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ESTIMATES OF FEDERAL LAND BANK EXCESS DEBT*

Charles Dodson and J. Bruce Bullock**

The recent request by the Farm Credit System for a six billion dollar federal assistance package reflects the financial woes that have plagued the System for the past several years. The question of how much money is required to return the System to an economically viable position has been widely discussed. How much capital is required? It depends. It depends on what happens to the agricultural economy over the next few years and on the current status of the System's loan portfolio. A further decline in farm income will result in greater problems for the System while stability or increases in farm income will likely result in an improvement in the System's financial position.

The nature of the Farm Credit Systems financial problem is simple. The amount of income generated from the FLB loan portfolio has declined and further declines are projected. System debt servicing obligations have declined less than debt has declined resulting in the System owing more debt than can be repaid.

The maximum amount of debt that can be serviced from System loan income is defined by income available for debt service divided by the average cost of debt. A comparison of the maximum amount of serviceable debt with actual liabilities provides a measure of each bank's financial problems. If debt service capacity exceeds liabilities, the bank can probably earn its way out of short run financial strain. However, if liabilities exceed the amount of

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serviceable debt the bank has excess debt and the only solution is to reduce liabilities to a level that can be serviced by available income.

Sale of assets is obviously one way of obtaining income to reduce debt. However, because of under collateralized loan position resulting from the sharp declines in land values since 1981, Land Banks in particular have had to take heavy write offs against their capital position. This has had two effects: (1) Assets have declined faster than debt and hence debt service income has declined more rapidly than debt service obligations. In fact, several banks have more debt than can be repaid from projected income streams. (2) A reduction in the book value of the banks capital stock below par value resulting in stock impairment problems. There has been much discussion concerning the second problem. However, the first problem is far more important and will be the focus of this paper.

Federal Land Bank income over the next few years will be determined by the competitive conditions in the farm mortgage market. Recent experience has shown that Federal Land Banks will have to charge competitive interest rates, if they are to survive in this market. Moreover, the total amount of farm real estate debt is expected to decline over the next few years as total U.S. farm debt adjusts to the farmers' current debt repayment capacity.

The report prepared by the Farm Credit System as part of the financial request to Congress contains income projections for each of the banks. These projections are based on what to us seem to be reasonable assumptions about the future size of the Land Bank portfolio in each district. The implied interest rates to borrowers are in line with other projections of interest rates and the volume projections are consistent with the projected reduction in overall farm debt. We conclude that the income projections provided by the System provide

the best available estimate of the System's likely income picture over the next few years. The key question is how much debt can be supported with this income?

Not all income is available for debt servicing. Debt service income (DSI) is defined as follows:

$$(1) \text{ DSI} = \text{Interest Income} + \text{Other Income} - \text{Loss Provisions} - \text{Operating Expenses}$$

The amount of debt service income and the bank's cost of debt determine a bank's debt service capacity. Debt service capacity is determined by dividing debt service income by the bank's average cost of debt.

$$(2) \text{ Debt Service Capacity} = \frac{\text{DSI}}{K_d}$$

K_d = Banks average cost of capital

A bank has "excess debt" if its debt service capacity is less than its total debt.

$$(3) \text{ Excess Debt} = \text{Total Liabilities} - \text{Debt Services Capacity}$$

A bank's options for dealing with an excess debt problem are limited since in the short run a bank has limited ability to change either its income or its cost of capital (System bonds are non callable). One option is to allow the bank continued access to the bond market to borrow an amount necessary to meet the annual income shortfall. This approach results in continued financial deterioration, as we have observed over the past few years. The only way to solve an excess debt problem is to remove the excess debt from the balance sheet through some form of capital injection.

Estimation of Excess Debt

The financial problems of the Farm Credit System are centered in the Federal Land Banks. This paper presents estimates of excess debt only for the Land Banks. The estimates of excess Federal Land Bank debt were developed using

a simple balance sheet and income statement simulation model. The simulation model provides a projected financial picture of each Federal Land Bank on December 31, 1987, December 31, 1988, and December 31, 1989. A financial simulation was run for each of the 12 district Federal Land Banks. Bank projections of loan volume and other variables contained in the Farm Credit System Financial Assistance Request prepared by the Farm Credit Corporation of America (FCCA) provided the starting point for the simulations. It should be noted that several components of the projections in the FCCA report were "post legislation" and reflect an injection of governmental capital as proposed in the System request. The FCCA report incorporated the capital injections into the projected System balance sheet by increasing other income and by reducing interest expense to reflect the details of the System request for financial assistance. However, the data used in the analysis reported here are variables whose values were not directly altered by assumptions of financial assistance provided by proposed legislation. Table 1 lists the variables used for the calculations in this paper and the sources of those data.

As noted above, projections were developed for the 1987-1989 period. A key question is what year should be used to estimate excess debt. If the analysis is based upon a year in which huge provisions (or huge recoveries due to being over reserved) are anticipated the estimate of excess debt will be biased upward (downward). Table 2 shows projected charge-offs as a percent of loan volume for 1987, 1988, and 1989 for each bank. Also shown are the anticipated proportions of non-accrual loans over this period. These projections indicate that by 1989 the banks (with the exception of Columbia) expect their loan portfolios to have adjusted to current economic conditions resulting in stable assets and income. Estimates of excess Federal Land Bank debt presented here are based on the

TABLE 1
Variables and Source Of Data Used to Develop Excess Debt Estimates

Loan Volume:	FCCA Report
Charge Offs:	Baseline taken from FCCA Report
Investments:	FCCA Report
Rate Received on Loans:	FCCA Report (Calculated as interest income ÷ accruing loan volume)
Return on Investments:	Assumed to be 6%
Average Cost of Capital:	1986 taken from Annual Financial Report from each bank. Estimates of 87, 88, and 89 were adjusted downward on a trend. 1987 = 5% decline 1988 = 5.4% decline 1989 = 3.4% decline
Rate of Return on Acquired Property = 2.0% (assumed)	
Acquired Property:	FCCA Report
Allowance for Losses:	Baseline taken from FCCA Report
Accruing Loans:	FCCA Report
Other Property (Buildings & Equipment):	FCCA Report
Operating Expenses:	FCCA Report
Other Liabilities:	FCCA Report
Bonds:	1986 taken from FCCA Report. Other years were estimated by the following formula on the assumption that all receipts from sale of assets would be used to reduce debt. $L_t = L_{t-1} + [NL_t - NL_{t-1} + CO_t] + [AP_t - AP_{t-1}]$ Where L = Liabilities NL = Net Loans CO = Charge Offs AP = Acquired Property t = Year
Notes:	Balancing Figure:
Capital Stock: =	$\frac{1986 \text{ Capital Stock}}{1986 \text{ Loan Volume}} \quad (\text{Year } t \text{ Loan Volume})$
Surplus:	$\text{Surplus}_{t-1} + \text{Net Income}_t$

TABLE 2
Reported Projections of Loan Charge Offs and
Loan Portfolio Quality Federal Land Banks 1987-1989

Land Bank	Projected Charge Offs as % of Loan Volume			Projected Non Accruing Loan Volume as % of Loan Volume		
	1987	1988	1989	1987	1988	1989
Springfield	.04	.04	.04	1.90	1.80	1.70
Baltimore	.08	.14	.16	2.50	2.25	1.90
Columbia	3.15	2.34	1.10	9.35	9.60	9.80
Louisville	9.96	2.32	1.23	9.88	2.53	1.32
Jackson	13.63	3.05	3.20	7.44	3.30	3.47
St. Louis	10.40	2.51	1.31	6.70	2.70	1.67
St. Paul	11.72	6.38	2.90	7.52	6.94	3.13
Omaha	16.53	3.60	1.20	6.07	3.90	1.25
Wichita	16.52	4.10	1.80	9.30	3.36	1.93
Texas	1.44	1.80	2.70	8.30	6.90	2.50
Sacramento	2.80	2.40	.91	4.90	2.34	1.00
Spokane	13.76	6.50	3.80	13.80	7.03	4.11

Source: FCCA Report

balance sheet projections for 1989 after banks have worked through the loan portfolio quality problems of recent years.

Estimated debt service capacity and hence the estimates of excess debt are quite sensitive to assumptions about the amount of loan loss provisions taken out of income each year. Some observers suggest that the System projections of loan quality and provisions are too pessimistic and hence the System's projections of required loss provisions are too high. Three sets of assumptions regarding loss provisions are examined here to examine the importance of these assumptions on the resulting estimate of the amount of financial assistance required by each Land Bank.

Scenario 1 reflects the assumptions and projections about annual loan loss provisions and charge offs contained in the FCCA report.

Scenario 2 sets loan loss provisions in year t at a level required to make loan loss allowances exactly equal projected loan charge offs for next year.

Scenario 3 reflects a 50 percent reduction in the projected charge offs reported in the FCCA report. Melichar has noted that the farm financial situation is in turning the corner and thus it is possible that the Land Banks have over estimated charge offs for the next three years. The implications of this possibility are examined in Scenario 3. Charge offs are reduced 50 percent from those used in scenario 1 and 2. As in Scenario 2, loss provisions are calculated as the amount required to have loss allowances equal to next year's charge offs.

The estimates of excess debt for each district in 1989 are shown in Table 3. The numbers in parenthesis are negative excess debt indicating that these banks have projected debt servicing capacity in excess of total liabilities. In determining Land Bank System totals, only the positive values were added. Adding in the negative values assumes that banks with negative

TABLE 3
Estimates of Excess Debt by Federal Land Bank District
Projected for December 1989¹

	Scenario 1	Scenario 2	Scenario 3
	----- (1000 dollars) -----		
Springfield	(74.0)	(78.7)	(81.1)
Baltimore	(217.3)	(204.8)	(225.8)
Columbia	(400.2)	(295.0)	(468.6)
Louisville	273.7	478.0	280.0
Jackson	723.4	717.85	554.2
St. Louis	(320.0)	(298.4)	(544.2)
St. Paul	1,561.2	1,595.6	663.9
Omaha	232.7	101.9	(247.5)
Wichita	523.0	545.4	175.0
Texas	(223.6)	113.3	(245.5)
Sacramento	(173.1)	(149.6)	(462.2)
Spokane	1,068.5	1,079.9	424.8
TOTAL	4,382.5	4,731.9	2,097.9

¹Negative excess debt is denoted by parentheses and means that these banks have projected debt service income in excess of debt service obligations. These banks could take on additional debt at projected cost of capital. Banks with negative excess debt require no financial assistance to stabilize or improve their financial position.

excess debt would service some of the financially weak banks positive excess debt. Table 3 shows that if by 1989 the Federal Land Bank's asset picture has stabilized and charge offs are as projected under Scenarios 1 and 2, a capital injection of \$4.5 billion is required. If charge-offs are as indicated under Scenario 3, then a capital injection of only two billion dollars is required. In all cases, a majority of the excess debt (approximately 75%) is in three banks, Spokane, St. Paul, and Jackson.

House Bill HR3030 suggests that restructuring of the System is in order and that district mergers should be considered. The Farm Credit Bank presidents recently agreed that mergers should be considered and plan to reduce the number of districts from twelve to six. The estimates of excess debt in Table 3 provide information that can be used to examine some of the financial implications of district mergers of Federal Land Banks. Table 4 shows the impact of some possible combinations of Federal Land Banks. These combinations are based, where possible, on merger of one bank with excess debt and one with additional debt service capacity provided the two districts currently have a common boundary.

The mergers reflected in Table 4 reduce the amount of Federal Land Bank excess debt under Scenario 1 to \$3.3 billion from \$4.4 billion if no mergers occur (Table 3). The excess debt for the new merged district assumes that the surplus debt service income of one bank would be used to service the excess debt of the other bank at the interest rate of the bank with the excess debt. The mergers would result in a set of banks with 4-6 billion dollars in loan volume. This set of mergers would both reduce excess Land Bank debt (hence reduce the amount of financial assistance needed), and result in a set of larger banks more homogeneous in size.

TABLE 4

Estimated Excess Debt and Loan Volume by Merged Federal Land Banks
Projected for December 31, 1989

District	Loan Volume	Excess Debt		
		Scenario 1	Scenario 2	Scenario 3
----- (1000 dollars) -----				
Columbia-Jackson	4,576	330.0	427.9	93.4
St. Louis-Louisville	4,753	(5.1)	217.7	(284.5)
Omaha-St. Paul	6,164	1,793.9	1,697.5	314.8
Wichita-Texas	4,069	315.7	658.6	52.6
Spokane-Sacramento	5,142	900.0	904.6	(26.3)
Baltimore-Springfield	2,662	(283.6)	(291.3)	(306.9)
TOTAL	27,336	3,285.6	3,906.2	408.2

Conclusions and Observations

The Farm Credit System is both a borrower and lender of capital. The financial problems of the System stem from its borrower status. The System owes more money than it can repay from the income generated by its loan portfolio. The Federal Land Banks have about \$4.5 billion of excess debt given their current configuration. Even with complete capital mobility, the Land Banks as a group have about \$3.0 billion in excess debt.

The only solutions to an excess debt problem are (1) for the lender (in this case, System bond holders) to forgive the excess portion of the debt, (2) an outside injection of equity capital used to reduce debt, or (3) a third party assume obligation for repayment of the excess debt. The first alternative probably is not feasible. The Federal Government is the most likely source of funds for either option 2 or option 3.

Removal of the excess debt problem will require \$3 billion to \$5 billion of financial assistance to the Federal Land Banks. This amount of financial assistance is required to prevent further deterioration in the capital position of the banks.

Loans are not a solution to an excess debt problem of any borrower including the Farm Credit System. A borrower with an excess debt problem already has more debt than can be repaid from expected income sources. Thus equity capital injection or assumption of the excess debt obligations by the government are the only meaningful solutions to the excess debt problem.

Much of the debate and discussion about the amount and nature of financial assistance to the Farm Credit System has confused the issue by trying to build in financial assistance to farmers with financial assistance to the Farm Credit System. Both the Farm Credit System and a number of farmers have excess debt.¹ However, these problems should be dealt with independently. Tying strings on

how the System can deal with its non performing loans as a condition on receiving financial assistance will be more costly than direct assistance to financially troubled farmers. It will also make it more difficult for the System to be an economically viable commercial lending institution in the future.

We already have a lender of last resort for agriculture. The Farmers' Home Administration functions effectively as a welfare agency to financially troubled farmers. The high rate of long term delinquencies on FmHA loans is ample evidence of this. There is no need for another lender of last resort.

The Farm Credit System must be recapitalized in a way that enables it to be a competitive commercial lending institution. This means that legislation providing financial assistance to the System should focus on solving only the excess debt problem of the System. Excess debt problems of farmers should be handled with other legislation dealing specifically with that issue.

¹Melichar points out that the financial problem of farmers may be in the final stages of development. He estimates that perhaps \$15 billion of problem farm debt was dealt with during 1986.

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