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Modelling Bank Management, Rural Lending and Small Business Finance in Nigeria

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Abstracts - This study tests four regression models to examine the effects of selected bank management ratios on rural lending and small business finance in Nigeria. Published data were generated from the Central Bank of Nigeria (CBN) Statistical Bulletin for the period 1992-2007, and analyzed with the Software Package for Social Sciences (SPSS). It was found that a critical gap in bank intermediation still exists in the Nigerian rural and SME sectors. A significantly positive relationship exists between rural loan-to-deposit ratio (RLTDR) and aggregate loan-to-deposit ratio (LTDR) at the 5% level. However, when RLTDR is used as the explanatory variable, we should expect LTDR to rise significantly, as RLTDR declines and vice versa. The coefficient of determination (R2) shows that 84.02% of the variation in RLTDR is accounted for by bank management variables (Liquidity Ratio - LR, Cash Reserve Ratio – CRR & Loan-to-Deposit Ratio LTDR). Furthermore, the bank management variables (LR, CRR & LTDR) varied negatively with the ratio of loans to SMEs (RLSMEs) at the 5% level of significance. Nearly 75% of the variations in the ratio of loans to SMEs is accounted for by the bank management explanatory variables. Overall, the results suggest that rural bank management expanded aggregate credit in such a manner that constrained their liquidity profiles, particularly from year 2007. The excess liquidity in the banking system between 1992-2007 did not improve the flow of credit to SMEs in Nigeria. Consequently, the banks have failed in their social role of financing the entrepreneur-innovator by restricting the spread of fiat money contrary to the expectations of the Keynes-Schumpeter model. There is also no evidence to show that the banks are dealing significantly with the problem of information asymmetries through improved relationship lending to the SMEs in Nigeria. Monetary policy should therefore focus on compliance with prudential standards, restoring the mandatory credit allocation regime to rural & SME sectors and deepening the rural financial system.

Keywords : *Bank management, rural lending, small business finance, modelling.*

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I. Introduction

According to the modern theory of financial intermediation, an important role of banks in the economy is to create liquidity by funding illiquid loans with liquid demand deposits (see Diamond, 1984; Ramakrishnan and Thakor, 1984). However, a large body of literature has shown that small firms experience difficulties in accessing the credit market due to informational asymmetries (Zingales, 2000; Berger and Udell 1998; Beck *et al*, 2002; Gregory, *et al*, 2005). Banks can overcome these asymmetries through relationship lending, or at least mitigate their effects by asking for collateral. Small firms, especially if they are young, have little collateral and short credit histories, and thus may find it difficult to raise fund from banks (see Francesco, 2009 for a detailed survey).

Until recently, economic theory did not pay any significant attention to the issue of firm financing, that is, the mechanisms through which firms procure the means of payment necessary to carry out their investment decisions. The Keynesian theory supported the thesis of the non-neutrality of money by using more or less sophisticated versions of the IS-LM model, according to which investment decisions depend only on the interest rate whose level is determined by the money market equilibrium. The implicit hypothesis in these models is that firms are always able to obtain the liquidity necessary to carry out the desired investments. This approach found important theoretical support in the Modigliani-Miller Theorem that shows that a firm's investment decisions are independent of the choice of the form of financing. The monetarist theory motivates the irrelevance of the firm financing issue by stating that it is not possible to attribute to the credit market a role which is distinct from that played in the real sector, inasmuch as the credit market coincides with the real sector (see McCallum, 1989).

In a landmark article, Levine (1997) has shown that the financial sector leads to productivity growth and real economic growth. However, a number of studies have shown that banks have played no substantial and statistically significant role in small business lending (Pranti, *et al*, 2006; Obamuyi, 2007; Bonaccorsi & Gobbi, 2007). Although the eras of pursuits of market reforms in the Nigerian banking industry were characterized by improved incentives, these however, did not lead to increased credit purvey to the economy (Balogun, 2007). Current banking reforms in Nigeria have adopted a risk-based supervision (RBS) framework aimed at improving asset quality and enhancing lending growth.

Based on Nigerian data, the works of Emeni and Okafor (2008) have shown that the larger the size of a bank by way of mergers at acquisitions (M & A), the more it tends to lend to small businesses. Emeni and Okafor also show that change in banking focus.

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(e.g. cutting down of branches in local areas), otherwise referred to as the restructuring effect, resulted in poor lending to small businesses, even with M & A. The works of Toby (2005) show that the liberalization of the Nigerian banking industry between 1986-92 resulted in deteriorating corporate liquidity, declining bank credit to the manufacturing sector, outrageous increases in interest rates with the consequential decline in the contribution of the manufacturing sector to the GDP. It is also shown in Toby (2007a) that the current asset ratios of quoted SMEs are significantly sensitive to commercial banks' liquidity ratio, cash reserve requirement and the loan-to-deposit ratio, indicating a heavy reliance of the SME sector on banks for financing. However, Toby (2007b) shows that their risk class limits the flow of funds to the SMEs, and the consequential financial stress in a risk-averse financial system.

It is argued that SMEs in Nigeria can contribute as much as 30 per cent of the Gross Domestic Product (GDP) and employ up to 58 per cent of its work force (Galadima, 2006). The CBN is further quoted as stating that the formal financial system provides services to about 35 per cent of the economically active population in Nigeria, while the remaining 65 per cent are excluded from access to formal financial services (Anaro, 2006). The critical gaps in banking intermediation in the SME sector have necessitated the emergence of alternative financing options. The most recent initiatives include the Small and Medium Industries Equity Investment Scheme (SMIEIS), the Microfinance Regulatory Framework (2005), the Bank of Industry (BOI) and the N200billion SME credit Guarantee Scheme (SMECGS).

What is not known is the empirical determinant of rural lending in the context of aggregate bank behaviour. The nature and significance of the relationship between bank management variables and SME lending is not also known with certainty. The determination of these critical relationships would have far-reaching policy implications for the Nigerian banking industry, rural financial intermediation and small business financing.

Our research null hypotheses are:

$H0_1$: There is no significant relationship between aggregate bank loans behaviour and rural lending.

$H0_2$: There is no significant relationship between bank management behaviour (monetary policy outcomes) and rural lending

$H0_3$: There is no significant relationship between bank management practices and SME lending.

The next section of this article provides the background to the study, followed by a review of related literature, research methods and model specifications, empirical results, policy implications and conclusions.

II. Background Of The Study

The behaviour of interest rates in the post-liberalization era is summarized in Table 1. The post-liberalization era (1992-2005) was characterized by re-regulation and cumulative bank distress. The consolidation era (2006-2007) witnessed aggressive mergers and banking consolidation. Average savings rate declined drastically from 16.10% in 1992 to 3.83% in 2005. The savings rate dropped further to 3.55% in 2007. The prime lending rate offered to preferred borrowers also witnessed a decline from 29.8% in 1992 to 16.94% in 2007. The maximum lending rate equally declined from 31.2% in 1992 to 18.36% in 2007. On the average, maximum lending rate remained at 23.4% between 1992 and 2007.

Table 1 : Weighted Average Deposit and Lending Rates of Deposit Money Banks (Per cent)

Year	Savings	Prime [1]	Maximum
1992	16.10	29.80	31.20
1993	16.66	18.32	36.09
1994	13.50	21.00	21.00
1995	12.61	20.18	20.79
1996	11.69	19.74	20.86
1997	4.80	13.54	23.32
1998	5.49	18.29	21.34
1999	5.33	21.32	27.19
2000	5.39	17.98	21.55
2001	5.49	18.29	21.34
2002	4.15	24.85	30.19
2003	4.11	20.71	22.88
3004	4.19	19.18	20.82
2005	3.83	17.95	19.49
2006	3.13	16.89	18.41
2007	3.55	16.94	18.36
Average*	7.5	19.5	23.4

[1] *Formerly referred to as First Class Advances*

* *Average calculations were by the author*

Note: *2005 and 2006 Figures were revised*

Source: *Central Bank of Nigeria Statistical Bulletin*

The selected financial ratios of commercial banks in Nigeria are presented in Table 2. The ratios represent monetary policy outcomes and critical bank management variables for the period 1992-2007. The liquidity ratio of commercial banks increased markedly from 29.1% in 1992 to 57.9% in 2007, with an average of 48.8% in the 1992-2007 period. Within the period under investigation, target monetary policy fixed minimum liquidity ratio (MLR) between 35-40%. Hence, most banks exhibited excess liquidity within the period 1992-2007. With a sharply declining savings rate, this liquidity profile of banks could have been determined by a high incidence of purchased money at rates much higher than 7.5%.

Table 3: Selected Financial Ratios of Commercial Banks (Per cent)

Year	Liquidity Ratio[1]	Cash Reserve Ratio[2]	Loan-to-Deposit Ratio[3]
1992	29.1	4.4	55.2
1993	42.2	6.0	42.9
1994	48.5	5.7	60.9
1995	33.1	7.5	73.3
1996	43.1	7.8	72.9
1997	40.2	8.3	76.6
1998	46.8	11.7	74.4
1999	61.0	9.8	54.6
2000	64.1	10.8	51.0
2001	52.9	10.6	65.6
2002	52.5	10.0	62.8
2003	50.9	8.6	61.9
3004	50.5	9.7	68.6
2005	50.2	4.2	70.8
2006	57.9	4.2	64.6
2007	57.9	4.2	64.6
Average	48.8	7.7	63.8

1. *Liquidity ratio is the ratio of total specified liquid assets to total current liabilities*
2. *Cash reserve ratio is the ratio of cash reserve requirement to total current liabilities*
3. *Loan-to-deposit ratio is the ratio of total loa and advances to total current liabilities*

Source: *Central Bank of Nigeria Statistical Bulletin*

In the post-liberalization period, we notice a steeply rising cash reserve ratio (CRR) from 4.4% in 1992 to 9.7% in 2004, although we notice another radical drop to 4.2% in 2007. The increase in cash reserve ratio could have been defined by excess liquidity in the banking system in the 1992-2004 period. The further drop in CRR to 4.2% could have aggravated the excess liquidity problem in the Nigerian banking system. However, the loan-to-deposit ratio increased marginally from 55.2% in 1992 to 64.6% in 2007, below the prudential maximum of 80.0%. Lending growth remained conservative in the 1992-2007 period, although the banking system experienced excess liquidity. Apparently, monetary policy failed to curb excess liquidity and boost lending growth in the Nigerian banking system.

The deposits and loans of rural branches of Deposit Money Banks in Nigeria are summarized in Table 3. Although maximum lending rates showed a decline, the rural loan-to-deposit ratios increased drastically from 41.1% in 1992 to just 738.0% in 2007. The significant increase from 55.5% in 2006 to 738.0% in 2007 could have been explained by the desire of rural bank managers to grant all loan applications at exorbitant rates as banking consolidation gained momentum. The fact that total loans portfolio of rural banks far exceeded their total deposits portfolio means that rural bank management must have relied heavily on purchased funds to grant these loans in 2007. Apart from exceeding the regulatory maximum of 80.0% for loan-to-deposit ratio (RLTDR), the rural bank branches increased their illiquidity and consequently constrained further lending to rural dwellers and businesses beyond 2007. The Rural Banking Programme which started in 1977 sought to moderate the problem of poor access to credit by the rural sector operators, including most of the SMEs. The scheme was discontinued after 1989 due to widespread criticism of the programme and the emergence of community banks.

Table 3 : Deposits and Loans of Rural Branches of Deposit Money Banks (N million)

Year/Quarter	Deposits	Loans	Ratio[1]
1992	4612.2	1895.3	41.1
1993	19542.3	10910.4	55.8
1994	4855.2	1602.2	33.0
1995	8807.1	8659.3	98.3
1996	12442.0	4411.2	35.5
1997	19047.6	11158.6	58.6
1998	18513.8	11852.7	64.0
1999	15860.5	7498.1	47.3
2000	20640.9	11150.3	54.0
2001	16875.9	12341.0	73.1
2002	14861.6	8942.2	60.2
2003	20551.8	11251.9	54.7
3004	64490.0	34118.5	52.9
2005	18461.9	16105.5	87.2
2006	40775.9	22637.4	55.5
2007	3337.5	24600.6	738.0
Average	19167.3	12446.0	64.9

Ratio of loans rural customers of Deposit Money Banks to deposit mobilized with the rural branches.

Source: *Central Bank of Nigeria Statistical Bulletin*

The number of bank branches in Nigeria and abroad is shown in Table 4. The average number of urban branches was 1208 (68.2%), while rural branches was just 556 (31.4%). The concentration of bank branches in the urban centres could have been easily explained by better infrastructure and more lucrative business. The rural sector remains heavily constrained by its small economic capacity and infrastructural bottlenecks. Public sector intervention in the rural sector remains weak with non-existent capital market activities. Banking policy in Nigeria has remained urban-biased with insufficient outreach to rural communities.

Table 4 : Number of Deposit Money Banks' Branches in Nigeria and abroad

Year	No. of Banks	Urban	Rural	Abroad
1977	19	474	13	5
1978	19	511	98	5
1979	20	533	133	6
1980	20	565	168	7
1981	20	622	240	7
1982	22	676	308	7
1983	25	694	407	7
1984	27	810	432	7
1985	28	839	451	7
1986	29	879	529	7
1987	34	947	602	7
1988	43	1057	756	7
1989	47	1093	765	6
1990	58	1169	774	6
1991	65	1253	775	6
1992	65	1495	763	6
1993	66	1577	701	6
1994	65	1534	675	6
1995	64	1661	675	6
1996	64	1727	714	5
1997	64	1727	714	5
1998	54	1466	722	5
1999	54	1466	722	5
2000	54	1466	722	5
2001	90	1466	722	5
2002	90	2283	722	5
2003	90	2520	722	5
Average*	48	1208(68.2%)	556(31.4%)	6(0.4%)

** A erage calculations were by the author*

Source: *Central Bank of Nigeria Statistical Bulletin*

The ratio of loans to small-scale enterprises to total commercial banks' credit is shown in Table 5. Up till October 1, 1996, most banks were mandated to allocate 20 per cent of their total credit to small-scale enterprises wholly owned by Nigerians. Hence, between 1992 and 1995, average SME lending in Nigeria was between 22.9% and 48.8%. The bank distress era (1997-2003) recorded significant declines in small business lending from 25.0% in 1996 to 7.5% in 2003. The decline in the ratio of SME loans averaged 0.7% in 2007. Apparently, the consolidation of the Nigerian banking industry seems to have worsened the financial constraints of SMEs in Nigeria.

Table 5 : Ratio of Loans to small-scale Enterprises to Commercial Banks to Credit [1]

Total Quarter	Commercial Banks loans to small scale Enterprises (₦m)	Commercial banks Total Credit (₦m)	% Commercial Banks Loans to small scale enterprises as percentage of total credit
1992	20400.0	41810.0	48.8
1993	15462.9	48056.0	32.2
1994	20552.5	92624.0	22.2
1995	32374.5	141146.0	22.9
1996	42302.1	169242.0	25.0
1997	40844.3	240782.0	17.0
1998	42260.7	272895.5	15.5
1999	46824.0	353081.1	13.3
2000	44542.3	508302.2	8.7
2001	52428.4	796164.8	6.6
2002	82368.4	954628.8	8.6
2003	90176.5	1210033.1	7.5
2004	54981.2	1519242.7	3.6
2005	50672.6	1899346.4	2.7
2006	21201.7	1847822.6	3.9
2007	26481.3	3821282.2	0.7
Average	42742.1	859778.7	15.0

Source: Computed from Deposit Money Banks' returns

[1] *The abolition of mandatory bank's credit allocations of 20% of its total credit to small-scale enterprises wholly owned by Nigerians took effect from October 1,1996.*

The ratio of small enterprises' loans to merchant banks' total loans is summarized in Table 6. SME lending also recorded a sharp decline from 31.2% in 1992 to 10.2% in 2000. It is important to note that from 2001, Universal Banking commenced in Nigeria, hence merchant banking activities were abolished.

Table 6 : Ratio of Small Enterprises' Loans to Merchant Banks' Total Credit

Year/Quarter	Loans to small scale enterprises (₦m)	Merchant Bank's Total Credit (₦m)	Merchant Bank's loans to small scale enterprises as Percentage of Total Credit (%)
1992	3493.9	11188.8	31.2
1993	4900.0	25189.8	19.5
1994	5489.3	30185.1	18.2
1995	9159.6	30612.2	29.9
1996	5595.8	41139.5	13.6
1997	7137.9	54491.5	13.1
1998	7800.0	60290.6	12.9
1999	7537.5	55767.6	13.0
2000	17899.8	190604.4	10.2
Average	7668.3	55496.6	18.0

Note: *(1) The abolition of mandatory banks credit allocations of 20% of its total credit to small scale enterprises wholly owned by Nigerians took effect from October 1, 1996.*

(2) With effect from year 2001, Universal Banking commenced hence Merchant Banking activities were abolished

Source: *Computed from Merchant Bank's returns.*

The emergence of community banks could have been explained by the disturbing level of financial exclusion in the rural and SME sectors in Nigeria. Between 1992 and 2000, 902 community banks reduced to just 367 apparently due to management failure and operational constraints (Table 7). Their liquidity ratio declined drastically from 75.14% in 1992 to just 23.48% in 2000. However, the loan-to-deposit ratio improved marginally

Table 7 : Summary of Assets and Liabilities of Community Banks (₦ million)

	1992	1993	1994	1995	1996	1997	1998	1999	2000
ASSETS:									
Cash in hand	66.70	190.70	233.10	286.30	278.70	414.10	830.40	1299.00	709.80
Balance with other banks	245.90	781.20	879.80	897.50	944.90	614.90	1230.70	1817.60	1016.0
Money at call	197.70	695.70	773.20	403.80	157.80	327.80	155.00	177.30	110.77
Bills Discounted	23.30	23.40	24.70	4.80	6.40	113.20	97.20	116.00	71.07
Loans & Advances:	135.80	654.50	1220.60	1129.80	1400.20	1618.80	2526.80	2958.30	1828.7
(a) Agriculture & forestry	29.50	123.20	155.40	98.60	229.40	367.40	962.70	1007.20	656.63
(b) Mining & Quarrying	3.70	5.70	32.20	17.90	17.60	28.50	31.00	27.00	19.33
(c) Manufacturing & Food Processing	7.70	69.60	98.30	68.90	81.60	125.00	172.90	200.00	124.57
(d) Manufacturing & Others	12.20	60.00	102.70	55.90	73.80	75.00	126.50	92.70	73.07
(e) Real Estate & Construction	14.60	47.50	34.90	102.60	92.70	105.20	67.10	71.90	46.33
(f) Transport/Commerce	45.60	280.00	513.80	575.70	695.00	729.90	1042.70	1447.80	830.17
(h) Others	22.50	68.50	283.30	210.20	210.10	187.80	123.90	110.90	78.27
Investments	118.40	326.60	491.40	354.30	254.00	384.00	218.40	436.80	218.40
Equipment on Lease	-	-	6.00	1.60	7.20	139.60	48.80	74.70	41.17
Fixed Assets	124.90	406.40	753.70	673.40	728.30	940.20	656.80	1010.70	555.83
Other Assets	54.50	120.10	310.70	355.00	655.00	153.80	713.10	1013.20	575.43
TOTAL ASSETS	967.20	3198.60	4693.20	4106.50	4432.50	4706.40	6477.20	8903.60	5126.3
LIABILITIES:									
Deposits	639.60	2188.20	3216.70	2834.60	2876.30	3181.90	4454.20	4140.30	2864.3
(a) Demand	207.90	588.50	836.30	832.90	780.70	842.10	1252.40	3332.60	1528.3
(b) Savings	304.20	1107.90	1865.70	1672.30	1786.20	1945.70	295.30	807.70	1134.33
(c) Time	127.50	491.80	514.70	329.40	309.40	394.10	606.50	-	202.17
Money at Call Takings		-	5.10	0.70	-	5.20	-	-	-
Balances held for Banks	39.50	63.90	33.60	14.40	13.70	28.80	-	-	-
Matching Loans	36.90	74.60	71.10	107.90	38.10	68.90	42.30	62.50	34.93
Other Loans [1]/		-	108.20		60.90	9.00	94.70	-	31.57
Shareholders Funds	227.00	625.30	935.40	861.00	870.70	1385.80	1479.30	1858.40	1112.7
(a) Paid up Capital	197.90	417.20	769.00	787.40	803.70	774.80	1123.50	1514.20	879.23
(b) Reserve	29.10	208.10	166.40	73.60	67.00	611.00	355.80	344.20	233.33
Others Liabilities	24.20	246.60	323.10	287.90	572.80	26.80	406.70	2842.40	1083.3
TOTAL LIABILITIES	967.20	3198.60	4693.20	4106.50	4432.50	4706.40	6477.20	8903.60	5126.3
Number of Reporting Banks	334.00	611.00	902.00	745.00	693.00	674.00	552.00	550.00	367.00
Loans to Deposit Ratio [2]/	23.43	30.10	38.25	39.81	48.67	53.86	58.91	27.60	28.84
Liquidity Ratio [3]/	75.14	74.05	57.94	55.71	47.80	42.19	49.75	20.70	23.48

Note: *1/ Other Loans consists of donations/grants/subventions.*
*2/ Loans to Deposit ratio = (Loans and advances + Bills discounted)*100/(deposits + money at call Taking + balances held for banks)*
3/ Liquidity Ratio = (Cash in hand + Balance with other banks + Money at Call/(Deposits + Money at call Takings + Balances held for banks)
*/*100 With effect from December 2006, all the existing Community Banks were asked to transform to Microfinance banks.*
Source: *Central Bank of Nigeria*

from 23.43% in 1992 to 28.84% in 2000. Most community banks could not create sufficient credit as a result of liquidity shortages. On the other hand, very low loan-to-deposit ratio coupled with rising non-performing loans portfolio could have also aggravated community banks' liquidity crisis.

III. Review Of Related Literature

The extensive works of Bertocco (2003) have outlined the theoretical models defining the role of banks in financing small and medium firms. The study provides a shift from the asymmetric information approach to a meaningful theory elaborated on the basis of the works of Keynes and Schumpeter.

The asymmetric information (AI) approach abandons the hypothesis of perfect markets on which the neoclassical theorems on the irrelevance of money and the financial variables were founded. The conclusions of this approach apply in particular to small and medium firms, as there is less information about them (see Meyers, 1984; Carpenter and Peterson, 2002). The first conclusion under AI approach is that the presence of asymmetric information renders the Modigliani-Miller theorem inapplicable. If the potential creditors have less information than the entrepreneur who plans to carry out a new investment project, then it is not indifferent for the firm to choose among self-financing, debt or a new share issue. The second result under the AI approach is that it provides a convincing theory of financial intermediaries (banks) according to which their function is to reduce the costs associated with asymmetric information.

The Keynes-Schumpeter (K-S) approach leads us to analyze in a more complicated way the role of the financial structure (see Keynes, 1933a, 1933b, 1937a, 1937b, 1937c, 1939; Schumpeter, 1912, 1917, 1939, 1954). This approach underlines that bank money, banks, credit markets are elements that mark an economy that is completely different from the pure exchange economy to which the principle of the neutrality of the monetary variables is applied. It is an economy in which: (1) the object of the credit market is not the resources saved but the means of payment created by the banks; (2) the credit market is based on the relation between banks and firms and not on the relation between savers and firms; (3) there are no automatic mechanisms that guarantee the full employment of resources; (4) the evolution of the economic system is determined by the innovations that are made through investment decisions that are taken in conditions of uncertainty.

These elements make it possible to highlight the social role of the banks, which do not act on behalf of a particular group of economic subjects, but they act on behalf of the entire society. By creating money to finance the entrepreneur-innovator, they express the consensus of society towards the investment project which is funded (Stiglitz and Weiss, 1981; Jaffe and Stiglitz, 1990; Bertocco, 2001; De Meza and Southey, 1996; De Meza, 2002). The social responsibility of the banks becomes evident when, following Schumpeter, we observe that it is the investment decisions financed by the bank that influence the choice of the goods to produce and not the preference of consumers, and it is society in its entirety through the banks that assumes the risk of the investment.

The Keynes-Schumpeter approach has important implications. This approach leads us to minimize the importance of the asymmetric information in explaining the characteristics of the financial structure. According to Keynes and Schumpeter, the existence of the banks is not explained by the presence of asymmetric information, but it is explained by the spread of fiat money. The Keynes-Schumpeter approach emphasizes the monetary role played by the banks, that is, their ability to create new money through credit. Moreover, in the presence of uncertainty, the difference between the financial structures of small – medium firms with respect to the big firms can be explained on the basis of the selection criteria applied by the banks rather than on the basis of the presence of asymmetric information.

IV. Empirical Evidence on Relationship Lending

Empirical evidence shows that relationship lending can offer substantial economic advantages both to banks and to firms (Berger and Udell, 2002; De Young *et al*, 2004). The available studies have mostly focused attention on the advantages of relationship lending for businesses in terms of pricing, implicit terms and conditions and the availability of funding (Dewatripont and Roland, 2000; Kornai *et al*, 2003). Some other analysis empirically verifies the existence of a relation between the relationship-oriented model and the quality of the loan portfolio by using alternative measures to assess credit quality (see Acharya, *et al*, 2002; Coligno, *et al*, 2010).

Relationship banking can be understood as a bank intermediation model based on the development of a privileged, collaborative and repeated lending relationship with the firm, in respect of which the bank invests in the collection of private information (soft information) thus qualifying as a financial partner of reference with the objective of maximizing the profitability of the overall relationship in the medium and long-term (Sharpe, 1990; Stein, 2002; Scott, 2004; Berger, *et al*, 2010). A number of studies have shown that firms with a bank commitment relationship are less financially constrained (Bongini, *et al*, 2007; Brick and Palia, 2007; Elsas, 2005; Alexandrini, *et al*, 2009).

The works of Peterson and Rajan (1994) have analyzed the consequences of a lasting relationship between banks and firms on the financing conditions imposed, and in particular on the interest level applied and on the availability of credit. Their analysis, based on the data of small U.S. firms, shows that the duration of the relationship between the bank and the firm seems to have a slight effect on the interest rate and a significant

impact on the availability of credit (see Cole, 1998). Another set of studies analyze the Italian experience by investigating the influence of a lasting relationship on the firms' financing conditions (Finaldi & Rasi, 1999; Guiso *et al*, 2002; Alessandrini and Zazzaro, 2001; Angelini *et al*, 1998).

Meyer (1997) has outlined the importance of the bank-small business relationship as follows:

One of the reasons why the banking relationship is so important is that banks can efficiently gain valuable information on a small business over the course of their relationship, and then use this information to help make pricing and credit decisions. The financial conditions of small firms are usually rather opage to investors and the costs of issuing securities directly to the public are prohibitive for most small firms. Thus, without financial intermediaries like banks it would be simply too costly for most investors to learn the information needed to provide the credit, and too costly for the small firm to issue the credit itself. Banks, performing the classic functions of financial intermediaries, solve these problems by providing information about borrowers and monitoring them over time, by selling loan contract terms to improve borrower incentives, by renegotiating the terms if and when the borrower is in financial difficulty, and by diversifying the risks across many small business credits.

Some empirical research suggests that as the relationship matures, banks typically reduce interest charged and often drop the collateral requirements on small business loans. The bank-borrower relationship appears to be an efficient means for overcoming information and cost problems in small firm finance, and for allowing fundamentally creditworthy small firms to finance sound projects that might otherwise go unfunded. The implication of the importance of the bank-small business relationship is that it may impose limits on the migration of small business finance out of the banking sector.

Petersen and Rejan (1995) have identified a countervailing aspect of small business lending competition. They model a "relationship effect" in which an increase in banks' market power – that is, less competition – also increases their ability to form lending relationships with young firms, which typically have relatively uncertain prospects. Specifically, banks with more market power can afford to offer low interest rates to young firms because the banks can raise the rates when those firms are old without losing their business. Low interest rates are important because they are compatible with prudent behaviour. Interest rates that are too high increase "moral hazard" – firms take bigger risks with the bank's money in order to have a chance of paying back the high-priced loans and retaining some profit for themselves.

V. Banking Concentration And Small Business Lending

The research of Petersen and Rajan (2002) analyzes the consequences of the processes of merger and concentration experienced by the U.S. banking sector on the small firms' financing conditions. They highlight two, apparently contradictory, phenomena. On the one hand, they observe, in tandem with the process of mergers and concentration, that the physical distance separating small firms and creditor banks grew substantially in the period from 1973 to 1993; on the other hand, they note that this greater distance did not lead to greater difficulties in financing for the small firms. This combination of apparently contradictory phenomena is due, according to Peterson and Rajan, to the effects of the information technology revolution allowing banks to gather a larger quantity of information despite the greater distance from the firms.

Laderman (2008) concludes that a positive association between competition and lending is consistent with the empirical result of studies of other areas of banking done at metropolitan statistical area (MSA) level and is consistent with the traditional theory that is the foundation of antitrust enforcement, which holds that greater competition reduces prices and increases supplies. Cetorelli and Strahan (2006) study the effect of bank competition on the number and size distribution of firms within industries. They find that across MSAs, for industries that depend on external sources of finance, increases in bank competition are associated with increases in the proportion of total firms in that industry that are small. The authors did not examine the effect of competition on small business loan volumes explicitly. But, it is reasonable to suppose that a greater proportion of small firms in an industry in one MSA than in the same industry in a second MSA may be the result of greater bank funding for small firms in that industry in the first MSA.

The works of Park (2008) examine how banking concentration affects small business lending. Using the Survey of Business Finance, the empirical model shows that bank concentration may adversely affect the amount of credit supplied to small businesses. It is found that bank concentration decreases the line of credit (L/C) limits of firms significantly, while there is no statistically significant difference in L/C balance across banking markets. The research also shows that bank concentration lowers the overall debt-to-asset ratio of small firms that includes loans from non-bank institutions, suggesting that credit from non-bank institutions do not fully make up the effect of bank concentration.

Gerther and Gilchrist (1991) present evidence on the cyclical behaviour of small versus large

manufacturing firms, and on the response of these two classes of firms to monetary policy. They find that, following tight money, small firms sales decline at a faster pace than large firms sales for a period of more than two years. Further, bank lending to small firms contracts, while it actually rises for large firms. Monetary policy indicators tied to the performance of banking, such as M2, have relatively greater predictive power for small firms than for large. Gerther and Gilchrist show that small firms are more sensitive than are large to lagged movements in GNP.

VI. Rural Financial Intermediation

Historically, the financial performance of credit markets and small business in rural areas has been a topic of active professional discourse. At the centre of the debate is whether or not gaps exist in rural financial markets. Edelman (1997) notes among others that: (1) rapid concentration of bank assets due to merger activity may limit lending to rural businesses, (2) financial market regulations impose greater costs to smaller lenders that are characteristic of rural communities; (3) rural borrowers with unique credit needs (large amount, start-up, unfamiliar venture) face greater difficulty obtaining credit, and (4) rural equity markets are unorganized and virtually non-existent.

Other studies have not found significant shortfalls in rural small business financial markets. Surveys of small businesses in Arkansas and Illinois found adequate availability of debt and equity capital (see Gruidi, 1991; Lamberson and Johnson 1992). Shaffer and Pulver (1990) found that availability of capital is not a widespread problem and no one type or stage of business had difficulty acquiring capital. Gustafson (2003) has also shown that small businesses possess higher credit worthiness, but nearly one-fourth still report being delinquent on business obligations.

The works of Drabenstott and Mecker (1997) provide the concensus that rural businesses have a smaller menu of products and often pay more for access to capital. This is due in part to the limited and declining supply of loanable funds, bank consolidation, and undeveloped equity markets in rural areas. Jones (2008) has shown that formal-sector financial institutions can learn much about rural financial service needs from the financial products and processes of their informal counterparts.

VII. Data Sources and Model Specifications

The data for this study were generated for the Central Bank of Nigeria Statistical Bulletin for the period 1992-2007. The author computed the averages to shed more light on the average performance of critical variables. The variables studied include aggregate Loan-to-Deposit (LTDR), Rural Loan-to-Deposit Ratio (RLTDR), Liquidity Ratio (LR), Cash Reserve Ratio (CRR) and Ratio of Loans to Small and Medium Enterprises (RLSMEs).

The following regression equations were formulated and computed with the aid of the Software Package for Social Sciences (SPSS):

(1) $RLTDR = \alpha + \beta LTDR + \varepsilon_i$

(2) $LTDR = \alpha + \beta RLTDR + \varepsilon_i$

(3) $RLTDR = \alpha + \beta_1 LR + \beta_2 CRR + \beta_3 LTDR + \varepsilon_i$

(4) $RLSMEs = \alpha + \beta_1 LR + \beta_2 CRR + \beta_3 LTDR + \varepsilon_i$

The t-test is employed for the purpose of testing the equality of two regression coefficients as in equation 5:

$$(5) \qquad t = \frac{(\hat{\beta}_1 - \hat{\beta}_2) - (\beta_1 - \beta_2)}{Se\,(\hat{\beta}_1 - \hat{\beta}_2)}$$

This equation follows the t distribution with (n-3) df, where k is the total number of parameters estimated, including the constant term. The se $(\beta_1 - \beta_2)$ is obtained from the well-known formula given in equation (6).

$$(6) \qquad se\,(\hat{\beta}_1 - \hat{\beta}_2) = \sqrt{Var\,(\hat{\beta}_1) + var\,(\hat{\beta}_2) - 2\,Cov\,(\hat{\beta}_1, \hat{\beta}_2)}$$

If the computed t variable exceeds the critical value at the 5% level of significance for given df, we reject the null hypothesis, otherwise the alternative hypothesis would be accepted.

The F-ratio is employed to test the overall significance of the regression model, as given in equation (7):

$$(7) \qquad F = \frac{\beta_1 \sum y_i \chi_{2i} + \beta_2 \sum y_i \chi_{3i})/2}{\sum \mu^2/(n-3)\ \boldsymbol{i}}$$

In this context if $F > F\hat{\alpha}\,(k-1,\ n-k)$, reject H_0; otherwise you accept the alternate hypothesis. Note that $F\alpha\,(k-1, n-k)$ is the critical F value at the α level of significance and (k-1) numerator df and (n-k) denominator df.

The multiple coefficient of determination (R^2), akin to the simple coefficient of determination is conceptually given in equation (8) as the ratio of explained sum of squares (ESS) to the total sum of squares (TSS).

$$(8) \qquad R^2 = \frac{ESS}{TSS}$$

$$\sum y^2 = \frac{\hat{\beta}_1 \sum y_i \chi_{2i} + \hat{\beta}_3 \sum y_i \chi_{3i}}{\boldsymbol{i}}$$

VIII. Empirical Results and Discussions

The relationship between bank loans behaviour and rural lending is presented in Table 8. The two regression models assume the rural-loans-to-deposit

ratio (RLTDR) and the aggregate loans-to-deposit ratio (LTDR) to be the dependent variable interchangeably. With LTDR as the explanatory variable, the results show a correlation of 0.3769. Since the computed t-statistic of 1.5230 lies outside the acceptance region of ±0.1501 at the 5% significance level, we reject null hypothesis ($H0_1$) and accept the alternative hypothesis. Hence we find a significantly positive correlation between RLTDR and LTDR. This means that as aggregate loan-to-deposit ratios rise, we should expect the rural loan-to-deposit ratios to rise also, and vice versa.

However, when the RLTDR is used as the explanatory variable, we find a negative correlation coefficient of -0.4335. Since the computed t-statistic of -1.8000 falls outside the acceptance region, we still reject the null hypothesis 1 ($H0_1$) and accept the alternate hypothesis at the 5% level of significance. This means that as the rural loan-to-deposit ratios rise, we should expect the aggregate loan-to-deposit ratios of commercial banks to fall significantly, and vice versa. Hence under the regime of declining RLTDRs, we should expect the aggregate LTDRs to rise significantly.

Table 8 : Relationship Between Bank Loans Behaviour and Rural Lending: Simple Regression Results

Model Parameters	Loans-to-Deposits Ratio (LTDR)*	Rural Loan-to-Deposit Ratio (RLTDR)**
β Tolerance	9.5192	-0.0213
SEB (VIF)	6.2514	0.1182
Interval (B)	22.9271	0.0041
β (Beta)	0.3769	-0.4335
SE (Beta)	0.2475	0.2408
Correlation partial	0.3769	-0.4335
T-Statistic	1.5230	-1.8000
Significance T	0.1501	0.9340
Beta In	0.3769	-0.4335

* *The dependent variable is rural loans-to-deposit ratio (RLTDR)*

** *The dependent variable is Loans-to-Deposits Ratio (LTDR)*

The results in Table 9 show the relationship between bank management and rural lending in Nigeria. The liquidity (LR) ratio of banks correlates positively and significantly with rural loan-to-deposit ratio (RLTDR). Although the observed partial correlation coefficient is 0.1287, the computed t-statistic of 3.5620 falls outside the accepted region of ±0.0039 at the 5% level of significance. The partial correlation coefficient of -0.6347 shows an inverse correlation between cash reserve ratio and rural lending. Since the computed t-statistic of -5.1270 falls outside the acceptance region of ±0.0003, we find that the inverse correlation between CRR and rural lending is significant at the 5% level of significance. In relating RLTDR and LTDR, a correlation coefficient of 0.3809 is significant at the 5% level since the t-statistic of 2.1040 falls outside the acceptance region of ±0.0572. Hence the significantly positive correlation between LTDR and RLTDR agrees with the earlier results in a simple regression model.

The beta coefficients in the multiple regression model are for liquidity ratio (LR) 0.5963, cash reserve ratio (CRR) -0.8625 and loan-to-deposit ratio (LTDR) 0.3142. Holding CRR and LRDR constant, as aggregate liquidity ratio increases, the rural loan-to-deposit ratio (RLTDR) also increases but not by as much. In another respect, as CRR increases, we should expect a significant decline in RLTDR and vice versa. The sensitivity of RLTDR to aggregate LTDR is less significant.

Table 9 : Relationship Between Bank Management and Rural Lending in Nigeria: Multiple Regression Results *

Model Parameters	Liquidity Ratio (LR)	Cash Reserve Ratio (CRR)	Loan-to-Deposit Ratio (LTDR)
β Tolerance	2.7683	- 2.0566	1.7757
SEB (VIF)	0.7771	0.4011	0.8441
Interval (B)	4.4614	- 1.1827	3.6148
β (Beta)	0.5963	- 0.8625	0.3142
SE (Beta)	0.1674	0.1682	0.1494
Correlation partial	0.1287	- 0.6347	0.3809
T-Statistic	3.5620	- 5.1270	2.1040
Significance T	0.0039	0.0003	0.0572
Beta In	0.1964	- 0.8625	0.3809

* *The dependent variable is the ratio of rural loans-to-deposits (RLTDR)*

The relationship between bank management and SME lending in Nigeria is summarized in Table 10. The liquidity ratios of commercial banks correlate inversely with SME lending. A correlation coefficient of -0.7063 is significant at the 5% level since the computed t-statistic of -6.2210 is less than zero.

The cash reserve ratio is also inversely correlated with the ratio of loans to SMEs in Nigeria. However, the computed correlation coefficient of -0.3270 is not statistically significant at the 5% level since the t-statistic of 0.2410 falls within the acceptance region of ±0.8139. The aggregate loan-to-deposit ratio (LTDR) is also inversely related to the ratio of loans to SMEs. The correlation coefficient of -0.3875 is significant at the 5% level since the computed t-statistic of -5.0160 falls outside the acceptance region of ±0.0003. The results suggest we reject the null hypothesis 3 ($H0_3$) between bank management and SME lending only in terms of the Cash Reserve Ratio (CRR). The alternative hypothesis of a significant relationship between bank management and SME lending is accepted in terms of the liquidity ratio (LR) and the Loan-to-Deposit Ratio (LTDR).

The beta coefficient of -0.8757 shows that as the liquidity ratio of commercial banks increases, the level of SME lending in Nigeria decreases but not by as much. However, the beta coefficient is 0.3354 shows that as the cash reserve ratio increases, the level of SME lending also increases but not by as much. The beta coefficient is -0.6003 for the aggregate loan-to-deposit ratio. All the beta coefficients are statistically significant at the 5% level.

Table 10 : Relationship Between Bank Management and SME Lending in Nigeria: Multiple Regression Results*

Model Parameters	Liquidity Ratio (LR)	Cash Reserve Ratio (CRR)	Loan-to-Deposit Ratio (LTDR)
β Tolerance	-1.2251	0.1638	-0.7438
SEB (VIF)	0.1969	0.6808	0.1483
Interval (B)	-0.7960	1.6472	-0.4208
β (Beta)	-0.8757	0.3354	-0.6003
SE (Beta)	0.1408	0.1394	0.1197
Correlation partial	-0.7063	-0.3270	-0.3875
T-Statistic	-6.2210	0.2410	-5.0160
Significance T	0.0000	0.8139	0.0003
Beta In	-0.8757	-0.4276	-0.3875

* *The dependent variable is Ratio of Loans to Small and Medium-Scale Enterprises (RLSMEs)*

The model summary results are shown in Table 11. The coefficient of determination (R^2) for model 1 is 0.1421, meaning that 14.21 of the observed variation in rural loans-to-deposit ratio (RLTDR) is accounted for by variations in aggregate loan-to-deposit ratio (LTDR). However, in model 2, we observe that 18.82 of the variation in aggregate LTDR is explained by variations in RLTDR. Model 3 shows that 84.02% of the variation in rural loan-to-deposit ratio (RLTDR) is accounted for by variation in liquidity ratio (LR), cash reserve ratio (CRR) and aggregate loan-to-deposit ratio (LTDR). Model 4 also shows that nearly 75 per cent of the variations in ratio of loans to SMEs (RLSMEs) is accounted for by variations in liquidity ratio (LR), cash reserve ratio (CRR) and aggregate loan-to-deposit ratio (LTDR). The variations in the bank management variables are critical in explaining the variations in rural and SME lending.

Table 11 : Model Summary Results

Model Parameters	Model 1*	Model 2**	Model 3 ***	Model 4****
Mult. R	0.3769	0.4335	0.9166	0.8625
R^2	0.1421	0.1880	0.8402	0.7438
Adj. R^2	0.0808	0.1300	0.8003	0.6798
F-Ratio	2.3190	3.2400	21.0340	11.6150
Sig. F	0.1500	0.9300	0.0000	0.0010
RsqCh	0.1421	0.1880	0.8402	0.7438
Durbin-Watson Test	0.7509	0.3204	1.6395	2.7119

* *Model 1:* $RLTDR = \alpha + \beta LTDR + \varepsilon_i$ *** *Model 3:* $RLTDR = \alpha + \beta_1 LR + \beta_2 CRR + \beta_3 LTDR + \varepsilon_i$

** *Model 2:* $LTDR = \alpha + \beta RLTDR + \varepsilon_i$ **** *Model 4:* $RLSMEs = \alpha + \beta_1 LR + \beta_2 CRR + \beta_3 LTDR + \varepsilon_i$

IX. Policy Implications Of The Study

The failure of banks to adhere to monetary policy targets, particularly in terms of the minimum liquidity ratio (MLR) and the loan-to-deposit ratio (LTDR) has continued to hurt rural lending and SME financing in Nigeria. The empirical results suggest that monetary policy has failed to curb excess liquidity or improve lending growth, particularly to the rural and SME sectors. The multiple regression model shows that the

explanatory power (R^2) of critical bank management variables (LR, CRR & LTDR) is about 84 per cent. In addition, nearly 75 per cent of the variation in the ratio of bank loans to SMEs (RLSMEs) is accounted for by variations in the bank management variables.

Specifically, the liquidity ratio (LR) of banks correlates positively and significantly with the rural loan-to-deposit ratio (RLTDR). Hence, rural loan-to-deposit ratio (RLTDR) will suffer under tight monetary policy, and possibly improve under loose monetary policy, provided RLTDR does not exceed the prudential maximum set by the regulatory authorities. The results also show that rural lending is inversely sensitive to changes in the cash reserve ratio (CRR). Hence, further reduction of CRR from 4.2% in 2007 to the current 2.5% in 2011 means that rural lending is expected to improve significantly, provided the surviving rural branches of Deposit Money Banks are not more cash offices, mobilizing deposits for the purpose of urban lending.

The result that banks' liquidity ratio (LR) and loan-to-deposit ratio (LTDR) are significant in determining the ratio of loans to SMEs (RLSMEs) has another monetary policy implication in this study. Targeting both LR and LTDR is significant in improving the flow of funds to the SME sector. The significant inverse correlation coefficients between bank management (LR & LTDR) and SME lending means that most Deposit Money Banks in Nigeria have failed to use their initiatives in boosting SME finance. Banks have therefore failed in their social role of financing the entrepreneur-innovator by restricting the spread of fiat money as posited in the Keynes-Schumpeter model. The aggregate behaviour of bank management failed to deal with the problem of information asymmetries through improved relationship lending to the SMEs in Nigeria. This may be the reason why banks have failed to access the Small and Medium Enterprises Credit Guarantee Scheme (SMECGS) launched in 2010 with the CBN guaranteeing 80% of bank loans to SMEs.

Hence, discontinuing with the mandatory sectoral allocation of credit to the SME sector in 1996 was both ill-timed and ill-advised. The hurried liberalization of the Nigerian banking industry in the 1986-92 period could have propelled the clamour for increased market orientation in the allocation of credit. However, the deteriorating liquidity and significant increases in interest rates accompanying banking sector liberalization did not provide a sufficient impetus for abolishing the mandatory sectoral allocation of credit policy. Infact the bank distress era (1997-2003) recorded more significant declines in bank lending to SMEs in Nigeria. The consolidation of the Nigerian banking industry in 2006 seems to have worsened the financial constraints of SMEs contrary to the findings in Petersen and Rajaran (2002) and Emeni (2008).

The implications of the results for bank management and policy are varied. First, banking policy in Nigeria has remained urban-biased, with a significantly increasing exclusion of the rural and SME sectors from financial services. The simple regression models 1 & 2 show their coefficients of determination as $r^2 = 0.1421$ (model 1) and $r^2 = 0.1882$ (model 2). The explanatory power of aggregate LTDR in explaining RLTDR is weak in both models. The significant and unexplained proportion could have been accounted for by bank management's preference for urban dwellers and businesses in their loans portfolio. Second, top bank management has failed in its supervisory role over rural bank branches, with RLTDR hitting 738% in 2007. This portrays a gross breach of internal control and credit risk management standards. The apparent declining bank-small business relationship will encourage the migration of small business finance out of the banking sector at exorbitant interest rates. The beta coefficient show the SME lending is particularly sensitive to liquidity ratio (LR) and loan-to-deposit ratio (LTDR). Hence the pursuit of prudent liquidity management in the banks under a loose monetary policy could facilitate and improve the ratio of total bank loans to SMEs (RLSMEs).

X. Conclusion

The gap in bank intermediation in the rural and SME sectors is further explained by model results. Graduating increases in the aggregate loan-to-deposit ratio (LTDR) would likely improve the rural loan-to-deposit ratio (RLTDR). The average LTDR between 1992-2007 is 63.8%, below the prudential maximum of 80.0%. The liquidity and hence lending growth of rural bank branches can be enhanced significantly, provided the aggregate loan-to-deposit ratio (LTDR) is prudently and significantly improved. The creation of more rural branches would further enhance the financial inclusion of rural dwellers and firms. There is no evidence to show that the commercial banks mobilized rural deposits to unlend to urban customers.

The results also indicated that the liquidity profiles of rural bank branches could have been constrained by a build-up in non-performing loans and excessive cost of funds, especially after the consolidation of the banking industry in 2006. Raising the rural-loan-to-deposit ratio (RLTDR) further beyond the prudential maximum of 80.0% could constrain liquidity further in the rural credit markets, and the entire banking system. The radical drop in mobilized deposits shows a shrinking in the number of rural branches for the 2006-2007 period. The radical increase in the loans portfolio shows a high incidence of purchased funds and possibilities of outrageous cost of funds to rural dwellers and businesses. Therefore, it appears bank management has not favoured least-cost rural lending, particularly after banking consolidation.

The high sensitivity of the cash reserve ratio in influencing rural lending provides another platform for

redefining monetary policy. Moderating the cash reserve ratio downwards can improve the liquidity of rural banks and their lending growth, provided prudential limits are observed. Targeting aggregate liquidity in the banking system through the liquidity ratio (LR) and the loan-to-deposit ratio (LTDR) could complement the cash reserve ratio in facilitating increased fund flow into rural financial markets.

The results also suggest that the excess liquidity in the banking system has not improved the flow of funds into the small and medium enterprises (SMEs) sector. The regulatory stance which moderates the CRR downwards and the LTDR upwards has not actually favoured SMEs. Apparently, bank management has favoured large businesses because of their size and relatively low risk class. The stressed rural financial services sector, coupled with an urban-biased banking industry have excluded SMEs financially. Monetary policy should therefore target critically bank management variables (LR, CRR & LTDR) ensuring compliance with prudential standards and balancing aggregate portfolios between large and small-scale businesses. Restoring the mandatory credit allocation regime could also help in improving SME lending. However, the ensuing moral hazard problem could be moderated through cutting-edge professional relationship lending.

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