FIR. The institutional density (ID) is postulated to be negatively related to FIR since higher density is reflective of a situation where one institutional branch serves very many persons. This condition indicates low stage of development and growth, which does not imply increased intermediation activity. Lower density, imply higher intermediation activity instead. Also, higher liquidity requirement frustrates investment and lending activities, which in turn serves as disincentive to funds generation effort. Rates differentials or interest rate premium is postulated to move in the same direction with FIR, since higher lending rates relative to deposit rates would tend to stimulate intermediation activity. Recognizing these and rewriting equation (2) explicitly in linear and log-linear forms, we have:

$$FIR_t = \phi_0 + \phi_1 CNL_t + \phi_2 ID_t + \phi_3 LR_t + \phi_4 RD_t + E_{it} \dots\dots\dots(3)$$

$$\ln FIR_t = \omega_0 + \omega_1 \ln CNL_t + \omega_2 \ln ID_t + \omega_3 \ln LR_t + \omega_4 \ln RD_t + E_{2t} \dots(4)$$

where, $\phi_1, \omega_1 \gg 0$; $\phi_2, \phi_3, \omega_2, \omega_3, < 0$; $\phi_4, \omega_4 < 0$ and ϕ_i and ω_i are parameters and elasticities respectively, and E_{it} and E_{2t} are error terms.

By the application of the partial adjustment principle, the lagged dependent variable enters into the argument. Also the long-run and short-run implications can be examined. Assuming this is done and following the steps involved in transforming unobservable equations and quantities to observable ones as in Apte (1990), Koutsoyiannis (1977), and Ezirim (1999); we obtain from (3) and (4) the partially adjusted models (3a) and (4a) respectively.

$$FIR_t = \psi_0 + \psi_1 CNL_t + \psi_2 ID_t + \psi_4 RD_t + \psi_3 LR_t + \psi_5 FIR_{t-1} + U_{it} \quad \dots (3a)$$

and

$$\ln FIR_t = \ln \eta_0 + \eta_1 \ln CNL_t + \eta_2 \ln ID_t + \eta_3 \ln LR_t + \eta_4 \ln RD_t + \eta_5 \ln FIR_{t-1} \dots (4a)$$

where,

- (a) The η_i are short-run parameters; $\eta_5 > 0$ and equals $1 - \lambda$; λ is the adjustment coefficient; $\psi_{i5}/\lambda = \alpha_i$; and $\alpha_i =$ long-run coefficients.
- (b) The η_i are short-run elasticities, $\eta_5 > 0$ and equals $1 - \theta$; $\theta =$ adjustment coefficient; $\eta_i/\theta = \beta_i$; and $\beta_i =$ long-run elasticities. Other variables are as previously defined.

Equations (1) through (4a) express the macro relationship between the FIR of the superstructure and the identified explanatory variables. Micro specifications can be made to accommodate the various industrial or institutional divides such as the commercial banks, merchant banks, insurance companies, etc. Putting the individual intermediaries and/or their divides into consideration, we can generalise models 3, 4, 3a, and 4a. Equation 3, for instance, would now be

$$IR_{it} = \phi_0 + \phi_1 CNL_{it} + \phi_2 ID_{it} + \phi_3 LR_{it} + \phi_4 RD_{it} + E_{1it} \dots (5)$$

where,

IR_{it} = institutional ratios for the i th institutional divide, say commercial banks, at time, t .

The institutional ratio is defined as the ratio of total assets of the relevant institutional divided to the GNP or GDP as the case may be. Other equations (2, 3, 4, 3a, and 4a) can be thus written. Estimating the above models would give us insights into the relationships existing between the forces of the legal and regulatory/deregulatory environments and the financial intermediation function.

Estimated Model Results And Analysis

Six models were estimated using the OLS procedure and annual time-series data from 1970 through 1997, but only four were selected due to the behavior of the explanatory variables. Generally, the

estimated partially adjusted models are not reported as a result. Among the four seemingly well-behaved models, two of them are multivariate regression models that relate the financial inter-relations ratio, FIR (representing the general financial intermediation index) to the explanatory variables. The other two models related the institutional ratio of commercial banks defined as the commercial banking ratio, CBR (a measure of the financial intermediation performance of commercial banks) to the independent variables. In each pair, one equation represented the linear while the other is the log-linear version. Equations (7) and (9) are log-linear while (6) and (8) are linear. The results are summarized in equations (6) through (9).

$$\text{FIR}_t = 17.55 + 1.06\text{RD}_t + 0.002 \text{LR}_t - 0.23 \text{CNL}_t - 8.39 \text{ID}_t \dots\dots\dots (6)$$

(1.86)* (23.37)*** (.027) (-2.54)** (-1.73)*

R = 0.985; Adjusted R² = 0.965, F = 188.97***

$$\text{Ln FIR}_t = -4.90 + 0.06\text{Ln RD}_t + 0.63\text{Ln LR}_t + 3.86\text{Ln CNL}_t - 0.99\text{Ln ID}_t \dots\dots\dots (7)$$

(-6.02)*** (0.71) (1.57) (14.26)*** (-5.88)***

R = 0.9848; Adjusted R² = 0.9647, F = 185.30***

$$\text{CBR}_t = -883.32 - 2.84\text{RD}_t + 0.55\text{LR}_t + 10.80\text{CNL}_t + 2.98 \text{ID}_t \dots\dots(8)$$

(-5.069)*** (-0.74) (0.46) (5.95)*** (3.50)***

R = 0.908; Adjusted R² = 0.792; F = 25.07***

$$\text{Ln CBR}_t = -0.748 + 0.11\text{Ln RD}_t + 0.73\text{Ln LR}_t + 3.69\text{Ln CNL}_t - 4.75\text{Ln ID}_t \dots\dots\dots(9)$$

(-3.9)*** (0.81) (1.22) (9.1)*** (-3.81)***

R = 0.964 Adjusted R² = 0.917; F = 75.43***

Where,

* denotes 10% significance level or less. ** denotes 5% significance level or less

*** denotes 1% significance level or less. Other variables are as previously defined.

Global Analysis

The four models summarized in expressions (6) through (9) indicate a common fact: that the models, specified to analyze the relationships between financial intermediation and the legal and regulatory environments, fit the data well. For instance, the degree of relationship between the financial intermediation index represented by the financial inter-relation ratio (FIR) and the explanatory variables (namely cumulative laws and edits, institutional density, liquidity ratio representing reserve requirements, and the rate differentials) is very high. As in expression (6) this degree is over 98%. The same is true with expression (7). After adjusting for the effects of sample size and number of predictors, it is seen that each of the models expressed in (6) and (7) explain over 96% of the changes in the intermediation index. This level of explanation is found to be highly significant at 1% level or less as depicted by the F-ratios of 188.97 in (6) and 185.30 in (7). By implication the models exhibited high degrees of goodness of fit.

The relationship between the institutional ratio represented by the commercial banking ratio (CBR) and the explanatory variables (CNL, ID, LR, RD) is also observed to be very high in both the linear and log-linear constructs. They are 90.8% and 96.4% respectively. After adjusting for the effects of sample size and number of predictors, the models explained 79.2% and 91.7% of the variations in the commercial banking ratio (see expressions 8 and 9 respectively). These levels of explanation are statistically significant at 1% level or less judging by the F-ratios of 25.7 and 75.4 for equations (8) and (9) respectively. These models again fit the generated data very well.

From the foregone, it can be asserted that the legal and regulatory environments significantly affect the financial intermediation operations of commercial banks in Nigeria. What is left to be ascertained is the relative effects of the individual correlates of the intermediation index. This is done in the next sub-section.

Relative Effects of Predictors

This paper chooses the log-linear construct for the purposes of the analysis of the individual effects of the explanatory variables. The choice predicated on the fact that the log-linear estimates best represent our a priori expectations. Except for the product regulation variable every other variable is rightly signed in both cases of the log-linear models with FIR and CBR as dependent variables. For the linear models, the CBR model has only one variable out of four performing as expected, though the FIR linear model has three variables rightly signed, as is the case with the log-linear varieties. For lack of consistency in the linear models we shall not use them for the purposes of the analysis in this subsection except in occasions where reference to phenomenal behavior is needed. We shall take each variable on at a time.

Table 3: Elasticities Showing the Effects of Legal and Regulatory Environments

Explanatory variable	FIR MODEL		CBR MODEL	
	Elasticity	T-Statistic (Probability)	Elasticity	T-Statistics (Probability)
1. Price Regulation Index [Interest Rates Differentials (RD _t)]	0.06	0.71 (0.4874)	(0.11)	0.81 (0.4241)
2. Legal Environment Index [Cumulative Number of Index Laws & Rules (CBL _t)]	3.86	(14.26 (0.0000))	3.69	(9.1) 0.0000
3. Product Regulation Index [Liquidity Ratios Reserve Requirements (LR _t)]	0.63	1.57 (0.1295)	0.73	1.22 (0.2361)
4. Geographic Regulation Index [Institutional Density (Commercial Banking density) ID _t]	-0.77	-5.88 (0.0000)	-4.75	-3.81 0.0009

- Values in Parenthesis relates to significant t. - Independent variable = FIR or CBR

Source: Computer Print Out using SPSS Software.

Legal Environment Index

The legal environment is proxied by the cumulative number of laws, edicts and diverse rules affecting commercial banking practice in the country. The CNL variable in the FIR and CBR models are both rightly signed and significant at 1% level or less ($t = 14.26$ and 9.1 respectively and $\text{Prob.} = 0.000$ in each case). For the FIR model an elasticity of 3.86 indicates that a 100% positive change in the CNL variable is accompanied by a 386% positive change in the financial inter-relation ratio. In the case of the CBR, a 100% change in the CNL produces a 369% change in the commercial banking ratio in the same direction. This shows that contrary to speculations, the legal environment does not frustrate financial intermediation in a sub-saharan country such Nigeria. On the contrary, good laws and improved legal structures enhance and support intermediation. The argument in support is not far-fetched. The legal environment is meant to provide enabling structures that would ensure order, fairness, smooth operations, and eradicate obnoxious, unethical, and unprofessional practices. The laws and edits are meant to protect the banks as well as their 'publics'. Policies are designed to give direction to the banks and are not intended to adversely scuttle their activities. Given these, it is perfectly in order to see the CNL variable moving in the same direction with intermediation activities. More and more fruitful and value-enabling legal structures and tools should consciously be instituted. This is a rational policy choice for a country such as Nigeria.

Geographic Regulation Index

This is represented by the commercial banking density (institutional density), which was postulated to be negatively related with the financial intermediation indices (FIR or CBR). The results of the estimated models as shown on Table 3 indicate that the variable was both significant and rightly signed. It can be asserted that the lower the banking density, the higher the efficiency of commercial banks in their intermediation activities. That it is significant implies that geographic regulation or otherwise is a very important area of policy thrust and action. It is shown that in the FIR model a 100% reduction in the institutional density (ID) implies a 77% increase in the financial interrelation ratio (FIR). In the CBR model, a 100% reduction in the ID reflects a 475% increase in financial intermediation index (CBR). These results mark out geographic regulation as a potent policy tool that can be used to affect financial intermediation performance in Nigeria.

Product Regulation Index

Product regulation /deregulation index represented by the reserve requirement (liquidity ratio, to be specific) is hypothesized to have a negative relationship with the financial intermediation. This is so since the reserve requirement attempts to limit lending and investments activities of banks by imposing a minimum holding of commercial banks assets in liquid assets. The funds tied in liquid assets would have been available for other income-yielding activities. The results as in Table 3 show that this variable consistently posted a positive sign in all the models. Both linear and log-linear forms show similar results. They are all positively signed but not significant. That the variable is not

significant simply means that the reserve requirement does not exert a very pronounced influence on financial intermediation and thus not a major policy adjustment tool. This is true in both models, whose results are buttressed on Table 3. For the FIR model, a unit increase in the reserve requirement produces a 0.63 (or 63%) increase in financial intermediation performance, while in the CBR model, a unit increase in the LR variable yields a 0.73 (or 73%) increase in financial intermediation. Even when the relative effects 63% and 73% seem to be reasonable they fail to be statistically significant at 1%, 5%, or even 10% levels. They are only significant at 12.95% and 23.61% respectively for the FIR and CBR models. Again, that the LR variable is positively signed requires further explanation in convincing lines. The first possible explanation relate to the fact that the reserve requirement while being a constraint to commercial banks lending and investment is a booster to some other activities of commercial banks such as those at the supply side of the financial intermediation process. It helps the commercial banks to garner confidence on the part of depositors whose funds constitute the bulk of the total mobilized funds of banks. Since the minimum liquidity ratio is meant to enable banks meet the withdrawal needs of depositors, it has the direct effect of boosting deposit mobilization ability. By this token, the effect of liquidity ratio or reserve requirement may not be necessarily negative. If it impacts the supply-side of the intermediation process more than the demand side, the over all effect will have to be positive. This, perhaps, is what the observed positive sign indicates. Thus, product regulation is not inimical to financial intermediation as may be claimed.

Price Regulation Index: Interest Rates Differentials

Interest rates differential between the lending rate and the borrowing (deposit) rate was hypothesized to be positively related to financial intermediation performance. This means that higher interest rate differential would boost intermediation performance. From the results of the two models summarized on Table 3, this variable is rightly signed but failed to be significant at the conventional 1% or 5% levels. To this end we cannot assert with high degree of confidence that price regulation is a very important factor influencing commercial banks intermediation performance. From the selected models the elasticities describing the price regulation effect are observed to be 0.06 for the FIR model and 0.11 for the CBR model. By implication, in the case of the FIR model, a 100% positive change in interest rates differential can only elicit a 6% change in the FIR in the same direction. For the CBR model, a 100% change in interest rate differential causes an 11% change in CBR in the same direction. These are found to be grossly insignificant judging by the computed t-statistics and significant t, representing probabilities. As shown, the T-value of 0.71 for FIR model is only significant at 48.74% level; while the t-value of 0.81 in respect of the CBR model is significant at 42.41% level. These show that price regulation is not a major policy thrust for monetary regulation in Nigeria, especially when commercial banks are concerned. It is note worthy that this variable is shown to be significant as well as rightly signed by the linear FIR model. In the Linear CBR model, it is both wrongly signed and insignificant. However, limiting ourselves to the confines of the chosen models, the price regulation index is positively signed and insignificant in effect. It does not significantly explain financial intermediation performance among commercial banks in Nigeria, as expected.

Concluding Remarks And Recommendations

The results analyzed above show that, in general, legal and regulatory environments exert very significant influence on financial intermediation by commercial banks in a typical sub-saharan country such as Nigeria. The analysis of the explanatory variables show that positive relationships exist between the financial intermediation indices defined for this paper and the indices of the legal environment, price regulation, and product regulation. Only the legal environment affects financial intermediation significantly among these. Again, it was revealed that a negative and significant relationship exists between geographic regulation index represented by the commercial banking density and financial intermediation indices (FIR and CBR).

These results reserve a number of implications for policy. In the first place, the results of the models do not support the adoption of the total financial liberalization hypothesis suggested in the Markinon-Shaw thesis that recommends increased financial liberalization for developing economies. The sub-saharan country of Nigeria witnesses increased financial intermediation performance of commercial banks even in increased legal and regulatory regimes. Thus, the results suggested improved legal structures, laws and edicts that are capable of promoting intermediation. The results also suggest the accommodation of geographic regulatory regimes patterned after the reduction of the banking density. The country as of the moment is far from being over banked. In fact, more room should be created to ensure that more and more banks enter the market and more branches opened. This will enhance the financial intermediation performance of commercial banks as suggested by the results of the models. As a policy thrust therefore, the present 'embargo' on licensing of new banks should be lifted, since it will encourage competition among the banks. Excessive regulation of interest rates and reserve requirements should be relaxed since these are not major arguments in explaining the intermediation operations of commercial banks in Nigeria. This would contradict the findings and recommendations of Sani and Yakpogoro (1997) when they maintained that price reforms are simply the first choice policy tools for monetary regulation of commercial banks in Nigeria. The results of this study suggest differently. The current deregulation of interest rates has not proved harmful to the commercial banks nor has it proved adverse to the macro economy of Nigeria.

References

- Achinivu Ochi (1992) "Critical Developments". In Onyechere J. (ed.) 100 Years of Nigeria (1892 – 1992) Lessons for Today's Bankers. Lagos: Potomac Nig. Ltd.
- Adebiyi, M. A. (2000a) "Financial Sector Development and Demand For Money in Nigeria: A RE-examination of Mckinnon-Shaw Financial Hypotheses". First Bank Bi-Annual Review, Vol. 8, No. 16, June. Pp. 28-42.
- Adebiyi, M. A. (2000b) "Financial Liberalisation and Banking Fragility in Nigeria: An Empirical Investigation". First Bank Bi-Annual Review, Vol. 8, No 17, December. Pp. 59-72.

- Ajakaiye Olu & Odusola, A. F. (1995) "Real Deposit Rates and Financial Savings Mobilization in Nigeria: An Empirical Test". *Journal of Economic Management*, Vol. 2, No. 2, October.
- Apte, P. G. (1990) *A Textbook of Econometrics*. New Delhi: Tata McGraw-Hill Publishing Company Limited.
- Athukorala, P. and Rajapatirana, S. (1993). "Liberalisation of the Domestic Financial Market: Theoretical Issues with Evidence from Sri Lanka". *International Economic Journal*, Vol. 7, No. 4, Winter, pp. 17-34.
- Atiyas, I. (1989) "The Private Sector's Response to Financial Liberalisation in Turkey: 1980-82". World Bank PPR Working Paper, No. 147, pp. 1-41.
- Cameron, R.; Crips, O.; Patrick, H.; and Tilly, R. (1967) *Banking in the Early Stages of Industrialization*. New York: O.U.P.
- Caprio, G.; Atiyas, I.; and Hanson, J. A. (1993) "Financial Sector Reform: Lessons and Strategies" in S. Farugi (ed.) *Financial Sector Reforms in Asia and Latin American Countries: Lessons of Comparative Experience*. EDI Seminar Series, World Bank, pp. 67-92.
- Cooper S. K. and Fraser D. R. (1990) *The Financial Marketplace*. Addison-Wesley Publishing Company.
- Corbo, C. V. and Rojas, P. (1991) "World Bank Supported Adjustment Programmes: Country Performance and Effectiveness". World Bank Working Paper ; No. 623. Pp. 1-37.
- Diaz-Alejandro, C. (1985) "Goodbye Financial Repression, Hello Financial Crash". *Journal of Development Economics*, Vol. 19, Nos. 1 & 2. Pp. 1-24.
- Ezirim, B. Chinedu (1996) *Merchant Banking in Perspective*. Port Harcourt: Markowitz Centre for Research and Development.
- _____ (1999) "Intermediation Functions of the Financial Superstructure and Economic Growth: Evidence from Nigeria". Doctoral Dissertation, University of Port Harcourt, Port Harcourt.
- _____ and Emenyonu, E. N. (1998) *Bank Lending and Credit Administration: The Lender's Perspective with Cases and suggested solutions*. Port Harcourt: Markowitz Centre For Research and Development.
- Feese, A. (1991) "Prudential Guidelines Too Sudden", *Business Times*. July 22.
- Fry, J. M. (1988) "Money and Capital or Financial Deepening in Economic Development? *Journal of Money, Credit and Banking*, Vol. 10, No. 4; November. Pp. 464-475.
- Fry, J. M. (1978) *Money, Interest, and Banking in Economic Development*. Battimore and London.
- Fry, J. M. (1997) "In Favour of Financial Liberalisation". *Economic Journal*, Vol. 107, May. Pp. 754-770.

- Goldsmith, R. W. (1969) *Financial Structure and Development*. New Haven: Yale University Press.
- Ikhide, S. J. (1990) "On the Deregulation of Interest Rates in Nigeria – Myths and Realities". *Nigerian Economic and Financial Review*, Vol. 3, No. 1. Pp. 32-43.
- IMF (1993) "Economic Adjustment in Low-Income Countries: Experience Under the Enhanced Structural Adjustment Facility". IMF Occasional Paper. No. 106, pp. 107-238.
- Isijola, C. O. (2000) "Impact of Financial Sector Reforms on the supply and Demand for Agricultural Credit in Nigeria". *First Bank Bi-Annual Review*, Vol. 8, No. 16, June. pp.....
- Koutsoyiannis, A. (1977) *Theory of Econometrics: An Introductory Exposition of Econometric Methods*. London: Macmillan Press Ltd.
- Mckinnon, R. (1973) *Money and Capital in Economic Development*. Washington DC: The Brookings Institutions.
- Mckinnon, R. (1988). "Financial Liberalization and Economic Development: A Reassessment of Interest Policies in Asia and Latin America. Occasional Papers, No. 6.
- Odedokun M. O. (1987) "Causalities Between Financial and Real Sector Variables in Nigeria: A Comparison of Results from Granger's and Sim's Test". *The Nigerian Journal of Economic and Social Studies*. Vol. 29, No. 3, November.
- Ogunleye, R. W. (1995) "Monetary Policy Influence on Bank's Profitability: Evidence from Single Equation Approach. *NDIC Quarterly*, Vol. 5, No. 4, December.
- Ogunleye, G. A. (1999) "The Regulatory Imperatives for Nigeria: A Review and Postscript. *The Journal of Banking and Finance*. Vol. 3, No. 3. July – December.
- Oladipo O. S. (2000) "Financial Liberalization and Savings: A Critical Analysis. *First Bank of Nigeria Bi-Annual Review*, Vol. 8, No. 17, December.
- Sani, T. A., and Yakpogoro, R. E. (1997) *The Impact of Banking Reforms on Commercial Banks' Performance in Nigeria*. *Journal of Industrial Business and Economic Research (JIBER)*: Vol. 1, No. 2, Dec.
- Sealey, C. W. (1980) "Deposit Rate-Setting, Risk Aversion and the Theory of Depository Financial Institutions". *Journal of Finance*, December.
- Shaw, E. S. (1973) *Financial Deepening in Economic Development*. New York: Oxford University Press.
- Soyibo, A. and Adekanye, Femi (1992) "Financial System Regulation, Deregulation and Savings Mobilization in Nigeria". *AERC Research Paper*, No. 11, November.
- Soyibo, Adedoyin (1994) "The Savings-Investment Process in Nigeria: An Empirical Study of the Supply side". *African Economic Research Consortium (AERC) Research Paper*, No. 12, March.

- Thornton J. and Pondyal, S. R. (1990) "Money and Capital in Economic Development: A Test of the McKinnon Hypothesis for Nepal". *Journal of Money, Credit and Banking*, pp. 395-399.
- Versluysen, E. (1998) *Financial Deregulation and the Globalization of Capital Markets*, PPR Working Papers, WPS40, World Bank.
- Yerokun, O. (1991) "The Possible Effects of Changing Legal Environment in Nigeria on Banking" in *Advanced Law and Practice of Banking in Nigeria: Papers and Proceedings*, FITC, (ed.) Yaba, Lagos: Financial Institution Training Center.