FINANCIAL ANALYSIS OF BANKS IN BANGLADESH

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Bank Financial Analysis

I. Introduction

This paper presents financial analysis of a sample of 71 rural branches of three nationalized commercial banks (NCBs) - Agrani, Janata, Rupali - and Bangladesh Krishi Bank (BKB). These branches form part of the sample of 101 rural bank branches that were selected for study under the Rural Finance Project. Data for 30 branches of Sonali Bank are incomplete; that bank will be incorporated into the study when the data become available. The purpose of the analysis summarized in this paper is four-fold:

1. It is intended to supplement O'Donnell's analysis of financial statements and memos on related subjects [4,5,6,7,8,9,10,11] based on the consolidated statements of individual banks. The intent is to compare the performance of a sample of rural branches with that of the entire bank of which they are a part. It has been alleged that the rural branch network in Bangladesh is subsidized by the relatively more profitable urban branches [13]. This analysis of financial statements is expected to shed light on the cross-subsidization hypothesis.

2. One of the Rural Finance Project's goals is to help develop a viable rural banking system in Bangladesh. O'Donnell [11] contends that the concept of viability has three possible interpretations in Bangladesh. They are, in order of importance, meeting national objectives, liquidity, and profitability. Relatively little work has been done to study bank profitability and efficiency in Bangladesh. This paper represents a preliminary attempt to understand the viability of rural bank branches from

the profitability standpoint. The data used consist of balance sheets and income statements obtained directly from the sample branches. Although these sources are expected to be more reliable than some of the published data, a caveat is appropriate. Unrealistic accounting procedures, especially for overdue loans, make income and, hence, profitability estimates somewhat suspect. For this reason, a more comprehensive analysis of the viability of the Bangladeshi banking system is being conducted via estimation of a cost function, using expense data, and the results will be available in a few months.

3. Another aspect of financial analysis that requires further study relates to margins or spreads in banking. Some studies on bank margins in Bangladesh have been carried out using published data [3,12]. They have addressed the issue of whether the income that accrues to banks from various sources is sufficient to cover cost of funds, administrative costs, loan losses, and allow them to break even. Estimating spreads is also expected to aid in studying the effects of regulatory policies on deposit mobilization and on the operations of financial intermediaries. For instance ceilings on deposit rates coupled with reserve requirements have affected branch margins by raising the real cost of mobilizing deposits relative to refinancing from the Bangladesh Bank.

4. Finally, examination and quantification of relationships among elements of cost and revenue may shed some light on observed patterns of portfolio behavior which are believed to be the result of cost-minimizing activities of individual banks given the highly regulated environment prevalent in Bangladesh.

This paper is organized as follows. A brief description of the data and definition of relevant variables follows in Sections I.1 and I.2. Section II deals with banking performance in Bangladesh and is divided into two sub-sections. Section II.1 analyzes three different measures of bank expense. Financial ratios constructed from the balance sheets and income-expense statements are studied in Section II.2. Finally, Section III delineates the limitations of the study and presents some conclusions.

I.1. Data

The data used in this study consisted of the following:

1. Income-expense statements for 71 bank branches for a period of two years, 1983 and 1984. The financial year for the three NCBs corresponds to the calendar year, while that for BKB is from July through June. Availability of data for just two years limits the analysis to two types of comparisons: a) interbank comparisons of the sample branches and b) comparisons between the rural branches and the consolidated statements for the entire bank of which the branches are a part.
2. Balance sheets for the same branches for the same period. Again lack of data implied that only end of the year data were used rather than average balance sheets.
3. Branch manager survey data collected from the 71 branches by R.R.Nathan Associates during 1985.
4. Advances and deposit data for approximately 4,000 branches of the four NCBs and BKB for 1983 and 1984, obtained directly from the Bangladesh Bank.
5. Staff strength for the sample of branches for the two years.
6. The age distribution of the sample branches.

7. The Annual Reports over the study period.

I.2. Definition of Variables

The annual income and expense variables are defined as follows:

II (General) - Interest income from total advances, debentures, overdrafts, cash credit, service charges on rural and other types of credit, and sundry interest.

II (Head Office) - Interest earned on balances in the General Account, i.e., on balances lent to the head office.

II - Total Interest Income - II (General) + II (Head Office).

OI - Income from other sources such as commissions, service fees, profits from foreign exchange operations, and miscellaneous income.

TI - Total Income - II + OI.

IE (General) - Interest payments on all types of deposits.

IE (Head Office) - Interest payments on borrowings from the head office.

IE - Total Interest Expense - IE (General) + IE (Head Office).

OE - Other expenditures consist of three major categories, employee-related, capital, and non-employee and non-capital expenses. Employee expenses include wages, salaries and other allowances paid to staff. Rents and depreciation constitute the major components of capital costs. The third major category consists of expenses not directly related to the two main factors of production such as lighting and insurance charges, stationary,

telephone, postage, repairs and maintenance, business development expenses, remittance charges, and miscellaneous expenses.

NII = Net Interest Income = II - IE.

NI = Net Income = TI - TE.

The corresponding assets and liabilities are defined as follows:

TC = Value of total cash assets (currency in hand, balances at the Bangladesh Bank, other domestic banks, and foreign banks).

L = Value of total advances (loans, overdrafts, cash credit, staff loans, and other advances).

I = Investments in prize bonds and other investments.

FA = Value of fixed assets.

LHO = Value of outstanding loans to the head office and branches on General Account.[1]

OA = Other assets including suspense interest, stationary and stamps in hand, advance deposits, and other assets.

EA = Value of Earning Assets = L + LHO + I.

TA = Value of Total Assets = TC + L + I + FA + LHO + OA.

DD = Value of demand deposits.

SD = Value of savings deposits.

FD = Value of fixed deposits.

DPS = Value of deposits under the Deposit Pension Scheme.

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1. In a branch banking system, branches with surplus funds (deposits greater than loans) lend to the head office. Branches with deficit funds (loans greater than deposits) borrow from the head office. Thus this item is a type of balancing item.

OD = Other deposits including special notice, call and sundry deposits.

TD = Value of total deposits = DD + SD + FD + DPS + OD.

B = Value of bills payable.

IS = Value of suspense interest.

PI = Value of penal interest.

OL = Other liabilities including accounts payable and special blocked accounts.

BHO = Value of borrowings from the head office on General Account.

IBL = Value of interest-bearing liabilities = TD + B + BHO.

TL = Value of total liabilities = TD + B + IS + PI + OL + BHO.

NW = Net Worth = TA - TL. In a branch banking system, nominal net worth for a branch may be interpreted as the change in net income from year to year.

Based on the above definitions, the balance sheet identity is:

TA = TC + L + I + FA + LHO + OA = TD + B + IS + PI + OL + BHO + NW
= TL + NW.

The ratios that were constructed from the variables listed above will be defined and discussed below in the relevant sections.

II. Banking Performance in Bangladesh

As a first step, the data for the sample branches were organized into a balance sheet, an income statement, and a financial analysis table. A common format was used for all the banks. All balance sheet and income statement items are measured in thousands of takas.

Balance Sheet: The balance sheet items were described in the preceding section. Since this analysis deals with a sample of branches of each bank, a

couple of clarifications are necessary. First, because each branch is regarded as a self-contained accounting unit, regional office expenses have not been allocated to the individual branches. Second, the item "Borrowings from the head office" includes both refinance and intra-bank flow of funds, such as urban deposits from the head office to the branches. Although a detailed breakdown is not available, a priori it seems reasonable to conclude that in the case of BKB, and to a lesser extent for the NCBs, refinance constitutes a major portion of branch borrowings from the head office (See Section II.2).

Income-expense statements: The items from the branch-level statements were aggregated to obtain the measures defined in Section I.2. It should be noted that in all banks, Other Expense exceeded Other Income, but overall Net Income was positive as Net Interest Income outweighed Net Other Income.

The Net Income values obtained from the branch income statements were not significantly different from the Net Worth values reported in the balance sheet data for Rupali and BKB. Janata Bank however, showed significant disparities between the two measures. Agrani Bank appeared to follow a different accounting system as the item "Due to head office" was apparently adjusted for remittances of Net Income to the head office. As a result, all Agrani branches recorded zero Net Worth.

II.1. Bank Expense Measures

The first set of magnitudes that are of interest in the financial analysis statements are the three bank expense measures. Other Expenses represent payments to primary factor inputs and raw materials used to produce banking services such as loans and deposits. One of the factors

determining bank viability is the consideration of how well Other Expenses are controlled and whether or not banks are becoming more efficient over time. Given the limited time series available, however, the analysis can only be conducted across banks rather than on a time-series basis.

Three measures of bank efficiency are of interest. All three measures compute a ratio with the common numerator, the amount of Other Expense, relative to three different denominators, namely Total Expense, Total Assets, and total number of employees. The first measure i.e., OE/TE provides an idea about the relative importance of Interest Expense and Other (non-interest) Expense in the total. Because labor costs constitute the major portion of Other Expenses, the second ratio represents an approximation of the unit cost per employee of the bank. The third measure uses Total Assets as a proxy for overall banking output; OE/TA measures the unit cost of Total Assets. Table 1 presents the average over the two years, 1983 and 1984, of these three bank expense measures for the rural branch sample. The corresponding figures for the consolidated statements of the individual banks are also reported for purposes of comparison.

Table 1: Average Annual Bank Expense Measures, 1983 and 1984

Bank	Number of Branches	Other Expense / Total Expense		Other Expense / Total Employees		Other Expense / Total Assets	
		Sample	Bank	Sample	Bank	Sample	Bank
		(Percentage)		(Takas)		(Percentage)	
Agrani	22	27.40	29.50	27,845	27,898	2.18	2.15
Janata	16	28.98	28.50	17,221	35,546	2.48	2.15
Rupali	8	24.75	30.50	20,030	31,468	1.78	2.40
BKB	25	25.17	28.50	18,264	24,850	1.72	2.00

Source: Individual bank Annual Reports, 1983-1984.
Balance sheets and income-expense statements of the rural branch sample, 1983-1984.
O'Donnell [6,7,8,9,10].

The data in Table 1 reveal that, by and large, the rural branches of all four banks demonstrate lower or similar ratios for two of the measures of bank expense, i.e., the ratios of Other Expense to Total Expense and total employees, relative to the entire bank. The pattern for the ratio of Other Expense to Total Assets is rather mixed, with the rural branches of Agrani and Janata seemingly "less efficient" than the overall bank, while the opposite is true for Rupali and BKB. A comparison of the measures across banks for the sample branches suggests that BKB is relatively more efficient than the other banks because it has the lowest OE/TA ratio and next to lowest OE/TE and OE/Employees ratios. With the expanding role played by BKB in rural finance in the recent past and its increased participation in program lending, it is surprising to observe BKB's position relative to the NCBs. The effects of loan targeting on increasing intermediation costs have been documented in other studies [2]. Special credit programs have been shown to increase lenders' costs in other countries due to the additional personnel and materials necessary to comply with the reporting requirements of these programs.

From the data presented in Table 1, two conclusions may be drawn. First, the rural branch sample appears to be relatively more efficient than the entire bank.[2] This may be attributed to the fact that the size of the typical rural branch of an NCB as measured by Total Assets or total number

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2. This observation must be qualified because costs incurred by the head office and regional offices were not allocated to the sample branches. It is likely that the gap in expense measures between the sample branches and the bank will narrow if these allocations are made.

of employees is smaller than that of a typical urban branch. The size difference is not as marked for BKB. Further, if banks have U-shaped cost curves, the rural branches may be experiencing economies of scale, while the average branch may be in the region of diseconomies. Estimation of the cost function is expected to yield insights into this issue.

Another interesting feature of Table 1 is the seemingly higher efficiency of BKB sample branches vis-a-vis the NCBs. This finding is consistent with those of the World Bank Agricultural Credit Review [3] and with Smith's study [12]. Again, a plausible explanation may be the existence of a U-shaped cost curve. The argument runs as follows: although the average age of the BKB sample branches is almost half that of the NCBs, their asset portfolios are substantially larger. As a result, BKB branches may be operating in the "minimum cost" region of the cost curve while the rural branches of the NCBs are scattered in the downward sloping region of the cost curve. Higher costs incurred by the NCB branches may also be warranted by the wide range of financial services they offer relative to BKB. The unusually low costs of BKB branches are also consistent with Smith's evidence of minimum loan screening by the rural branches [12].

II.2. Selected Financial Ratios

This section presents a number of ratios analyzing the various components of income and expense against a standard for each bank. A relevant and typical standard is the value of earning assets (EA) [8]. Information on incomes and expense is conceptually allocated to output proxied by EA. The rural branches' earning assets were defined in Section I.2. as consisting of advances, bills, investments, and lending to the head

office. The item, Due from banks, is non-interest bearing and, therefore, does not form part of EA. The afore-mentioned items contain all the financial assets which would generate interest-related income in the typical rural bank branch. The unit revenues and costs of EA are presented in Table 2 and are instrumental in analyzing and decomposing the components of profitability. The corresponding ratios for the overall banks are in parentheses.

Table 2: Income Expense Statement Items versus Total Earning Assets[a/]

Bank	II/EA	IE/EA	NII/EA	OI/EA	OE/EA	NI/EA	COF	GIS
				(Percentages)				
Agrani	9.24	6.54	2.69	0.16	2.35	0.50	6.10	3.14
	(8.50)	(6.15)	(2.35)	(1.55)	(2.60)	(1.30)	(5.40)	(3.10)
Janata	10.53	6.99	3.53	0.27	2.83	0.97	6.27	4.26
	(8.84)	(6.49)	(2.34)	(1.46)	(2.57)	(1.22)	(5.85)	(2.99)
Rupali	10.74	5.96	4.77	0.98	1.97	3.77	5.65	5.09
	(8.45)	(6.55)	(1.90)	(2.50)	(2.90)	(1.50)	(5.85)	(2.60)
BKB	10.05	5.34	4.70	0.25	1.77	3.18	5.40	4.65
	(8.75)	(5.50)	(3.25)	(0.25)	(2.15)	(1.35)	(5.80)	(2.95)

a/ Average for 1983 and 1984.
Note: II=Interest Income; IE=Interest Expense; NII=Net Interest Income;
OI=Other Income; OE=Other Expense; NI=Net Income;
COF=Cost of Funds=Interest Expense/Cost of Deposits+Bills+Borrowing from head office;
GIS=Gross Interest Spread;
Source: As in Table 1.

Table 3: Earning Asset Categories versus Total Earning Assets[a/]

Bank	Advances[b/]	Due from head office and branches	Investments
		(Percentage)	
Agrani	66.08	33.91	0.009
Janata	60.55	39.41	0.050
Rupali	63.27	36.68	0.047
BKB	99.83	0.16	0.000

a/ Average of 1983 and 1984.
b/ Bills Discounted were reported as part of Advances.
Source: As in Table 1.

Table 4: Interest-Bearing Liability Components versus Total Interest-Bearing Liabilities[a/]

Bank	Deposits	Due to head office and branches	Bills
		(Percentage)	
Agrani	59.30	40.16	0.54
Janata	72.77	26.46	0.76
Rupali	87.23	12.28	0.48
BKB	12.22	87.54	0.23

a/ Average of 1983 and 1984.
Source: As in Table 1.

Table 5: Categories of Deposits[a/]

Bank	Current	Savings	Fixed	Others
		(Percentage)		
Interest-Rate Range	0.0	8.5-10.0	12.0-15.0	0.0-4.5
Agrani	19.27	43.80	27.20	9.72
Janata	18.86	52.24	25.36	3.54
Rupali	19.77	37.68	33.95	8.57
BKB	16.90	50.13	29.60	3.36

a/ Average of 1983 and 1984.
Source: As in Table 1 and Bangladesh Bank [1].

Table 6: Intra-bank Flow of Funds[a/]

Bank	Due to head office	Due from head office	Net due to head office	Refinance from the head office
		(As a Percentage of Total Assets)		
Agrani	39.97	31.48	8.49	3.69
Janata	25.91	34.50	-8.59	11.30
Rupali	11.69	33.23	-21.55	1.20
BKB	84.58	0.16	84.42	54.07

a/ Average of 1983 and 1984.
Source: As in Table 1.

Interest Income: The first impression from the II/EA measure in Table 2 is that the average rates appear to be rather low. The Bank Rate has been steady at 10.5 percent over the sample period and one would expect lending rates to be in excess of that. Table 3 provides an idea of the relative influence each component of EA has on overall Interest Income. Advances dominate the EA portfolio of BKB, while lending to the head office is a fairly significant source of Interest Income for the NCBs. The rate on intra-bank flow of funds from the branches to the head office has been 12.5 percent in the NCBs and varied from 8.5 to 12.5 percent in BKB (Branch Manager Data).

The low values obtained for II/EA probably imply that the rates on some loans must be rather low. The lending rates ranged from 5 percent to 16 percent during 1983 and 1984 [1]. Classifying rural loans by interest rate reveals that over 75 percent of the total loans outstanding were made at 12 percent (plus 4 percent service charge) as of June, 1984 (Calculated from data provided by Bangladesh Bank). The latter is also the prescribed rate for agricultural advances. Another consideration relates to loan-loss reserves which are not explicitly stated in taka terms. This would certainly be expected to impact the calculation of Interest Income. A caveat should also be added about Interest Income. Reporting Interest Income on an accrued rather than a realized basis results in overstatement. Actual income may be lower than reported.

Interest Expense: This rate is relatively low and is in the 5.3-7.0 percent range for the four banks. Tables 4 and 5 show the relative influence of the components of Interest-bearing Liabilities (IBL) and deposits on Interest

Expense. The interest-rates paid on deposits (as specified by the Bangladesh Bank) are listed in Table 5. If one assumes an equal distribution of deposits among current, savings, and fixed deposits, the rates would be in the 7+ percent range. However, in the analysis, 19 percent of the deposits were current, 46 percent savings, 29 percent fixed, and other deposits constituted 6 percent of total deposits (averaged over the four banks) which pulls the average Interest Expense into the range calculated in this report. Borrowing rates from the head office varied between 7 percent and 13 percent on the average. For BKB with its relatively small and slow growing deposit base, the low cost of funds must be related to concessionary finance and donor money made available through the years. As is evident in Table 4, BKB branches relied heavily on borrowings from the head office and were charged rates varying between 8 percent and 9.5 percent (Branch Manager Data). With refinance being nearly 8 times the deposit base of BKB sample branches in 1984, if the blended refinance rate of 8.5 percent was applied, the cost of funds should be well in excess of 5.3 percent.

Table 6 presents the intra-bank flow of funds for the sample years. Comparison of the branch-level and head office figures is expected to provide an idea of the direction of refinance flow from the head office to the branches. The data show that the sample branches of Janata and Rupali were net lenders to the head office; they financed lending almost completely from deposit mobilization. The refinance flow from the head office of Rupali Bank to its branches was negligible, while the head office of Janata Bank did provide refinance to its branches. Agrani Bank, however, shows a different pattern, with the sample branches active both in lending to and borrowing from the head office. Overall, the branches were net borrowers

from the head office, and the magnitude of borrowings was more than double the refinance from the head office. BKB branches, as expected, borrowed heavily from the head office, using non-deposit funds to finance bulk of their rural loans.

Other Income: Other Income normally represents fees and commissions generated from providing a financial service other than extending credit. The ratio of Other Income to Earning Assets for the rural branches is significantly lower than the average for the banks. This result is not unexpected because the primary business of the rural branches is making loans. The other interesting feature of this ratio is that the rural branches of all banks appear to place very little emphasis on Other Income while the overall bank figures show a different picture. Rupali Bank has extremely high Other Income as a percentage of EA which is generated by fees from their foreign exchange business [8]. This can be attributed to their difficulty in obtaining inexpensive funds for lending (Interest Expense and Net Interest Income are the worst). BKB, on the other hand, appears to provide few financial services other than credit as its very low ratio of Other Income to EA demonstrates.

Other Expense: All the banks and the rural branch samples of Agrani and Janata showed these expenses in the 2-3 percent range. BKB branches had the lowest ratio of Other Expense to EA. This is consistent with the discussion of the other expense measures in Section II.1. It is expected that analysis of the cost data using econometric methods will yield economically interesting information about the efficiency of the banking system.

Net Income: The overall profitability figures do not vary significantly between banks. However, the sample branches of Rupali and BKB exhibit Net Income ratios that are more than double the overall bank numbers, while the opposite is true for Agrani and Janata. Among the sample branches, Rupali leads the way as a result of high Interest Income and Other Income. Despite having the lowest Interest Expense and Other Expense, BKB also had one of the lowest Other Income positions, and was not able to make up the difference with Interest Income.

Margins in Banking: A banking system's viability is a function of its performance in generating sufficient income to cover the costs of providing banking services. The two principal cost areas are the cost of funds, including interest paid on deposits and other borrowings, and administrative expenses. The calculation of the cost of bad debts poses perhaps the most intractable problem and is not treated in this paper. The financial practices of the banks vary with respect to bad debt provisions and provide little basis for a consistent or realistic estimate of the cost of bad debts. It is expected that analysis of RFP loan recovery data will help establish a reliable loan loss rate which, in turn, becomes an operating expense and must be covered by the spread between the cost of funds and interest earnings.

Table 2 provides the gross interest spreads in rural banking for the four banks. From the lender's perspective, the interest spreads are sufficient to cover other expenses in all cases except Rupali Bank. These spreads, however, do not take into consideration the cost of bad debt and reserve requirements on deposits. The latter is primarily a head office

issue and the incidence of its burden on individual branches is not clear. Assuming (as the World Bank ACR did) that loan losses are of the order of 6 percent and 4 percent for the NCBs and BKB, respectively, the actual spread turns negative in all cases. In other words, every time these branches extend credit, they are taking a loss. However, since income is reported on an accrual basis and loan losses are not considered, the banks show modest net earnings as reported in Table 2.

III. Limitations and Conclusions

The NCBs and BKB follow a commercial double entry system of accounting which is branch-based and all transactions are vouchered, posted and balanced on a weekly basis. The quality of accounting data, therefore, depends critically on the quality of branch accounting. However, the accounting treatment of bad debt, write-offs, and interest accruals leaves considerable room for improvement. The major problem relates to reporting of income from advances on an accrued rather than a realized basis. Profits are probabaly overstated in all banks, at least with respect to rural operations. In the case of BKB, despite impressive book profits, liquidity erosion may be large. The NCBs claim that adjustments are made for accruals at the end of the financial year, but the nature and magnitude of these adjustments is unclear. Conversations with BKB officials led to the impression that BKB branches do not adjust income accruals even at the end of the financial year. Expenses, on the other hand, are reported on an actual rather than a accrued basis, and this leads to distortions. As a result, it is not easy to determine the actual financial performance of the banks.

An important qualification to the analysis stems from the fact that a subset of branches was studied. In a branch banking system, the overall picture is important; the bank may be healthy and show profits even if a subset of branches is reporting losses. Considering the cross-subsidization issue, if the accounting data reflected the true position of the banks, including provisions for bad loans, then the transaction costs and the profitability figures obtained for the rural branch sample appear to be reasonable relative to the entire bank and would not support the theory that unprofitable rural branches are supported by urban branch profits. Until more reliable loan recovery data are available for rural versus urban branches, however, no firm conclusions can be reached regarding their viability.

At the national level, banks have been perceived as serving social objectives. They have been subjected to heavy pressure to expand operations into rural areas in recent years, and lend to priority sectors and economic activities. If profitability is not an important consideration in developing the banking system, it is easy to understand why the accounting system has not received much emphasis. Because of the seemingly insurmountable nature of this problem, focusing on bank viability via the expense side appears to be a more meaningful approach to studying the banking system.

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