Risk-Based Capital Regulations for Farmer Mac:

Loan Loss Estimation Procedures

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July 1998

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Executive Summary

The Farm Credit Act of 1971 (as amended) defines an historic stress-based capital adequacy test for Farmer Mac in terms of the organization=s ability to withstand the worst-case adversities of the past. Specifically, the conditions of severe credit risks must be based on the highest rates of default and loss on agricultural real estate loans for at least a two-year period, from a contiguous geographic area representing at least 5% of the U.S. population.

These conditions require a loan-level data base on Farmer Mac eligible loans over a relatively long historical period. Evaluations of alternative data sources indicated that the loan loss data from the Farm Credit Bank of Texas best serve the needs of this study. These loss data are compiled by year of loan origination for the 1973 to 1992 time period.

Loan loss rates of other states and regions are estimated using an extrapolation process based on the statistical relationship between the Texas loss rates and other key financial measures, including land values, farm debt-to-asset ratios, net farm income, and loan loss allowance ratios of agricultural banks. Extensive statistical analyses indicated that the preferred extrapolation equation is based on the relationship between Texas loss rates and annual percentage rates of change in Texas farm land values averaged over the succeeding two years.

The extrapolation process yielded estimated historic time series of loan loss rates on Farmer Mac eligible loans for each state of the U.S. Using these historic data series, a ranking was compiled of two-year loss rates for contiguous regions representing at least 5% of the 1990 U.S. population. The worst-case region was found to contain Minnesota, Iowa, and Illinois during the 1983-1984 time period with a two-year loan loss rate of 4.18%.

Application of the extrapolated loss histories to the December 31, 1997 geographic

distribution of Farmer Mac=s portfolio of guaranteed loans indicates mean loss rates of 0.62% for the population weights, 0.70% for farm real estate debt weights, and 0.66% for the geographic weights. The maximum aggregate loss rates for the December 31, 1997 portfolio all occur in 1984, with rates of 1.51% for the population weighted case, 1.81% for the farm real estate debt weighted case, and 1.71% for the geographic weights.

Comparisons of the extrapolated loan loss rates with loan loss allowance data in similar states yield similar time patterns and peak levels of loss, thus providing support for the extrapolation procedure.

Because population data are not directly applicable to defining locations of agricultural production activity, a comparable approach was followed to determine the worst-case period and location using 1990 farm real estate debt shares as the regionalizing criterion in place of population. The worst-case region, based on farm real estate debt shares contained only Iowa during the 1983-84 time period with a two-year loan loss rate of 4.83%.

Table of Contents

Risk-Based Capital Regulations for Farmer Mac:
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The Farm Credit Act of 1971 (as amended) defines an historic stress-based capital adequacy test for Farmer Mac in terms of the organization=s ability to withstand the worst-case adversities of the past. Specifically, the conditions of severe credit risks must be based on the highest rates of default and loss on agricultural real estate loans for at least a two-year period from a contiguous geographic area representing at least 5% of the U.S. population.

Loan-Level Loss Data

The availability of historic loan-level performance data on Farmer Mac eligible loans, needed to satisfy these statutory provisions, is limited to the Farm Credit Bank of Texas and to the former Farm Credit Bank of St. Paul. The availability and uniqueness of these data were documented in preceding reports (Stress Study of Agricultural Real Estate Loans, 1993). Especially important attributes of these data sources are the detailed loan histories, availability of loan servicing data, and data describing the financial characteristics of the borrowers at loan origination time that allowed an estimation of those loans that would be eligible for Farmer Mac. A further evaluation of data availability, similar to that conducted in the previous studies, indicates that no additional and/or preferred data sources are available to serve as the quantitative base for this study.

Due to differences between the Farm Credit Banks of Texas and St. Paul in their handling procedures for stressed loans during the 1980s, the loan loss history for the Farm Credit Bank of Texas is the more appropriate data source to use for benchmarking the worst-case conditions required for this study. The Texas Bank tended to resolve problem situations on real estate loans relatively quickly and, thus, experienced most of its stress effects as net charge-offs on foreclosed

loans. In contrast, the St. Paul Bank relied more extensively on forbearance and workout arrangements with borrowers, thus experiencing most of its stress effects in the form of reduced earnings on loans and increased administrative expenses. Both of these approaches may ultimately have similar effects on a bank=s capital position. Between these two approaches, however, the loan loss data from Texas provide a more direct and definitive portrayal of loss experiences, and thus serve as the credit loss data base for the extrapolation process employed in this study. Tables 1 and 2 report the loss rates for Farmer Mac eligible and non-eligible loans for loan volume and loan numbers, respectively, over the 1973 to 1992 period.

Extrapolation to Other States and Regions

According to the findings of the U.S. Department of Agriculture, Texas ranked fourth among the 50 states in terms of farm financial stress in the 1980s, (see Table 3). Several other states and regions, however, experienced greater or similar levels of farm financial stress. Thus, for the purposes of this study, it is appropriate to consider how the Texas loss rates may be extrapolated to other states and regions.

Extrapolation involves expanding the historic time series of loan loss rates for the Texas Farm Credit Bank in order to infer loss rates for other states and regions of the U.S., thus broadening the geographic applicability of the Texas data. The extrapolation approach employs other financial and economic measures, under the premise that the relationship between the Texas and non-Texas values of these variables is the same as (or strongly similar to) the relationship between the Texas and non-Texas loan-loss rates (see the following section of extrapolation assumptions). For example, if farmland values in Iowa decline by 20% more than

Table 1. Loan Charge-off Rates Based on Loan Volume during the 1986-92 period by Loan Origination Year for Farm Real Estate Loans.[a]

Year of Origination	Total Loan Originations (1)	Farmer Mac Ineligible Originations (2)	Farmer Mac Eligible Originations (3)	Total Cumulative Charge-off (4)	Ineligible Cumulative Charge-off (5)	Eligible Cumulative Charge-off (6)	Total Charge-off Rate (4)/(1)	Ineligible Charge-off Rate (5)/(2)	Eligible Charge-off Rate (6)/(3)
1973	$180,998,061	$130,818,349	$50,179,713	$18,027	$18,027	$0	0.01%	0.01%	0.00%
1974	$215,079,656	$99,847,421	$115,232,236	$321,807	$126,942	$194,865	0.15%	0.13%	0.17%
1975	$173,658,734	$70,100,387	$103,558,346	$490,047	$456,302	$33,745	0.28%	0.65%	0.03%
1976	$145,304,346	$56,240,217	$89,064,129	$10,559	$4,011	$6,548	0.01%	0.01%	0.01%
1977	$193,507,184	$86,692,155	$106,815,029	$213,743	$122,743	$91,477	0.11%	0.14%	0.09%
1978	$240,495,207	$102,206,402	$138,288,805	$419,191	$289,474	$129,717	0.17%	0.28%	0.09%
1979	$283,394,832	$151,832,533	$131,562,299	$627,844	$466,995	$160,849	0.22%	0.31%	0.12%
1980	$268,668,871	$142,547,522	$126,121,349	$1,684,835	$1,087,904	$596,931	0.63%	0.76%	0.47%
1981	$344,654,525	$206,598,811	$138,055,713	$2,398,172	$2,032,394	$365,778	0.70%	0.98%	0.26%
1982	$304,654,525	$176,305,249	$128,280,174	$4,405,372	$3,804,565	$600,807	1.45%	2.16%	0.47%
1983	$233,957,216	$135,017,858	$98,939,358	$2,765,539	$2,447,517	$318,022	1.18%	1.81%	0.32%
1984	$321,797,050	$202,918,254	$118,878,796	$3,972,780	$3,238,619	$734,162	1.23%	1.60%	0.62%
1985	$267,108,034	$176,693,704	$90,414,329	$6,742,314	$4,841,463	$1,900,851	2.52%	2.74%	2.10%
1986	$113,108,379	$65,698,390	$48,042,989	$785,825	$618,206	$167,619	0.69%	0.94%	0.35%
1987	$132,177,710	$86,698,390	$45,236,915	$1,277,594	$289,939	$987,655	0.97%	0.33%	2.18%
1988	$138,716,112	$87,143,335	$51,562,778	$274,524	$274,524	$0	0.20%	0.32%	0.00%
1989	$146,607,372	$74,426,489	$72,180,883	$415,071	$451,071	$0	0.28%	0.56%	0.00%
1990	$146,073,345	$79,622,363	$66,450,982	$247,637	$247,637	$0	0.17%	0.31%	0.00%
1991	$181,546,214	$101,358,895	$80,187,319	$119,894	$119,894	$0	0.07%	0.12%	0.00%
1992	$200,943,903	$131,706,106	$69,237,797	$0	$0	$0	0.00%	0.00%	0.00%

[a] Charge-off rates are for loans categorized by year of origination.

Table 2. Loan Charge-off Rates Based on Loan Numbers during the 1986-92 period by Loan Origination Year for Farm Real Estate Loans.[a]

Year of Origination	Total Loan Originations (1)	Farmer Mac Ineligible Originations (2)	Farmer Mac Eligible Originations (3)	Number of Total Charge-offs (4)	Number of Ineligible Charge-offs (5)	Number of Eligible Charge-offs (6)	Rate of Total Charge-offs (4)/(1)	Rate of Ineligible Charge-offs (5)/(2)	Rate of Eligible Charge-offs (6)/(3)
1973	1,414	587	827	2	2	0	0.14%	0.34%	0.00%
1974	2,874	1,060	1,814	9	4	5	0.31%	0.38%	0.28%
1975	2,382	897	1,485	4	3	1	0.17%	0.33%	0.07%
1976	2,269	785	1,484	3	1	2	0.13%	0.13%	0.13%
1977	2,760	1,083	1,677	7	3	4	0.25%	0.28%	0.24%
1978	3,089	1,239	1,850	17	9	8	0.55%	0.73%	0.43%
1979	2,981	1,282	1,699	22	13	9	0.74%	1.01%	0.53%
1980	2,756	1,252	1,504	42	32	10	1.52%	2.56%	0.66%
1981	2,837	1,388	1,449	44	31	13	1.55%	2.23%	0.90%
1982	2,614	1,273	1,341	63	48	15	2.41%	3.77%	1.12%
1983	1,981	968	1,013	46	33	13	2.32%	3.41%	1.28%
1984	2,514	1,313	1,199	56	47	9	2.23%	3.58%	0.75%
1985	2,142	1,198	944	81	57	24	3.78%	4.76%	2.54%
1986	935	458	477	21	16	5	2.25%	3.49%	1.05%
1987	934	426	508	12	8	4	1.28%	1.88%	0.79%
1988	1,088	490	598	7	7	0	0.64%	1.43%	0.00%
1989	1,242	503	739	1	1	0	0.08%	0.20%	0.00%
1990	1,308	564	744	4	4	0	0.31%	0.71%	0.00%
1991	1,297	571	726	1	1	0	0.08%	0.18%	0.00%
1992	1,362	666	696	0	0	0	0.00%	0.00%	0.00%

[a] Charge-off rates are for loans categorized by year of origination.

Table 3. States Most Affected by Financial Stress on Commercial Farms, 1984-86

State[a]	Commercial Farms With Potential Loan Losses			
	State Ranking[b]	Number of Farms	Commercial Farm Share	Technically Insolvent
	Rank	Number	Percent	
Iowa	1	12,580	20	8
Minnesota	2	11,510	24	10
Wisconsin	3	7,690	18	5
Texas	4	6,100	17	6
Missouri	5	5,740	24	12
Nebraska	6	5,390	17	6
Kansas	7	5,230	18	8
Illinois	8	4,780	12	4
Indiana	9	4,070	18	5
South Dakota	10	4,080	19	6
North Dakota	11	3,790	18	4
Oklahoma	12	3,210	18	6

[a]States having more than 3,000 farms facing potential losses.
[b]States are ranked by severity of potential loan losses; 1 indicates largest potential.

SOURCE: G.D. Hanson, G.H. Parandvash, and J. Ryan. Loan Repayment Problems of Farmers in the Mid 1980s. Agricultural Economic Report No. 649, Economic Research Service, U.S.D.A., September 1991.

farmland values in Texas, then the impact of loss rates in Iowa due to changes in land values would be 20% greater than the contribution to loss rates in Texas from changes in land values.

Extrapolation Assumptions

Extrapolation is an approximating process to be employed in the absence of historic loss data for other states and regions that are comparable to those of the Texas Farm Credit Bank. A key goal of the extrapolation process is to minimize the errors inherently involved in making the approximations. That is, the estimation approach is intended to replicate the true loss situations as accurately as possible.

Part of the accuracy/error issue is attributable to the estimation procedures employed in making the extrapolations. This issue is discussed in a later section. Also, important to consider in validating the approach are the key assumptions underlying the extrapolation concept. These assumptions include the following:

1. Relationships among values of the variables for different states and regions are stable over time. For example, farmland values in Iowa are, on average, approximately double those of Texas on a sustained basis over time.
2. Changes in loss rates are directly related to changes in values of the extrapolating variable. For example, declines in land values are similarly correlated with loss rates in all regions. Strong non-farm influences on land values or a borrower=s income position could yield less than strong relationships between loss rates, and land values and net income, respectively.
3. The influences of lender behavior on loss rates are similar across states and regions. For example, lenders in two states are assumed to respond similarly to

losses with respect to speed of foreclosure, recovery and sale of collateral, and other aspects of handling problem loans that adversely affect institutional performance.

As discussed above, these elements of loan management during the 1980s differed substantially between the Texas FCB and the St. Paul FCB. Texas rapidly exercised foreclosure and asset liquidations, while the St. Paul FCB exercised forbearance and workouts. While the ultimate effects on institutional capital could have been similar for both banks, the channels for reaching those capital effects differed considerably.

As currently formulated, accounting principles followed by the major institutional sources of agricultural loans encourage prompt resolution of problem loans. However, the practice of selling to a securitizer who adds a guarantee may lessen the incentives for active monitoring by the loan originator or for pursuing a low cost workout. Such adverse effects could reduce the validity of the extrapolation process.

4. Impacts of loan underwriting standards and initial lending conditions on loss exposure for similar types of loans are nearly the same across states and regions.

Extrapolation Variables

Basing the selection of one or more extrapolation variables on measures commonly used in credit evaluations by major lenders directly reflects the credit risk attributes that are important to these lenders. These variables, as recommended by the Farm Financial Standards Council (FFSC) and employed in various forms in many lender-developed credit scoring models, include profitability, solvency, liquidity, repayment capacity, and financial efficiency. In addition, values

of collateral pledged by borrowers, or available to lenders, as loan security often are considered in credit evaluations of agricultural borrowers.

Among these variables, including one for collateral, the selection for extrapolation purposes must reflect a variable=s strength in credit evaluations and the availability of appropriate data. Those variables typically weighted most heavily in credit evaluations include measures of solvency, repayment capacity, profitability, and collateral (Ellinger, P.N., N.S. Splett, and P.J. Barry. ACredit Evaluation Procedures at Agricultural Banks@ Illinois Banker, August 1991). Excluding repayment capacity due to data limitations, the state-level, historic data available from the Economic Research Service of the U.S. Department of Agriculture and evaluated in the extrapolation process include 1) solvency, measured by the debt-to-asset ratio; 2) profitability, measured by net farm income; and 3) collateral, measured by farmland values. A fourth (4) extrapolation variable will be historic loan loss rates experienced by agricultural banks (banks whose ratio of total agricultural loans to total loans exceeds 25%), in order to provide an additional comparative base. These loss rates reflect experiences on all types of loans. However, the rural locations of agricultural banks and the predominance of agricultural loans in their loan portfolios suggest that the reported loss rates strongly reflect loan performance in agricultural lending.

Historic data from the Economic Research Service of USDA are used to construct the first three measures. Data representing loan loss rates of agricultural banks come from commercial bank Call and Income reports for the historic period. The extrapolation results are inspected for plausibility and consistency among the respective variables. The final selection is based on statistical Agoodness of fit@ measures, while also testing the sensitivity of the worst case

loss extrapolations to alternative equation specifications.

Extrapolation Estimation Procedures

The extrapolation process employs statistical regression techniques applied to historic data for the Texas loss rates (the dependent variable) and the four extrapolation variables (the independent variables) in order to estimate the quantitative relationship between these respective variables. Once the relationships for Texas are estimated, the loss rates for other states can be estimated by substituting a particular state=s values of the independent variables into the estimated equation and calculating the estimated loss rates. The regression model to be estimated has the general form:

$$y = a + b_1 x_1 + b_2 x_2 + b_3 x_3 + b_4 x_4 \qquad 1)$$

where y is the loan loss rate, x_1 is the annual percentage change in land values, x_2 is the annual percentage change in net farm income, x_3 is the annual percentage change in the debt-to-asset ratio, and x_4 is the annual percentage change in the loan loss allowance ratio.

The model is first estimated with each independent variable alone (a set of single-variable regression equations),

$$\begin{aligned} y &= a + b_1 x_1 \\ y &= a + b_2 x_2 \\ y &= a + b_3 x_3 \\ y &= a + b_4 x_4 \end{aligned} \qquad 2)$$

and with combinations of at least two of the independent variables (a set of multi-variable regression equations). The composition of the multi-variable equations is based on the strength of the single-variable results.

To illustrate, suppose the estimated model for the regression of Texas Bank loss rates (y) on changes in Texas farmland values (x_1) is

$$y = 0.803 - 4.509\, x_1 \qquad 3)$$

The negative sign for the coefficient on x_1 indicates the anticipated inverse relationship between increases in land values and reductions in loss rates. That is, declining (or negative) rates of change in land values are associated with higher loss rates, and vice versa.

Further, suppose that the annual percentage rates of change for Iowa land values over a three-year period are Year 1, 15%; Year 2, -25%; and Year 3, 5%.

The estimated loan loss rate for Year 1 in Iowa is then found by substituting $x = .15$ into Equation 2 and solving for y.

$$\begin{aligned} y_1 &= 0.803 - 4.509(.15) \\ y_1 &= 0.127 \text{ or } 0.127\% \end{aligned} \qquad 4)$$

Similar calculations for Years 2 and 3 are

$$\begin{aligned} y_2 &= 0.803 - 4.509(-.25) \\ y_2 &= 1.930 \text{ or } 1.930\% \end{aligned} \qquad 5)$$

$$\begin{aligned} y_3 &= 0.803 - (4.509)(.05) \\ y_3 &= .578 \text{ or } .578\% \end{aligned} \qquad 6)$$

Scope of Estimation Procedure

The Texas loss rates are based on year of origination. Factors that can affect the loss rates may occur after origination. Several sets of regression models of the Texas data are analyzed to account for alternative ways of formulating the relationships between the loss rates and independent variables. These alternatives include the following:

- $ Single and multi-variable regression models: as indicated above, each of the four independent variables is evaluated separately in the regression analysis in order to determine their individual effects on loss rates. Those variables having the stronger individual relationships to loss rates are then selected for inclusion in multi-variable regressions to determine their joint effects.
- $ The independent variables are expressed in two ways; 1) as absolute values of each variable (e.g., land values of $500 per acre; a debt-to-asset ratio of .400) and 2) as annual percentage changes (e.g., land values increase or decrease by 10% per year).
- $ The annual percentage rates of change for each independent variable were averaged over forward periods of 1, 2, 3, and 4 years, respectively, in order to smooth the effects of large, irregular changes for some years. Forward averaging results in the creation of variables more closely related to losses that occur in periods after loan origination.
- $ Models were estimated for the Texas loss rates with the rates for the 1988-1992 years included and excluded from the data base. As shown in Table 1, the loss rates by year of origination for Farmer Mac eligible loans declined from relatively

high values of 2.10 in 1985, 0.35 in 1986, and 2.18 in 1987, to zero values for the years 1988-1992. In contrast, loss rates on loans made by the Texas Farm Credit Bank during 1988 to 1992, but not identified as Farmer Mac eligible loans, continued at levels considerably above zero.

The zero loss rate values for Farmer Mac eligible loans originated during 1988-1992 could reflect several possible factors. Most of these loans remained alive after the close of the data base in 1992. Any losses occurring after 1992 would not be reflected in these data. It is also possible that the underwriting standards and risk assessment procedures employed by the Texas Farm Credit Bank on new farm real estate loans may have changed significantly following the stress times earlier in the 1980s. The loss rates on Farmer Mac ineligible loans made by the Texas bank were also significantly lower after 1986. Of course, lenders in other states experiencing farm financial stress in the 1980s may have changed their underwriting standards and risk assessment criteria as well, although the degree of comparability in these revisions across states is unknown. Estimating models for the two time periods in the Texas data will provide insight about the relative effects on model results of including versus excluding the zero losses during the period from 1988 to 1992.

Estimation Results: 1988-1992 Loss Rates Included

The key results of the estimated single-variable regression models with the 1988-92 loss data included in the data set are summarized in Table 4 . Using R^2 values and statistical significance of the coefficients as the goodness-of-fit selection criteria, the strongest statistical

results (Equation 13) occurred with the use of annual percentage changes in land values averaged over the next four years (x_1) as the independent variable. Equation results for this specification are

$$y = 0.745 - 5.948\, x_1 \quad (t = 3.06) \quad R^2 = .401 \quad Prob > F = .008 \tag{7}$$

The t value of 3.08 indicates that the coefficient on the land value variable is significantly different from zero at the 5 percent level of significance. The R^2 value of .401 indicates that slightly more than forty percent of the variability in loss rates is explained by the regression results. And, the value for Prob > F = .008 indicates that this degree of explanatory capacity is significantly different from zero at a confidence level of 99.2% (1-.008).

Another variable that produced strong results (Equation 26) occurred with the use of annual percentage rates of change in the loan loss allowance ratio of agricultural banks in Texas averaged over the succeeding two years. This estimated equation is:

$$y = 0.131 + 5.122\, x_4 \quad (t = 2.57) \quad R^2 = .337 \quad Prob > F = .0234 \tag{8}$$

Including the two-year loan allowance variable and the two-year change in land price variable yielded the following estimation results (Equation 29 in Table 4)

$$y = .349 - 3.014\, x_1 + 3.540\, x_4 \quad (t = 1.42) \quad (t = 1.59) \quad R^2 = .432 \quad Prob > F = .034 \tag{9}$$

where x_1 is the land value variable and x_4 is the loan allowance variable.

Table 4. Estimation Results for Extrapolation Equations, 1988-92 Included.

Equation	t-ratio	R^2	Prob > F
1. y = .1490 + 5.9e-8 NI	0.44	.011	.664
2. y = -0.7290 + .003 LV	2.59	.272	.018
3. y = 1.1529 + .1098 DA	0.63	.022	.536
4. y = 0.5058 - 6.061 All	0.21	.003	.839
5. y = 0.1732 + 16.620 All + 1	0.57	.021	.575
6. y = -0.0743 + 35.376 All + 2	1.17	.089	.261
7. y = -0.2891 + 52.321 All + 3	1.67	.177	.118
8. y = -0.5851 + 75.470 All + 4	2.41	.326	.033
9. y = 0.4161 - 0.641 LV% change	0.41	.010	.687
10. y = 0.5415 - 3.081 LV% + 1	2.23	.226	.040
11. y = 0.6380 - 4.843 LV% + 2	2.92	.347	.010
12. y = 0.6890 - 5.346 LV% + 3	2.90	.358	.011
13. y = 0.7454 - 5.948 LV% + 4	3.06	.401	.008
14. y = 0.3659 + .303 NI%	0.50	.014	.624
15. y = 0.3947 - 0.202 NI% + 1	0.33	.006	.744
16. y = 0.4211 - 0.243 NI% + 2	0.16	.002	.871
17. y = 0.4297 - 0.019 NI% + 3	0.01	.000	.992
18. y = 0.5564 - 1.324 NI% + 4	0.56	.023	.585
19. y = 0.3938 + 2.882 DA%	1.08	.064	.294
20. y = 0.3804 - 0.757 DA% +1	0.28	.004	.786
21. y = 0.3759 - 5.354 DA% + 2	1.11	.071	.285
22. y = 0.3607 - 10.342 DA% + 3	1.41	.117	.179
23. y = 0.3687 - 12.195 DA% + 4	1.16	.087	.266
24. y = 0.1615 + 4.497 All %	2.61	.327	.026
25. y = 0.1907 + 4.037 All% + 1	2.24	.264	.042
26. y = 0.1311 + 5.122 All% + 2	2.57	.337	.023
27. y = 0.2335 + 3.860 All% + 3	1.50	.158	.159
28. y = 0.2792 + 3.493 All% + 4	1.10	.099	.295
29. y = 0.3494 - 3.014 LV% + 2	1.42	.432	.034
+ 3.540 All% + 2	1.59		

LV = land value (x_1)
NI = net farm income (x_2)
DA = debt to asset ratio (x_3)
ALL = loan loss allowance ratio (x_4)
A% + *x*@ after variable indicates average annual percentage of variable for succeeding *x* years.

Estimation Results: 1988-1992 Loss Rates Excluded

The key results of the estimated single-variable regression models with the 1988-92 loss data excluded from the data set are summarized in Table 5. Again, using R^2 values and statistical significance of the coefficients as selection criteria, the variable representing annual percentage rates of change in land values averaged over the next two yielded strong results (Equation 11). The estimated equation for this specification is

$$y = 0.888 - 6.593\, x_1 \qquad (t = 4.45) \qquad 10)$$

$$R^2 = .604 \quad Prob > F = .001$$

Strong results (Equation 6) also occurred with the loan loss allowance ratio of agricultural banks in Texas, averaged over the next two years (x_4). This estimated equation is

$$y = -1.039 + 124.443\, x_4 \qquad (t = 4.18) \qquad 11)$$

$$R^2 = .613 \quad Prob > F = .002$$

Including these two independent variables in a multiple regression model (Equation 29) yielded the following estimation results:

$$y = -0.218 - 3.182\, x_1 + 73.832\, x_4 \qquad (t = 1.07) \quad (t = 1.33) \qquad 12)$$

$$R^2 = .653 \quad Prob > F = .005$$

Selected Extrapolation Equation

Among these regression equations yielding the strongest results, those with the 1988-92 loss rates excluded (Equation 11, Table 5) yielded comparable levels of significance for the individual independent variables and for the regression equation as a whole, and greater R^2 values, indicating greater capacity to Aexplain@ changes in the dependent variable (loss rate). Thus, excluding the zero loss rates recorded from 1988 to 1992 is the preferred approach.

Among the equations with the loss rates excluded, the single equation for land values and the two-variable regression both yield R^2 values above .600, and similar strong levels of significance (Prob > F) for the overall equation. However, the correlation between the land value and the allowance variables is very high (0.86) resulting in multi-collinearity problems. Moreover, the loan loss allowance variable is unavailable in some states due to the low number of banks that meet the 25% agricultural loan to total loan criterion. The selected extrapolation equation, thus, is the single-variable equation with changes in land values, given its strongly significant negative coefficient on the independent variable (t-value is 4.45).

In the extrapolation to follow, the loss rates for other states and regions are estimated using the regression results for the annual percentage rates of change in land values averaged over the next two years, with the zero loss rates for the 1988-92 period excluded from the data base. This extrapolating equation is:

$$\begin{aligned} y_t &= 0.888 - 6.593\, x_t \quad \text{for } x_t \le 0.134 \\ y_t &= 0 \qquad\qquad\qquad\quad \text{for } x_t > 0.134 \end{aligned} \tag{13}$$

where y_t is estimated loss in year t expressed in percent and x_t is the average of the annual proportional change in land values during years t +1 and t + 2.

Table 5. Estimation Results for Extrapolation Equations, 1988-92 Excluded

Equation		t-ratio	R^2	Prob > F
1.	y = -1.1986 + 5.31e-7 NI	2.81	.377	.015
2.	y = -0.7540 + .003 LV	2.97	.405	.011
3.	y = 3.115 - 0.185 DA	0.61	.028	.548
4.	y = -1.3133 + 166.263 All	3.42	.540	.006
5.	y = -1.1160 + 136.556 All + 1	3.97	.589	.002
6.	y = -1.0392 + 124.443 All + 2	4.18	.613	.002
7.	y = -0.968 + 113.945 All + 3	3.89	.579	.002
8.	y = -0.9833 + 110.730 All + 4	3.91	.581	.002
9.	y = 0.6738 - 2.0182 LV% change	1.10	.091	.294
10.	y = 0.8027 - 4.5087 LV% + 1	3.32	.459	.006
11.	y = 0.8878 - 6.593 LV% + 2	4.45	.604	.001
12.	y = 0.8726 - 6.7442 LV% + 3	3.92	.542	.002
13.	y = 0.8480 - 6.7935 LV% + 4	3.65	.003	.506
14.	y = 0.5023 + .299 NI%	0.44	.016	.670
15.	y = 0.4963 - 0.1975 NI% + 1	0.29	.007	.773
16.	y = 0.5010 - .229 NI% + 2	0.14	.002	.888
17.	y = 0.4883 - .039 NI% + 3	0.02	.000	.984
18.	y = 0.5940 - 1.4012 NI% + 4	0.58	.025	.572
19.	y = 0.5122 + 2.4783 DA%	0.75	.045	.466
20.	y = 0.4869 - 1.588 DA% + 1	0.49	.018	.631
21.	y = 0.4576 - 5.933 DA% + 2	1.13	.090	.278
22.	y = 0.4181 - 10.749 DA% + 3	1.41	.132	.183
23.	y = 0.3959 - 14.573 DA% + 4	1.35	.122	.201
24.	y = 0.2731 + 5.0394 All %	2.39	.389	.040
25.	y = 0.2674 + 4.331 All% + 1	1.93	.271	.083
26.	y = 0.1935 + 4.863 All% + 2	1.97	.279	.077
27.	y = 0.3238 + 3.279 All% + 3	1.10	.107	.299
28.	y = 0.3424 + 3.090 All% + 4	0.92	.077	.381
29.	y = -0.2182 + 73.83 Allow + 2	1.33	.653	.005
	- 3.182 LV% + 2	1.07		

LV = land value (x_1)
NI = net farm income (x_2)
DA = debt to asset ratio (x_3)
ALL = loan loss allowance ratio (x_4)
A% + *x*@ after variable indicates average annual percentage of variable for succeeding *x* years.

Overview of the Extrapolation Process

A time series of loss rates for each of the 50 states in the U.S. is estimated by substituting a particular state=s sequence of two-year averaged forward rates of change of land values into equation 13) and calculating the time series of estimated loss rates. Given these calculations, two-

year loss rates are reported at the national level over the 1976 to 1993 time period, as well as a ranking of states by their highest two-year loss rate over the same time period. Then, the statutory guidelines are satisfied by compiling loss-rates for contiguous regions representing at least 5% of the U.S. population. The two-year loss rates for these regions are ranked from high to low in order to determine the worst-case conditions as statutorily defined. In compiling the regional loss rates, population data from the 1990 Census of the United States are used and each region=s two-year loss rates is calculated as a weighted average of the loss rates for each state comprising the region, using each state=s share of the regional population as the weight.

National Two-Year Loss Rates

Table 6 reports averages of two-year loss rates for the aggregate of the 50 states using a simple unweighted average and a weighted average based on each state=s proportion of total population. The 1984-85 time period yields the highest loss rates for each of the averaging concepts, with an unweighted average of 2.86% and a population weighted average of 2.84%.

The 2.86% unweighted average for aggregate losses represents a 1984-85 two-year loss rate. Dividing the figure by two (2.86) 2 = 1.43) yields estimated annual loss rates for 1984 and 1985 of 1.43%, averaged across all states.

State Rankings of Two-Year Loss Rates

Table 7 reports a ranking of the top 50 two-year loss rates for the applicable states over the 1976 to 1993 period. The highest two-year loss rate of 4.84% occurred during 1984-85 in Minnesota, followed by 4.83% during 1983B84 in Iowa, 4.60% during 1984-85 in Iowa, and 4.34% during 1983-84 in Nebraska. (A complete listing of rankings for two-year loss rates for all states over the 1976-93 period is in Appendix C.)

This ranking of states is roughly comparable to the single-year USDA rankings cited in Table 3. Ten of the top 12 states in the USDA ranking for 1984 and 1986 are found in the top 15. Texas does not appear in Table 7 because its own estimated loss rates, using equation 13, yield a maximum two-year loss rate of 3.01% for 1985 and 1986, resulting in a ranking below number 50. This estimate compares to an actual two-year high loss rate of 2.72% for 1984-85, based on percent of loan volume in Table 1, and 3.29% based on percent of loan numbers in Table 2.

Table 6. All States - Estimated Two-Year Loss Rates[a,b]

YEAR	Unweighted Mean	Population Weighted Mean
1976-77	0.15%	0.17%
1977-78	0.06%	0.08%
1978-79	0.11%	0.14%
1979-80	0.55%	0.55%
1980-81	1.37%	1.33%
1981-82	1.82%	1.76%
1982-83	2.11%	2.02%
1983-84	2.72%	2.67%
1984-85	2.86%	2.84%
1985-86	2.18%	2.17%
1986-87	1.31%	1.31%
1987-88	0.94%	0.89%
1988-89	1.05%	0.96%
1989-90	1.27%	1.16%
1990-91	1.38%	1.31%
1991-92	1.24%	1.29%
1992-93	1.12%	1.25%

[a] Weights are based on state levels of population in 1990.
[b] Loss rates are based on year of loan origination.

Table 7. Highest Loss Rate Periods: Single States[a]

	State	Period	Loss
1	MN	1984-1985	4.84%
2	IA	1983-1984	4.83%
3	IA	1984-1985	4.60%
4	NE	1983-1984	4.34%
5	MN	1983-1984	4.32%
6	IN	1984-1985	3.98%
7	WI	1984-1985	3.97%
8	IL	1983-1984	3.97%
9	KS	1984-1985	3.84%
10	LA	1985-1986	3.92%
11	LA	1984-1985	3.90%
12	NE	1984-1985	3.90%
13	OK	1984-1985	3.84%
14	IA	1982-1983	3.82%
15	ID	1984-1985	3.80%
16	WI	1983-1984	3.80%
17	IL	1984-1985	3.77%
18	IN	1983-1984	3.72%
19	OH	1983-1984	3.72%
20	KS	1983-1984	3.71%
21	MO	1983-1984	3.68%
22	SD	1984-1985	3.61%
23	MI	1984-1985	3.55%
24	MO	1984-1985	3.54%
25	OK	1983-1984	3.53%
26	AR	1984-1985	3.52%
27	ND	1984-1985	3.52%
28	OH	1984-1985	3.51%
29	MS	1984-1985	3.50%
30	SD	1983-1984	3.48%
31	OR	1984-1985	3.47%
32	CO	1984-1985	3.43%
33	OR	1983-1984	3.40%
34	NE	1982-1983	3.35%
35	WA	1984-1985	3.34%
36	ND	1983-1984	3.33%
37	MI	1983-1984	3.24%
38	MT	1984-1985	3.23%
39	WY	1984-1985	3.22%
40	ID	1985-1986	3.21%
41	MN	1985-1986	3.20%
42	ID	1985-1986	3.17%
43	UT	1983-1984	3.15%
44	MN	1982-1983	3.12%
45	WA	1985-1986	3.10%
46	MS	1985-1986	3.10%
47	WV	1983-1984	3.08%
48	CA	1984-1985	3.07%
49	OK	1985-1986	3.04%
50	NM	1984-1985	3.03%

[a] Loss rates are based on year of loan origination.

Population Data

Contiguous regions satisfying the statutorily required population criterion are based on the population data reported in Table 8. The only states that satisfy the 5% population requirement alone are California, New York, Texas, and Florida. Among these, only California is found in the top 50 two-year loss rates reported in Table 7, with a ranking of 48. Illinois, Ohio, and Michigan are the only other states in Table 7 with populations that exceed three percent of the U.S. total.

Worst Case Two-Year Loss Period

Combinations of contiguous states meeting the 5% population requirement are ranked according to two-year loss rates in Table 9 for regions with loss rates exceeding 3.5%. The worst-case region contains Illinois, Iowa, and Minnesota during the 1983-1984 time period, with a two-year loss rate of 4.180%. Closely following are the same states with a two-year loss rate of 4.146% during 1984-1985. The two-state combination of Illinois and Iowa during 1983 and 1984 rank third, while the fourth ranked region contains Louisiana, Arkansas, Missouri, Iowa, and Minnesota, with a loss rate of 4.074% during 1984-85. As the ranking declines, the same Midwestern states tend to remain in the list, while new states from the Plains and South Central U.S. are added. Similar to the discussion of Table 7, Texas, the data source for the extrapolated loss rates, is not included in this ranking.

Table 8. 1990 Census Population by State

	Population	% of Total
California	29,760,021	11.97%
New York	17,990,455	7.23%
Texas	16,986,510	6.83%
Florida	12,937,926	5.20%
Pennsylvania	11,881,643	4.78%
Illinois	11,430,602	4.60%
Ohio	10,847,115	4.36%
Michigan	9,295,297	3.74%
New Jersey	7,730,188	3.11%
North Carolina	6,628,637	2.67%
Georgia	6,478,216	2.60%
Virginia	6,187,358	2.49%
Massachusetts	6,016,425	2.42%
Indiana	5,544,159	2.23%
Missouri	5,117,073	2.06%
Wisconsin	4,891,769	1.97%
Tennessee	4,877,185	1.96%
Washington	4,866,692	1.96%
Maryland	4,781,468	1.92%
Minnesota	4,375,099	1.76%
Louisiana	4,219,973	1.70%
Alabama	4,040,587	1.62%
Kentucky	3,685,296	1.48%
Arizona	3,665,228	1.47%
South Carolina	3,486,703	1.40%
Colorado	3,294,394	1.32%
Connecticut	3,287,116	1.32%
Oklahoma	3,145,585	1.26%
Oregon	2,842,321	1.14%
Iowa	2,776,755	1.12%
Mississippi	2,573,216	1.03%
Kansas	2,477,574	1.00%
Arkansas	2,350,725	0.95%
West Virginia	1,793,477	0.72%
Utah	1,722,850	0.69%
Nebraska	1,578,385	0.63%
New Mexico	1,515,069	0.61%
Maine	1,227,928	0.49%
Nevada	1,201,833	0.48%
New Hampshire	1,109,252	0.45%
Hawaii	1,108,229	0.45%
Idaho	1,006,749	0.40%
Rhode Island	1,003,464	0.40%
Montana	799,065	0.32%
South Dakota	696,004	0.28%
Delaware	666,168	0.27%
North Dakota	638,800	0.26%
District of Columbia	606,900	0.24%
Vermont	562,758	0.23%
Alaska	550,043	0.22%
Wyoming	453,588	0.18%
Total	248,709,873	

Table 9. Regions with Two-Year Loss Rates Greater Than 3.5%, Based on the Population Criterion.[a]

Region	Population %	Two-Year Period	Two Year Loss Rate
IL,IA,MN	7.5%	1983-84	4.18%
IL,IA,MN	7.5%	1984-85	4.15%
IL,IA	5.7%	1983-84	4.14%
LA,AR,MO,IA,MN	7.6%	1984-85	4.07%
MI,IA,MN,WI	8.6%	1984-85	4.05%
MN,WI,MI	7.5%	1984-85	3.96%
IL,IA	5.7%	1984-85	3.93%
IL,MO,NE	7.3%	1983-84	3.92%
IL,WI	6.6%	1983-84	3.92%
IL,IN	6.8%	1983-84	3.89%
IL,KS,MO	7.6%	1983-84	3.86%
IA,MI,WI	6.8%	1984-85	3.84%
IL,IN	6.8%	1984-85	3.84%
IL,WI	6.6%	1984-85	3.83%
MI,IA,MN,WI	8.6%	1983-84	3.80%
IL,CO,MO,NE	8.6%	1983-84	3.78%
IN,MI,WI	7.9%	1984-85	3.77%
NE,CO,KS,OK,AR,LA	6.9%	1984-85	3.75%
IL,MO,KS,OK,AR,LA	11.6%	1984-85	3.75%
IL,KS,MO,OK	8.9%	1984-85	3.75%
LA,AR,OK,KS,CO	6.2%	1984-85	3.74%
LA,OK,AR,MO,KS	7.0%	1984-85	3.74%
LA,AR,MO,KS,NE	6.3%	1984-85	3.73%
IL,KS,MO	7.6%	1984-85	3.73%
IN,OH	6.6%	1983-84	3.72%
IL,MO,NE	7.3%	1984-85	3.72%
IL,KY,OH	10.4%	1983-84	3.72%
IN,MI	6.0%	1984-85	3.71%
NE,CO,KS,OK,AR	5.2%	1984-85	3.70%
MI,WI	5.7%	1984-85	3.70%
MO,KS,OK,AR	5.3%	1984-85	3.68%
IN,OH	6.6%	1984-85	3.67%
IA,MI,WI	6.8%	1983-84	3.66%
LA,AR,MO,IA,MN	7.6%	1983-84	3.65%
MN,WI,MI	7.5%	1983-84	3.64%

[a]Loss rates are based on year of loan origination.

Sensitivity of Two-year Loss Rates to Model Selection

The two-year loss rates reported in Table 9 are based on equation 11 in Table 5. The independent variable is the two-year forward change in land values. The estimation process excludes data from 1988 to 1992. To help validate the estimated loss measures and assess the impacts that model selection and estimation data set have on the maximum two-year loss rates, twelve alternative equations are evaluated. The twelve alternative equations are based on the six models with highest R^2 from data including 1988-92 and six models with the highest R^2 from models excluding 1988-92 data.

The geographic regions with the highest estimated two-year loss rates for each of the twelve models are reported in Table 10. The highest loss rates range from 2.68% with equation 8 and 1988-92 data excluded to 9.94% for equation 24 with 1988-92 data included. Equation 24 is based on proportional changes in the allowance for loan loss ratios at agricultural banks. Banks in the Florida sample exhibited a 160% increase in the allowance for loan loss from 1985 to 1986. However, the allowance in Florida decreased 78% from 1986 to 1987 and thus, the impact of the high proportional change from 1985 to 1986 is likely overestimated in this specific model. In all other cases, the highest estimated two-year loss rates are less than the selected model suggesting that the estimated loss rates reported in Table 9 are conservative estimates for maximum two-year losses for a contiguous region with at least 5% of the population.

Comparisons with Other Loss Measures

The extrapolation approach can be validated by comparing the estimated losses to commercial bank stress measures. Figure 2 compares the estimated loss rates for Iowa, Minnesota, Nebraska and Illinois to the median allowance for loan loss rates experienced by agricultural banks in each of the respective states. The banks included in the comparisons have

agricultural loan to total loan ratios greater than 25%. Although the allowances at these banks are largely influenced by agricultural loan performance, lending to non-agricultural firms can also influence the allowance for loan losses. Furthermore, bank lending to agriculture in the mid 1980s was heavily dominated by non-real estate loans. In 1985, banks in Illinois, Iowa, Minnesota, and Nebraska held, respectively, 28%, 19%, 16%, and 11% of their agricultural loan portfolios in loans secured by farm real estate. The bank allowances are useful for comparisons of timing and relative magnitude of loss, but may not explicitly reflect performance of agricultural real estate loans.

The time patterns of the estimated loss rates of each state are similar to one another. The peak year for the estimated loan loss rate for each state is 1984. However, the peak for the allowance for loan losses occurs three years later for Illinois, Iowa and Nebraska and four years later for Minnesota. The dashed lines for each state reflect a shift in the estimated loss line three years forward. The difference in timing likely occurs because the extrapolated loss rates are based on origination year, while commercial bank allowances reflect losses relative to exposure year.

The differences in the maximum loss rates between allowances and estimated loss rates range from -0.0007 for Nebraska to +0.00665 for Iowa. These small differences provide additional support for the extrapolation procedure. Furthermore, the comparisons provide a means to help interpret the timing issues associated with using origination data.

Table 10. Sensitivity Analysis to Alternative Models, Maximum Two-Year Losses Based on Population Criteria.[a]

	Highest			2nd Highest			3rd Highest		
	Region	Period	2 year loss	Region	Period	2 year loss	Region	Period	2 year loss
1988-92 Included									
Equations Number [b]									
11.	IL,IA,MN	1983-84	3.04%	IL,IA,MN	1984-85	3.02%	IL,IA	1983-84	3.01%
12.	IL,IA,MN	1983-84	3.18%	IL,IA	1983-84	3.07%	MI,IA,MN,WI	1983-84	3.01%
13.	IL,IA,MN	1983-84	2.96%	LA,AR,MO,IA,MN	1983-84	2.91%	MI,IA,MN,WI	1983-84	2.90%
24.	FL	1985-86	9.94%	CA	1985-86	4.53%	NE,CO,KS,OK,AR,LA	1985-86	3.17%
26.	FL	1984-85	4.15%	FL	1983-84	3.25%	CA	1984-85	2.63%
29.	CA	1985-86	3.51%	LA,AR,MO,KS,NE	1985-86	3.06%	LA,OK,AR,MO,KS	1985-86	2.96%
1988-92 Excluded									
Equations Number [b]									
5.	CA	1985-86	3.51%	LA,AR,MO,KS,NE	1985-86	3.06%	LA,OK,AR,MO,KS	1985-86	2.96%
6.	CA	1985-86	3.12%	LA,AR,MO,KS,NE	1985-86	3.04%	NE,CO,KS,OK,AR,LA	1985-86	2.96%
7.	LA,AR,MO,KS,NE	1985-86	2.81%	NE,CO,KS,OK,AR,LA	1985-86	2.80%	LA,AR,OK,KS,CO	1985-86	2.77%
8.	TX	1985-86	2.68%	NE,CO,KS,OK,AR,LA	1985-86	2.64%	LA,AR,OK,KS,CO	1985-86	2.62%
12.	IL,IA,MN	1983-84	4.02%	IL,IA	1983-84	3.88%	MI,IA,MN,WI	1983-84	3.81%
29.	LA,AR,MO,KS,NE	1984-85	3.18%	IN,MI	1984-85	3.18%	IA,MI,WI	1984-85	3.17%

a Loss rates based on year of loan origination.
b Equation numbers are from models reported in Tables 4 and 5.

Losses to a Group of Representative Agricultural Enterprises

Task D of the study is to estimate the losses to a group of representative agricultural enterprises based on estimated worst-case loss ratios derived above. Two approaches are followed in this portion of the analyses. The first is to estimate aggregate loss histories over the 1976 to 1992 period based on the geographic distribution of Farmer Mac=s guaranteed loans on December 31, 1997. This loss history and its statistical characteristics are then compared to similar aggregate loss histories using 1990 population data as the weights on the estimated state-level loss rates. The second approach determines the aggregate loss rate for the worst-case two-year period, identified as 1983-84 in the preceding section, using Farmer Mac=s December 31, 1997 geographic distribution of loans as the weights.

Table 11 and Figure 1 report the December 31, 1997 geographic distribution of Farmer Mac=s guaranteed loans. Loan concentration is relatively high, with 30% of the loans originated in California and 46% in the Pacific region. The next two highest levels of concentration are 15% in the Mountain Region and 10% in the Cornbelt.

Table 12 indicates the aggregate loss histories and their statistical characteristics (mean, standard deviation, maximum) for the two weighting schemes. The comparability of the summary measures is relatively high, as indicated by mean loss ratios of 0.62% for the population weights and 0.66% for the geographic weights. Moreover, the maximum aggregate loss rates all occur in 1984, with rates of 1.51% for the population weighted case and 1.71% for the Farmer Mac weights. The maximum two-year loss rates for the Farmer Mac portfolio occurs from 1984-85 (1.71%+1.67%=3.38%).

The potential for reduced variability of loss rates as state-level loans are aggregated into more broadly diversified pools, using any of the weighting schemes, is shown by the matrix of

correlation coefficients in Table 13. These correlation coefficients are estimated by making pair-wise comparisons of the historic time series of extrapolated loss rates across the 50 states. Correlation coefficients may range between minus one and plus one, inclusively. A positive (negative) correlation means that high losses in one state are associated with high (low) losses in another state. Diversification across states tends to reduce loss variability more, as the correlation coefficients are lower in value.

To illustrate, the correlations of estimated loss rates in Iowa with the neighboring states of Illinois (.98) and Minnesota (.96) are very high, reflecting the common set of factors (e.g., production levels, commodity prices) influencing losses in these states. In contrast, the correlations of Iowa=s loss rates to those in Texas (.29), and New Jersey (.58) are much lower. In general, the correlation values in Table 15 are positive and relatively high. Negative correlations occur only in few cases, mostly involving New England states.

Table 11. Geographic Distribution of Farmer Mac=s Loan Portfolio, December 31, 1997.

Geographic						
For Period Ended 12/31/1997						
		Pre/Post Act	Data			
		Pre		Post		Total Sum of $ Amount
Region	Abbreviation	Sum of $ Amount	Sum of $ Amount2	Sum of $ Amount	Sum of $ Amount2	
Appalachia	KY	$1,797,975	1%	$7,580,549	2%	$9,378,524
	TN	$109,438	0%	$598,154	0%	$707,593
	VA	$93,896	0%	$0	0%	$93,896
Appalachia Total		$2,001,310	1%	$8,178,703	2%	$10,180,013
Corn Belt	IA	$6,043,020	3%	$4,946,583	1%	$10,989,603
	IL	$6,147,220	3%	$10,457,978	3%	$16,605,197
	IN	$5,760,213	3%	$7,571,718	2%	$13,331,931
	MO	$2,080,396	1%	$4,307,100	1%	$6,387,496
	OH	$2,484,117	1%	$9,022,021	2%	$11,506,138
Corn Belt Total		$22,514,965	10%	$36,305,400	9%	$58,820,365
Delta States	AR	$5,893,250	3%	$356,049	0%	$6,249,298
	LA	$2,525,260	1%	$0	0%	$2,525,260
	MS	$16,263,314	7%	$2,842,763	1%	$19,106,077
Delta States Total		$24,681,824	11%	$3,198,811	1%	$27,880,636
Lake States	MI	$2,354,335	1%	$11,056,500	3%	$13,410,836
	MN	$7,717,861	3%	$15,593,238	4%	$23,311,099
	WI	$2,275,544	1%	$2,646,177	1%	$4,921,721
Lake States Total		$12,347,741	5%	$29,295,915	8%	$41,643,655
Mountain	AZ	$62,193	0%	$0	0%	$62,193
	CO	$3,573,711	2%	$7,427,017	2%	$11,000,728
	ID	$3,333,456	1%	$36,116,245	9%	$39,449,701
	MT	$1,153,402	1%	$19,368,857	5%	$20,522,259
	NM	$285,451	0%	$3,900,000	1%	$4,185,451
	NV	$1,746,147	1%	$2,434,000	1%	$4,180,147
	UT	$3,185,745	1%	$7,820,722	2%	$11,006,467
	WY	$78,493	0%	$2,037,320	1%	$2,115,812
Mountain Total		$13,418,599	6%	$79,104,160	20%	$92,522,760
Northeast	DE	$0	0%	$986,813	0%	$986,813
	MD	$0	0%	$1,086,623	0%	$1,086,623
	NY	$280,214	0%	$722,319	0%	$1,002,533
	PA	$638,594	0%	$0	0%	$638,594
Northeast Total		$918,808	0%	$2,795,754	1%	$3,714,563
Northern Plains	KS	$2,091,173	1%	$3,860,947	1%	$5,952,120
	ND	$1,978,905	1%	$1,868,392	0%	$3,847,297
	NE	$3,553,066	2%	$4,800,186	1%	$8,353,251
	SD	$4,666,876	2%	$17,683,236	5%	$22,350,113
Northern Plains Total		$12,290,020	5%	$28,212,761	7%	$40,502,781
Pacific	CA	$91,850,707	40%	$90,573,733	23%	$182,424,440
	OR	$2,386,906	1%	$19,073,141	5%	$21,460,047
	WA	$13,019,886	6%	$69,309,611	18%	$82,329,497
Pacific Total		$107,257,499	47%	$178,956,484	46%	$286,213,983
Southeast	AL	$1,453,204	1%	$2,026,485	1%	$3,479,689
	FL	$8,359,714	4%	$0	0%	$8,359,714
	GA	$988,846	0%	$3,881,204	1%	$4,870,050
Southeast Total		$10,801,763	5%	$5,907,689	2%	$16,709,453
Southern Plains	OK	$9,526,222	4%	$1,943,455	1%	$11,469,678
	TX	$13,054,007	6%	$13,807,397	4%	$26,861,404
Southern Plains Total		$22,580,230	10%	$15,750,852	4%	$38,331,082
Grand Total		$228,812,759	100%	$387,706,531	100%	$616,519,290

Figure 1. State Level Proportion of Total U.S. Farmer Mac Debt

12 / 31 / 1997

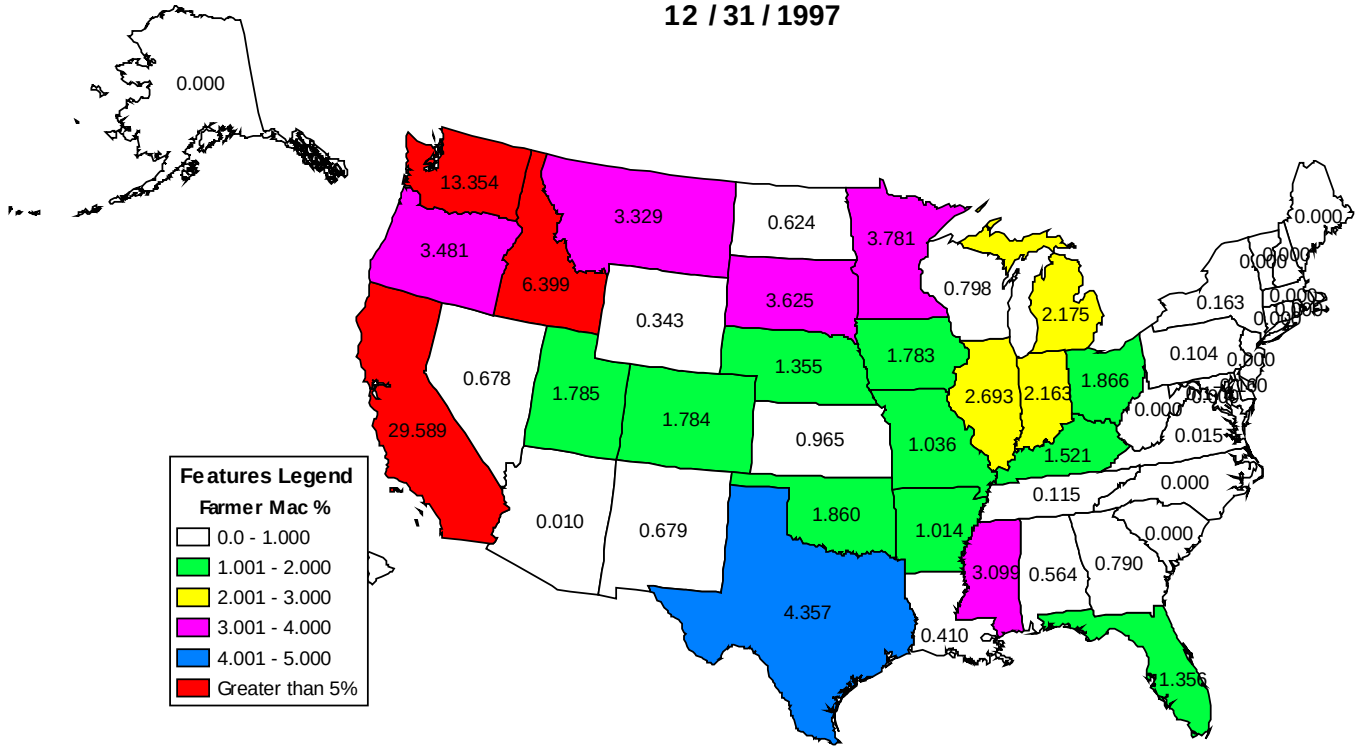

Table 12. Estimated One-Year Loan Loss Based on Weighted Portfolios, by State.[a,b]

YEAR	Population Weighted	Farmer Mac 12/97 Weighted
1976	0.13%	0.04%
1977	0.05%	0.01%
1978	0.03%	0.02%
1979	0.10%	0.02%
1980	0.44%	0.24%
1981	0.87%	0.79%
1982	0.87%	0.91%
1983	1.13%	1.24%
1984	1.51%	1.71%
1985	1.30%	1.67%
1986	0.84%	1.16%
1987	0.45%	0.58%
1988	0.43%	0.41%
1989	0.52%	0.41%
1990	0.63%	0.61%
1991	0.67%	0.75%
1992	0.60%	0.66%
Mean	0.62%	0.66%
Std Dev.	0.43%	0.54%
Maximum	1.51%	1.71%

[a] Population, 1990 Census. Farmer Mac (12/31/97) portfolio weight.

[b] Loan rates are based on year of loan origination

Figure 2 Comparisons of Estimated Loss Rates to Allowance for Loan Loss at Agricultural Banks.

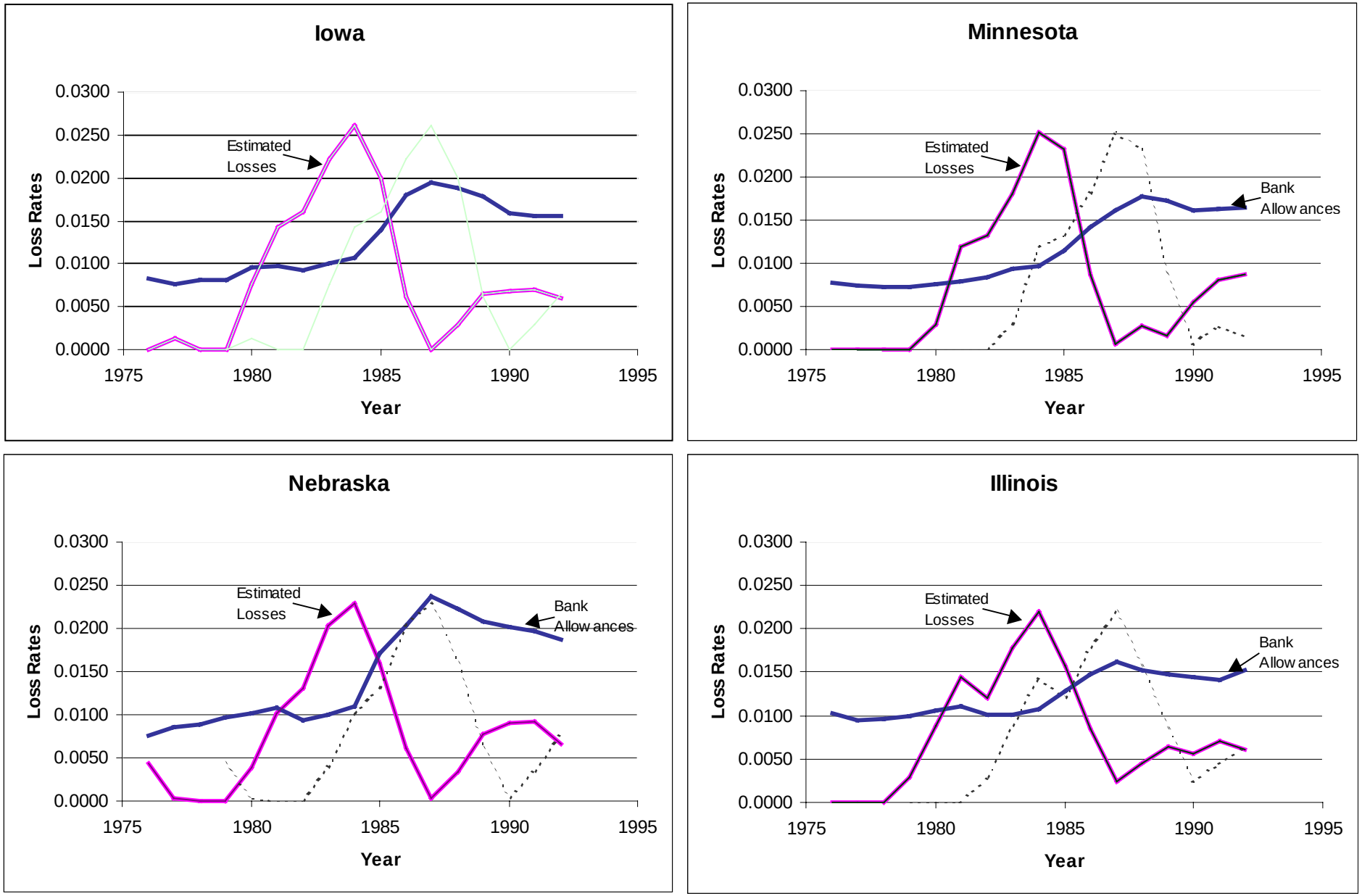

Table 13. Correlation Coefficients Between States for Historic, Extrapolated Loss[a]

	Alabama	Arkansas	Arizona	California	Colorado	Connecticu	Delaware	Florida	Georgia	Iowa	Idaho	Illinois
Alabama	1.00	0.95	0.77	0.82	0.82	0.37	0.81	0.76	0.90	0.87	0.89	0.89
Arkansas	0.95	1.00	0.79	0.90	0.92	0.33	0.76	0.83	0.90	0.90	0.96	0.90
Arizona	0.77	0.79	1.00	0.72	0.83	-0.06	0.47	0.68	0.68	0.64	0.73	0.70
California	0.82	0.90	0.72	1.00	0.88	0.05	0.66	0.74	0.79	0.79	0.96	0.79
Colorado	0.82	0.92	0.83	0.88	1.00	0.09	0.70	0.79	0.81	0.81	0.93	0.83
Connecticut	0.37	0.33	-0.06	0.05	0.09	1.00	0.59	0.47	0.50	0.46	0.22	0.39
Delaware	0.81	0.76	0.47	0.66	0.70	0.59	1.00	0.82	0.92	0.85	0.76	0.85
Florida	0.76	0.83	0.68	0.74	0.79	0.47	0.82	1.00	0.93	0.81	0.79	0.83
Georgia	0.90	0.90	0.68	0.79	0.81	0.50	0.92	0.93	1.00	0.90	0.87	0.92
Iowa	0.87	0.90	0.64	0.79	0.81	0.46	0.85	0.81	0.90	1.00	0.86	0.98
Idaho	0.89	0.96	0.73	0.96	0.93	0.22	0.76	0.79	0.87	0.86	1.00	0.86
Illinois	0.89	0.90	0.70	0.79	0.83	0.39	0.85	0.83	0.92	0.98	0.86	1.00
Indiana	0.93	0.94	0.74	0.81	0.86	0.37	0.85	0.84	0.93	0.95	0.89	0.98
Kansas	0.89	0.95	0.74	0.89	0.92	0.35	0.84	0.86	0.92	0.96	0.95	0.96
Kentucky	0.95	0.94	0.77	0.89	0.89	0.27	0.81	0.77	0.91	0.86	0.95	0.89
Louisiana	0.85	0.90	0.76	0.86	0.84	0.13	0.60	0.70	0.76	0.70	0.90	0.75
Maine	0.51	0.53	0.33	0.35	0.37	0.74	0.57	0.65	0.62	0.45	0.47	0.44
Massachusetts	0.10	0.06	-0.11	-0.16	-0.11	0.84	0.30	0.32	0.24	0.08	-0.04	0.04
Maryland	0.87	0.84	0.55	0.59	0.67	0.63	0.81	0.72	0.84	0.85	0.74	0.86
Michigan	0.91	0.97	0.82	0.94	0.95	0.16	0.75	0.82	0.88	0.89	0.97	0.91
Minnesota	0.85	0.93	0.67	0.91	0.89	0.29	0.77	0.82	0.87	0.96	0.93	0.94
Missouri	0.95	0.95	0.77	0.86	0.88	0.35	0.86	0.85	0.95	0.96	0.92	0.98
Mississippi	0.93	0.97	0.81	0.92	0.92	0.21	0.73	0.82	0.87	0.82	0.95	0.86
Montana	0.90	0.94	0.79	0.91	0.94	0.17	0.75	0.79	0.87	0.78	0.97	0.81
North Carolina	0.91	0.92	0.83	0.85	0.89	0.24	0.79	0.82	0.89	0.86	0.91	0.91
North Dakota	0.89	0.96	0.83	0.90	0.96	0.25	0.78	0.86	0.90	0.88	0.96	0.89
Nebraska	0.83	0.88	0.63	0.80	0.82	0.50	0.85	0.84	0.88	0.96	0.86	0.93
New Hampshire	-0.11	-0.08	-0.15	-0.28	-0.23	0.60	0.01	0.21	0.07	-0.12	-0.18	-0.11
New Jersey	0.33	0.30	0.14	0.27	0.24	0.36	0.47	0.41	0.44	0.58	0.25	0.55
New Mexico	0.74	0.86	0.76	0.78	0.84	0.22	0.64	0.89	0.82	0.82	0.80	0.85
Nevada	0.81	0.84	0.95	0.78	0.84	-0.04	0.53	0.70	0.73	0.76	0.78	0.82
New York	0.68	0.71	0.66	0.59	0.75	0.29	0.66	0.59	0.64	0.81	0.66	0.77
Ohio	0.91	0.89	0.73	0.76	0.82	0.38	0.85	0.81	0.92	0.96	0.83	0.99
Oklahoma	0.89	0.95	0.81	0.90	0.90	0.27	0.74	0.82	0.87	0.86	0.95	0.87
Oregon	0.90	0.93	0.81	0.91	0.95	0.13	0.73	0.73	0.83	0.84	0.96	0.85
Pennsylvania	0.76	0.77	0.60	0.69	0.70	0.49	0.85	0.88	0.90	0.91	0.74	0.92
Rhode Island	0.59	0.58	0.31	0.31	0.39	0.91	0.71	0.72	0.71	0.65	0.46	0.60
South Carolina	0.87	0.91	0.66	0.90	0.82	0.31	0.79	0.84	0.90	0.90	0.90	0.91
South Dakota	0.80	0.91	0.75	0.92	0.91	0.27	0.76	0.91	0.88	0.87	0.93	0.87
Tennessee	0.95	0.95	0.81	0.83	0.87	0.36	0.84	0.85	0.95	0.94	0.90	0.97
Texas	0.50	0.63	0.64	0.63	0.65	-0.05	0.23	0.50	0.44	0.29	0.66	0.34
Utah	0.90	0.89	0.88	0.80	0.87	0.08	0.62	0.63	0.76	0.76	0.87	0.80
Virginia	0.86	0.83	0.55	0.83	0.69	0.46	0.88	0.84	0.94	0.84	0.84	0.86
Vermont	0.44	0.39	0.27	0.25	0.25	0.62	0.46	0.47	0.47	0.22	0.35	0.24
Washington	0.84	0.92	0.75	0.96	0.93	0.07	0.65	0.73	0.79	0.75	0.98	0.77
Wisconsin	0.90	0.96	0.82	0.92	0.94	0.21	0.74	0.80	0.87	0.92	0.96	0.93
West Virginia	0.78	0.79	0.76	0.72	0.71	0.18	0.58	0.60	0.69	0.86	0.73	0.87
Wyoming	0.83	0.88	0.81	0.84	0.95	0.14	0.69	0.74	0.80	0.71	0.92	0.74

Correlation coefficients may range from minus 1.00 to plus 1.00 inclusively. Higher positive (negative) values of correlations indicate tendency or loss rates to change in the same (opposite) direction in the respective state.

Table 13 (continued)

	Indiana	Kansas	Kentucky	Louisiana	Maine	Massachus	Maryland	Michigan	Minnesota	Missouri	Mississippi	Montana
Alabama	0.93	0.89	0.95	0.85	0.51	0.10	0.87	0.91	0.85	0.95	0.93	0.90
Arkansas	0.94	0.95	0.94	0.90	0.53	0.06	0.84	0.97	0.93	0.95	0.97	0.94
Arizona	0.74	0.74	0.77	0.76	0.33	-0.11	0.55	0.82	0.67	0.77	0.81	0.79
California	0.81	0.89	0.89	0.86	0.35	-0.16	0.59	0.94	0.91	0.86	0.92	0.91
Colorado	0.86	0.92	0.89	0.84	0.37	-0.11	0.67	0.95	0.89	0.88	0.92	0.94
Connecticut	0.37	0.35	0.27	0.13	0.74	0.84	0.63	0.16	0.29	0.35	0.21	0.17
Delaware	0.85	0.84	0.81	0.60	0.57	0.30	0.81	0.75	0.77	0.86	0.73	0.75
Florida	0.84	0.86	0.77	0.70	0.65	0.32	0.72	0.82	0.82	0.85	0.82	0.79
Georgia	0.93	0.92	0.91	0.76	0.62	0.24	0.84	0.88	0.87	0.95	0.87	0.87
Iowa	0.95	0.96	0.86	0.70	0.45	0.08	0.85	0.89	0.96	0.96	0.82	0.78
Idaho	0.89	0.95	0.95	0.90	0.47	-0.04	0.74	0.97	0.93	0.92	0.95	0.97
Illinois	0.98	0.96	0.89	0.75	0.44	0.04	0.86	0.91	0.94	0.98	0.86	0.81
Indiana	1.00	0.96	0.91	0.82	0.44	0.04	0.90	0.93	0.93	0.99	0.91	0.86
Kansas	0.96	1.00	0.93	0.84	0.51	0.07	0.83	0.96	0.97	0.97	0.91	0.90
Kentucky	0.91	0.93	1.00	0.86	0.50	0.00	0.79	0.94	0.88	0.95	0.92	0.96
Louisiana	0.82	0.84	0.86	1.00	0.48	-0.02	0.74	0.89	0.79	0.81	0.93	0.93
Maine	0.44	0.51	0.50	0.48	1.00	0.79	0.58	0.40	0.37	0.47	0.47	0.51
Massachusetts	0.04	0.07	0.00	-0.02	0.79	1.00	0.32	-0.11	-0.05	0.03	-0.01	-0.02
Maryland	0.90	0.83	0.79	0.74	0.58	0.32	1.00	0.75	0.77	0.86	0.79	0.72
Michigan	0.93	0.96	0.94	0.89	0.40	-0.11	0.75	1.00	0.95	0.96	0.97	0.95
Minnesota	0.93	0.97	0.88	0.79	0.37	-0.05	0.77	0.95	1.00	0.94	0.89	0.85
Missouri	0.99	0.97	0.95	0.81	0.47	0.03	0.86	0.96	0.94	1.00	0.92	0.89
Mississippi	0.91	0.91	0.92	0.93	0.47	-0.01	0.79	0.97	0.89	0.92	1.00	0.96
Montana	0.86	0.90	0.96	0.93	0.51	-0.02	0.72	0.95	0.85	0.89	0.96	1.00
North Carolina	0.94	0.95	0.93	0.90	0.47	0.03	0.83	0.94	0.88	0.95	0.93	0.92
North Dakota	0.91	0.96	0.95	0.88	0.55	0.05	0.76	0.97	0.91	0.94	0.94	0.96
Nebraska	0.89	0.95	0.84	0.67	0.56	0.21	0.80	0.87	0.93	0.92	0.81	0.78
New Hampshire	-0.13	-0.12	-0.15	-0.08	0.71	0.81	0.09	-0.22	-0.21	-0.13	-0.11	-0.13
New Jersey	0.43	0.41	0.29	-0.08	0.05	0.06	0.30	0.33	0.49	0.46	0.20	0.10
New Mexico	0.87	0.86	0.74	0.78	0.39	0.03	0.69	0.87	0.87	0.85	0.84	0.76
Nevada	0.84	0.81	0.80	0.79	0.25	-0.20	0.62	0.89	0.78	0.85	0.84	0.79
New York	0.72	0.78	0.68	0.45	0.32	0.06	0.63	0.73	0.74	0.77	0.63	0.61
Ohio	0.99	0.94	0.89	0.75	0.42	0.04	0.88	0.90	0.91	0.98	0.85	0.81
Oklahoma	0.89	0.95	0.93	0.91	0.59	0.08	0.78	0.95	0.89	0.92	0.93	0.94
Oregon	0.87	0.93	0.97	0.85	0.41	-0.12	0.71	0.96	0.88	0.92	0.93	0.96
Pennsylvania	0.88	0.88	0.76	0.60	0.51	0.22	0.78	0.78	0.85	0.89	0.73	0.68
Rhode Island	0.60	0.60	0.51	0.41	0.85	0.78	0.76	0.44	0.51	0.59	0.47	0.45
South Carolina	0.92	0.92	0.87	0.81	0.43	0.01	0.75	0.93	0.95	0.93	0.89	0.84
South Dakota	0.86	0.95	0.87	0.81	0.56	0.08	0.68	0.94	0.93	0.90	0.90	0.90
Tennessee	0.97	0.96	0.95	0.81	0.51	0.07	0.86	0.94	0.92	0.99	0.91	0.89
Texas	0.43	0.52	0.57	0.83	0.48	0.07	0.39	0.60	0.45	0.44	0.68	0.73
Utah	0.85	0.85	0.92	0.89	0.40	-0.12	0.73	0.90	0.77	0.87	0.89	0.92
Virginia	0.86	0.86	0.86	0.72	0.57	0.22	0.75	0.82	0.85	0.88	0.82	0.80
Vermont	0.26	0.33	0.41	0.40	0.92	0.79	0.44	0.25	0.17	0.31	0.38	0.43
Washington	0.81	0.88	0.91	0.92	0.41	-0.12	0.65	0.94	0.86	0.84	0.95	0.97
Wisconsin	0.94	0.98	0.94	0.87	0.44	-0.06	0.78	0.98	0.95	0.96	0.94	0.92
West Virginia	0.83	0.84	0.77	0.64	0.29	-0.08	0.69	0.81	0.82	0.85	0.71	0.66
Wyoming	0.78	0.85	0.91	0.84	0.50	0.00	0.64	0.89	0.78	0.83	0.90	0.96

Table 13 (continued)

	North Caro	North Dako	Nebraska	New Hamp	New Jersey	New Mexic	Nevada	New York	Ohio	Oklahoma	Oregon	Pennsylvar	Rhode Islar
Alabama	0.91	0.89	0.83	-0.11	0.33	0.74	0.81	0.68	0.91	0.89	0.90	0.76	0.59
Arkansas	0.92	0.96	0.88	-0.08	0.30	0.86	0.84	0.71	0.89	0.95	0.93	0.77	0.58
Arizona	0.83	0.83	0.63	-0.15	0.14	0.76	0.95	0.66	0.73	0.81	0.81	0.60	0.31
California	0.85	0.90	0.80	-0.28	0.27	0.78	0.78	0.59	0.76	0.90	0.91	0.69	0.31
Colorado	0.89	0.96	0.82	-0.23	0.24	0.84	0.84	0.75	0.82	0.90	0.95	0.70	0.39
Connecticut	0.24	0.25	0.50	0.60	0.36	0.22	-0.04	0.29	0.38	0.27	0.13	0.49	0.91
Delaware	0.79	0.78	0.85	0.01	0.47	0.64	0.53	0.66	0.85	0.74	0.73	0.85	0.71
Florida	0.82	0.86	0.84	0.21	0.41	0.89	0.70	0.59	0.81	0.82	0.73	0.88	0.72
Georgia	0.89	0.90	0.88	0.07	0.44	0.82	0.73	0.64	0.92	0.87	0.83	0.90	0.71
Iowa	0.86	0.88	0.96	-0.12	0.58	0.82	0.76	0.81	0.96	0.86	0.84	0.91	0.65
Idaho	0.91	0.96	0.86	-0.18	0.25	0.80	0.78	0.66	0.83	0.95	0.96	0.74	0.46
Illinois	0.91	0.89	0.93	-0.11	0.55	0.85	0.82	0.77	0.99	0.87	0.85	0.92	0.60
Indiana	0.94	0.91	0.89	-0.13	0.43	0.87	0.84	0.72	0.99	0.89	0.87	0.88	0.60
Kansas	0.95	0.96	0.95	-0.12	0.41	0.86	0.81	0.78	0.94	0.95	0.93	0.88	0.60
Kentucky	0.93	0.95	0.84	-0.15	0.29	0.74	0.80	0.68	0.89	0.93	0.97	0.76	0.51
Louisiana	0.90	0.88	0.67	-0.08	-0.08	0.78	0.79	0.45	0.75	0.91	0.85	0.60	0.41
Maine	0.47	0.55	0.56	0.71	0.05	0.39	0.25	0.32	0.42	0.59	0.41	0.51	0.85
Massachusetts	0.03	0.05	0.21	0.81	0.06	0.03	-0.20	0.06	0.04	0.08	-0.12	0.22	0.78
Maryland	0.83	0.76	0.80	0.09	0.30	0.69	0.62	0.63	0.88	0.78	0.71	0.78	0.76
Michigan	0.94	0.97	0.87	-0.22	0.33	0.87	0.89	0.73	0.90	0.95	0.96	0.78	0.44
Minnesota	0.88	0.91	0.93	-0.21	0.49	0.87	0.78	0.74	0.91	0.89	0.88	0.85	0.51
Missouri	0.95	0.94	0.92	-0.13	0.46	0.85	0.85	0.77	0.98	0.92	0.92	0.89	0.59
Mississippi	0.93	0.94	0.81	-0.11	0.20	0.84	0.84	0.63	0.85	0.93	0.93	0.73	0.47
Montana	0.92	0.96	0.78	-0.13	0.10	0.76	0.79	0.61	0.81	0.94	0.96	0.68	0.45
North Carolina	1.00	0.94	0.85	-0.14	0.22	0.82	0.86	0.70	0.91	0.95	0.92	0.83	0.52
North Dakota	0.94	1.00	0.89	-0.06	0.27	0.85	0.85	0.75	0.88	0.97	0.96	0.79	0.55
Nebraska	0.85	0.89	1.00	-0.03	0.58	0.79	0.70	0.85	0.89	0.88	0.83	0.90	0.70
New Hampshire	-0.14	-0.06	-0.03	1.00	-0.11	-0.03	-0.24	-0.22	-0.13	-0.03	-0.25	0.06	0.55
New Jersey	0.22	0.27	0.58	-0.11	1.00	0.38	0.29	0.57	0.51	0.20	0.24	0.60	0.35
New Mexico	0.82	0.85	0.79	-0.03	0.38	1.00	0.86	0.59	0.84	0.80	0.72	0.80	0.52
Nevada	0.86	0.85	0.70	-0.24	0.29	0.86	1.00	0.67	0.84	0.83	0.82	0.70	0.31
New York	0.70	0.75	0.85	-0.22	0.57	0.59	0.67	1.00	0.75	0.71	0.75	0.71	0.48
Ohio	0.91	0.88	0.89	-0.13	0.51	0.84	0.84	0.75	1.00	0.85	0.84	0.90	0.61
Oklahoma	0.95	0.97	0.88	-0.03	0.20	0.80	0.83	0.71	0.85	1.00	0.94	0.80	0.55
Oregon	0.92	0.96	0.83	-0.25	0.24	0.72	0.82	0.75	0.84	0.94	1.00	0.71	0.40
Pennsylvania	0.83	0.79	0.90	0.06	0.60	0.80	0.70	0.71	0.90	0.80	0.71	1.00	0.67
Rhode Island	0.52	0.55	0.70	0.55	0.35	0.52	0.31	0.48	0.61	0.55	0.40	0.67	1.00
South Carolina	0.86	0.87	0.87	-0.14	0.47	0.90	0.80	0.60	0.90	0.86	0.82	0.84	0.54
South Dakota	0.89	0.96	0.91	-0.01	0.35	0.87	0.79	0.70	0.83	0.95	0.89	0.84	0.55
Tennessee	0.94	0.94	0.90	-0.08	0.43	0.84	0.86	0.76	0.97	0.92	0.91	0.87	0.62
Texas	0.62	0.66	0.34	0.12	-0.44	0.54	0.55	0.19	0.33	0.69	0.61	0.25	0.22
Utah	0.91	0.91	0.72	-0.21	0.09	0.69	0.88	0.68	0.83	0.90	0.94	0.62	0.38
Virginia	0.82	0.81	0.84	0.00	0.47	0.74	0.63	0.54	0.84	0.81	0.76	0.85	0.63
Vermont	0.36	0.41	0.36	0.65	-0.10	0.19	0.13	0.20	0.24	0.45	0.31	0.30	0.68
Washington	0.88	0.93	0.76	-0.20	0.10	0.75	0.77	0.57	0.74	0.93	0.94	0.63	0.33
Wisconsin	0.95	0.98	0.91	-0.18	0.34	0.85	0.88	0.78	0.91	0.97	0.96	0.81	0.49
West Virginia	0.81	0.78	0.83	-0.24	0.52	0.72	0.86	0.82	0.87	0.80	0.77	0.77	0.42
Wyoming	0.87	0.94	0.75	-0.11	0.10	0.68	0.75	0.68	0.73	0.90	0.95	0.61	0.41

Table 13 (continued)

	South Caro	South Dako	Tennessee	Texas	Utah	Virginia	Vermont	Washingtor	Wisconsin	West Virgin	Wyoming
Alabama	0.87	0.80	0.95	0.50	0.90	0.86	0.44	0.84	0.90	0.78	0.83
Arkansas	0.91	0.91	0.95	0.63	0.89	0.83	0.39	0.92	0.96	0.79	0.88
Arizona	0.66	0.75	0.81	0.64	0.88	0.55	0.27	0.75	0.82	0.76	0.81
California	0.90	0.92	0.83	0.63	0.80	0.83	0.25	0.96	0.92	0.72	0.84
Colorado	0.82	0.91	0.87	0.65	0.87	0.69	0.25	0.93	0.94	0.71	0.95
Connecticut	0.31	0.27	0.36	-0.05	0.08	0.46	0.62	0.07	0.21	0.18	0.14
Delaware	0.79	0.76	0.84	0.23	0.62	0.88	0.46	0.65	0.74	0.58	0.69
Florida	0.84	0.91	0.85	0.50	0.63	0.84	0.47	0.73	0.80	0.60	0.74
Georgia	0.90	0.88	0.95	0.44	0.76	0.94	0.47	0.79	0.87	0.69	0.80
Iowa	0.90	0.87	0.94	0.29	0.76	0.84	0.22	0.75	0.92	0.86	0.71
Idaho	0.90	0.93	0.90	0.66	0.87	0.84	0.35	0.98	0.96	0.73	0.92
Illinois	0.91	0.87	0.97	0.34	0.80	0.86	0.24	0.77	0.93	0.87	0.74
Indiana	0.92	0.86	0.97	0.43	0.85	0.86	0.26	0.81	0.94	0.83	0.78
Kansas	0.92	0.95	0.96	0.52	0.85	0.86	0.33	0.88	0.98	0.84	0.85
Kentucky	0.87	0.87	0.95	0.57	0.92	0.86	0.41	0.91	0.94	0.77	0.91
Louisiana	0.81	0.81	0.81	0.83	0.89	0.72	0.40	0.92	0.87	0.64	0.84
Maine	0.43	0.56	0.51	0.48	0.40	0.57	0.92	0.41	0.44	0.29	0.50
Massachusetts	0.01	0.08	0.07	0.07	-0.12	0.22	0.79	-0.12	-0.06	-0.08	0.00
Maryland	0.75	0.68	0.86	0.39	0.73	0.75	0.44	0.65	0.78	0.69	0.64
Michigan	0.93	0.94	0.94	0.60	0.90	0.82	0.25	0.94	0.98	0.81	0.89
Minnesota	0.95	0.93	0.92	0.45	0.77	0.85	0.17	0.86	0.95	0.82	0.78
Missouri	0.93	0.90	0.99	0.44	0.87	0.88	0.31	0.84	0.96	0.85	0.83
Mississippi	0.89	0.90	0.91	0.68	0.89	0.82	0.38	0.95	0.94	0.71	0.90
Montana	0.84	0.90	0.89	0.73	0.92	0.80	0.43	0.97	0.92	0.66	0.96
North Carolina	0.86	0.89	0.94	0.62	0.91	0.82	0.36	0.88	0.95	0.81	0.87
North Dakota	0.87	0.96	0.94	0.66	0.91	0.81	0.41	0.93	0.98	0.78	0.94
Nebraska	0.87	0.91	0.90	0.34	0.72	0.84	0.36	0.76	0.91	0.83	0.75
New Hampshire	-0.14	-0.01	-0.08	0.12	-0.21	0.00	0.65	-0.20	-0.18	-0.24	-0.11
New Jersey	0.47	0.35	0.43	-0.44	0.09	0.47	-0.10	0.10	0.34	0.52	0.10
New Mexico	0.90	0.87	0.84	0.54	0.69	0.74	0.19	0.75	0.85	0.72	0.68
Nevada	0.80	0.79	0.86	0.55	0.88	0.63	0.13	0.77	0.88	0.86	0.75
New York	0.60	0.70	0.76	0.19	0.68	0.54	0.20	0.57	0.78	0.82	0.68
Ohio	0.90	0.83	0.97	0.33	0.83	0.84	0.24	0.74	0.91	0.87	0.73
Oklahoma	0.86	0.95	0.92	0.69	0.90	0.81	0.45	0.93	0.97	0.80	0.90
Oregon	0.82	0.89	0.91	0.61	0.94	0.76	0.31	0.94	0.96	0.77	0.95
Pennsylvania	0.84	0.84	0.87	0.25	0.62	0.85	0.30	0.63	0.81	0.77	0.61
Rhode Island	0.54	0.55	0.62	0.22	0.38	0.63	0.68	0.33	0.49	0.42	0.41
South Carolina	1.00	0.89	0.90	0.45	0.74	0.92	0.26	0.84	0.90	0.78	0.72
South Dakota	0.89	1.00	0.89	0.61	0.77	0.84	0.38	0.89	0.94	0.74	0.86
Tennessee	0.90	0.89	1.00	0.46	0.89	0.87	0.35	0.82	0.95	0.86	0.83
Texas	0.45	0.61	0.46	1.00	0.65	0.38	0.49	0.75	0.58	0.29	0.73
Utah	0.74	0.77	0.89	0.65	1.00	0.66	0.33	0.87	0.91	0.80	0.89
Virginia	0.92	0.84	0.87	0.38	0.66	1.00	0.46	0.75	0.81	0.68	0.69
Vermont	0.26	0.38	0.35	0.49	0.33	0.46	1.00	0.34	0.27	0.14	0.46
Washington	0.84	0.89	0.82	0.75	0.87	0.75	0.34	1.00	0.91	0.64	0.93
Wisconsin	0.90	0.94	0.95	0.58	0.91	0.81	0.27	0.91	1.00	0.87	0.88
West Virginia	0.78	0.74	0.86	0.29	0.80	0.68	0.14	0.64	0.87	1.00	0.62
Wyoming	0.72	0.86	0.83	0.73	0.89	0.69	0.46	0.93	0.88	0.62	1.00

Appendix A. Aggregation Procedures for Loss Rates

Loss rates for combinations of states were formulated as weighted averages of loss rates in the separate states, using either the respective states shares of the 1990 U.S. population or the shares of 1990 farm real estate debt as the weights. To illustrate, consider combining States 1 and 2. State 1 had a loss rate in 1984 of 2% and has 10% of the U.S. population while State 2 had a loss rate of 4% in 1984 and has 5% of the U.S. population. Of their combined population, State 1 has 2/3 = 10/(10+5) and State 1 has 1/3 = 5/(10+5). The weighted average loss rate $(\bar{L})$ for 1984, thus, is

$$\bar{L} = (2\%)(2/3) + (4\%)(1/3)$$
$$\bar{L} = 1.33\% + 1.33\%$$
$$\bar{L} = 2.66\%$$

Combined loss rates based on shares of farm real estate debt are calculated in a similar way. The algorithm to select geographic regions is

1. rank all combinations of states in contiguous regions that meet the 5% population criteria from highest two-year estimated loss rate to lowest.
2. select unique regions. Once a subset of states has been defined as a region for a two-year period, another state would not be added to this region and reported separately. For example, if the estimated loss rate of Illinois, Iowa and Minnesota in 1983-84 was 4.18% and Illinois, Iowa, Minnesota and North Dakota in 1983-84 was 4.15%, then the region defined with North Dakota would not be reported separately. The only exception to this rule was with Iowa when calculating losses based on real estate debt. Iowa alone met the 5% real estate criterion, but due to the high-losses estimated for other Midwest states, combinations of regions with Iowa were permitted.

Appendix B

Estimated Loss Rates Based on Farm Real Estate Debt

Because population data are not directly applicable to defining locations of agricultural production, the loan loss estimates are made more applicable by using 1990 farm real estate debt shares as the regionalizing criterion in place of population. While population is closely related to housing stock, and thus serves as a useful criterion for aggregating losses in regions containing a given percentage of the housing stock, the distribution of agricultural debt is not as closely related to population. The debt distribution is, thus, justified as another criterion for aggregating losses. This alternative approach is used to identify the highest rates of default and loss on agricultural real estate loans for at least a two-year period from a contiguous geographic area representing at least 5% of the U.S. agricultural real estate debt.

Table B.1 reports weighted averages of two-year loss rates for the aggregate of the 50 states using each state=s proportion of total farm real estate debt as the weight. The 1984-85 time period yields the highest loss rate with a weighted average of 3.41%.

Contiguous regions satisfying the 5% debt criterion are reported in Table B.2. Only California, Iowa, Texas, and Illinois satisfy the 5% farm real estate debt criterion, although Minnesota is relatively close. As Table 7 indicates, Minnesota and Iowa also have the highest two-year loss rates. Thus, the contiguous regions for the farm real estate debt criterion are slightly more concentrated than for the population criterion.

States or combinations of contiguous states meeting the 5% farm real estate debt requirement are ranked according to two-year loss rates in Table B.3 for loss rates exceeding 3.50%. In this case, Iowa alone is ranked first in losses with a two-year loss rate of 4.83% for 1983-84, while holding 7.2% of 1990 total farm real estate debt. The combination of Minnesota and Iowa ranks second for 1984-85 with a two-year loss rate of 4.69%, while holding 11.8% of

the farm real estate debt.

Table B.1 Estimated Two-Year Loss Rates for All States, Based on State Levels of Farm Real Estate Debt in 1990.

Two-Year Period	Farm RE Debt Weighted Mean
1976-77	0.10%
1977-78	0.03%
1978-79	0.06%
1979-80	0.51%
1980-81	1.43%
1981-82	1.97%
1982-83	2.36%
1983-84	3.17%
1984-85	3.41%
1985-86	2.56%
1986-87	1.43%
1987-88	0.93%
1988-89	1.01%
1989-90	1.23%
1990-91	1.42%
1991-92	1.38%
1992-93	1.27%

Table B.2 Farm Real Estate Debt Shares by State, 1990, 1996.

	State	1996 RE Debt	% 1996 US Debt	1996 Farms	% 1996 US Farms		1990 RE Debt	% 1990 US Debt
1	California	$ 8,297,559	10.1%	82,000	4.0%	California	$ 7,554,761	10.1%
2	Iowa	$ 6,503,303	7.9%	98,000	4.7%	Iowa	$ 5,396,964	7.2%
3	Texas	$ 4,901,996	6.0%	205,000	9.9%	Texas	$ 4,644,319	6.2%
4	Illinois	$ 4,880,830	6.0%	76,000	3.7%	Illinois	$ 4,207,607	5.6%
5	Minnesota	$ 4,017,053	4.9%	87,000	4.2%	Minnesota	$ 3,478,266	4.6%
6	Nebraska	$ 3,369,026	4.1%	56,000	2.7%	Indiana	$ 2,845,031	3.8%
7	Missouri	$ 3,229,003	3.9%	104,000	5.0%	Nebraska	$ 2,727,779	3.6%
8	Indiana	$ 3,082,734	3.8%	61,000	3.0%	Florida	$ 2,674,963	3.6%
9	Wisconsin	$ 2,704,736	3.3%	79,000	3.8%	Missouri	$ 2,636,288	3.5%
10	Kansas	$ 2,692,470	3.3%	66,000	3.2%	Wisconsin	$ 2,490,524	3.3%
11	Florida	$ 2,687,597	3.3%	40,000	1.9%	Kansas	$ 2,477,775	3.3%
12	Ohio	$ 2,152,608	2.6%	72,000	3.5%	Ohio	$ 1,883,130	2.5%
13	Arkansas	$ 2,074,898	2.5%	43,000	2.1%	Oklahoma	$ 1,710,413	2.3%
14	Oklahoma	$ 1,882,230	2.3%	72,000	3.5%	North Dakota	$ 1,698,666	2.3%
15	Kentucky	$ 1,864,195	2.3%	88,000	4.3%	Arkansas	$ 1,658,493	2.2%
16	Georgia	$ 1,756,873	2.1%	43,000	2.1%	Oregon	$ 1,619,725	2.2%
17	Colorado	$ 1,743,543	2.1%	24,500	1.2%	Kentucky	$ 1,601,019	2.1%
18	North Dakota	$ 1,658,896	2.0%	31,000	1.5%	Georgia	$ 1,599,218	2.1%
19	South Dakota	$ 1,617,696	2.0%	32,500	1.6%	Montana	$ 1,581,627	2.1%
20	Montana	$ 1,608,435	2.0%	22,000	1.1%	Washington	$ 1,491,348	2.0%
21	Washington	$ 1,571,701	1.9%	36,000	1.7%	Colorado	$ 1,488,391	2.0%
22	Michigan	$ 1,489,926	1.8%	53,000	2.6%	Michigan	$ 1,476,219	2.0%
23	Pennsylvania	$ 1,433,888	1.8%	50,000	2.4%	North Carolina	$ 1,451,162	1.9%
24	North Carolina	$ 1,423,986	1.7%	58,000	2.8%	South Dakota	$ 1,410,001	1.9%
25	Mississippi	$ 1,410,375	1.7%	44,000	2.1%	Pennsylvania	$ 1,263,936	1.7%
26	Oregon	$ 1,313,702	1.6%	38,500	1.9%	Mississippi	$ 1,236,473	1.7%
27	Idaho	$ 1,261,332	1.5%	22,000	1.1%	Idaho	$ 1,233,935	1.6%
28	Tennessee	$ 1,196,087	1.5%	80,000	3.9%	Virginia	$ 1,176,586	1.6%
29	Virginia	$ 1,127,000	1.4%	48,000	2.3%	Tennessee	$ 1,071,527	1.4%
30	New York	$ 842,783	1.0%	36,000	1.7%	New York	$ 905,582	1.2%
31	Alabama	$ 796,130	1.0%	45,000	2.2%	Louisiana	$ 759,180	1.0%
32	Louisiana	$ 782,245	1.0%	27,000	1.3%	Alabama	$ 690,672	0.9%
33	New Mexico	$ 692,617	0.8%	13,500	0.7%	New Mexico	$ 625,750	0.8%
34	Maryland	$ 609,629	0.7%	13,700	0.7%	Arizona	$ 580,913	0.8%
35	Arizona	$ 472,411	0.6%	7,500	0.4%	Maryland	$ 544,578	0.7%
36	Wyoming	$ 442,888	0.5%	9,100	0.4%	South Carolina	$ 536,972	0.7%
37	South Carolina	$ 373,042	0.5%	21,500	1.0%	Wyoming	$ 451,935	0.6%
38	New Jersey	$ 369,406	0.5%	9,200	0.4%	Utah	$ 373,576	0.5%
39	Utah	$ 364,434	0.4%	13,400	0.6%	West Virginia	$ 278,559	0.4%
40	West Virginia	$ 264,209	0.3%	20,000	1.0%	New Jersey	$ 253,633	0.3%
41	Vermont	$ 175,019	0.2%	6,000	0.3%	Hawaii	$ 223,587	0.3%
42	Delaware	$ 153,229	0.2%	2,500	0.1%	Vermont	$ 182,599	0.2%
43	Nevada	$ 148,646	0.2%	2,500	0.1%	Nevada	$ 178,392	0.2%
44	Maine	$ 123,402	0.2%	7,400	0.4%	Delaware	$ 155,582	0.2%
45	Massachusetts	$ 120,848	0.1%	6,100	0.3%	Massachusetts	$ 114,613	0.2%
46	Hawaii	$ 105,036	0.1%	4,600	0.2%	Maine	$ 112,854	0.2%
47	Connecticut	$ 80,120	0.1%	3,800	0.2%	Connecticut	$ 96,008	0.1%
48	New Hampshire	$ 37,031	0.0%	2,400	0.1%	New Hampshire	$ 33,729	0.0%
49	Rhode Island	$ 15,745	0.0%	700	0.0%	Alaska	$ 19,575	0.0%
50	Alaska	$ 7,179	0.0%	510	0.0%	Rhode Island	$ 14,405	0.0%

Table B.3 Regions with Two-Year Loss Rates Greater than 3.5% Based on Farm Real Estate Debt[a]

Region	RE Proportion	Year	2 Year Loss
IA	7.2%	1983-84	4.83%
MN,IA	11.8%	1984-85	4.69%
IA,NE	10.84%	1983-84	4.66%
MN,IA	11.8%	1983-84	4.63%
IA	7.2%	1984-85	4.60%
IA,SD	9.1%	1983-84	4.55%
MN,WI	8.0%	1984-85	4.47%
IL,IA	12.8%	1983-84	4.45%
MN,ND	6.9%	1984-85	4.40%
IA,SD	9.1%	1984-85	4.39%
IA,NE	10.84%	1984-85	4.36%
IA,MI,WI	12.5%	1983-84	4.31%
NE,SD,MN	10.2%	1984-85	4.27%
IA,MI,WI	12.5%	1984-85	4.27%
IL,IA	12.8%	1984-85	4.24%
IA,MO,KS	14.0%	1984-85	4.18%
NE,SD,MN	10.2%	1983-84	4.17%
NE,MO,IA	14.4%	1984-85	4.16%
MN,ND,NE,KS	13.9%	1984-85	4.16%
MN,WI	8.0%	1983-84	4.10%
NE,SD	5.5%	1983-84	4.04%
KS,NE	6.9%	1983-84	4.04%
NE,MO	7.2%	1983-84	4.01%
MN,ND	6.9%	1983-84	4.00%
IL,MO,NE	12.8%	1983-84	3.99%
IL	5.6%	1983-84	3.97%
KS,NE	6.9%	1984-85	3.92%
IL,WI	8.9%	1983-84	3.91%
KS,OK	5.6%	1984-85	3.90%
IN,MI,WI	9.1%	1984-85	3.88%
IL,IN	9.4%	1983-84	3.87%
NE,CO	5.6%	1983-84	3.86%
IL,IN	9.4%	1984-85	3.85%
IL,WI	8.9%	1984-85	3.85%
IN,MI	5.8%	1984-85	3.83%
IL,KS,MO	12.4%	1983-84	3.82%
MI,WI	5.3%	1984-85	3.81%
NE,SD	5.5%	1984-85	3.80%
IN,OH	6.3%	1984-85	3.79%
IL	5.6%	1984-85	3.77%
IL,KS,MO	12.4%	1984-85	3.75%
KS,CO	5.3%	1984-85	3.75%
IL,MO,NE	12.8%	1984-85	3.74%
KS,MO	6.8%	1984-85	3.73%
NE,CO	5.6%	1984-85	3.73%
NE,MO	7.2%	1984-85	3.72%
KS,CO,UT,ID	7.4%	1984-85	3.72%
LA,AR,OK	5.5%	1984-85	3.72%
IN,OH	6.3%	1983-84	3.72%
KS,MO	6.8%	1983-84	3.70%
IL,KY,OH	10.3%	1983-84	3.69%
IN,MI,WI	9.1%	1983-84	3.64%
KS,OK	5.6%	1983-84	3.64%
MI,WI	5.3%	1983-84	3.59%
MO,AR,LA	6.7%	1984-85	3.59%
IL,KY,TN,MO	12.7%	1983-84	3.58%
IN,KY,WV	6.3%	1984-85	3.56%
ID,MT,SD,NE,WY	9.9%	1983-84	3.56%
IN,MI	5.8%	1983-84	3.55%
IL,KY,TN	9.2%	1983-84	3.54%
ID,MT,ND,SD	7.9%	1984-85	3.52%
ID,WA,OR	5.8%	1984-85	3.52%

[a]Loss rates are based on year of loan origination.

Appendix C.

Appendix C reports two-year loss rates by states for all two-year periods during the 1976- 1993 time period. The top 50 of the loss rates are reported in Table 7.

State Level Loss Rates By Period Two-Year.

	State	Period	Loss
1	NY	1976-1977	1.03%
2	DE	1976-1977	0.68%
3	NJ	1976-1977	0.67%
4	CT	1976-1977	0.53%
5	NE	1976-1977	0.48%
6	VT	1976-1977	0.42%
7	MA	1976-1977	0.39%
8	WV	1976-1977	0.36%
9	KS	1976-1977	0.29%
10	CO	1976-1977	0.26%
11	VA	1976-1977	0.22%
12	RI	1976-1977	0.21%
13	TX	1976-1977	0.18%
14	WY	1976-1977	0.18%
15	NC	1976-1977	0.17%
16	MD	1976-1977	0.17%
17	ME	1976-1977	0.15%
18	AL	1976-1977	0.15%
19	AZ	1976-1977	0.13%
20	IA	1976-1977	0.13%
21	MT	1976-1977	0.09%
22	MI	1976-1977	0.09%
23	ND	1976-1977	0.08%
24	SC	1976-1977	0.07%
25	AR	1976-1977	0.05%
26	CA	1976-1977	0.05%
27	FL	1976-1977	0.02%
28	NM	1976-1977	0.02%
29	ID	1976-1977	0.00%
30	GA	1976-1977	0.00%
31	IL	1976-1977	0.00%
32	IN	1976-1977	0.00%
33	KY	1976-1977	0.00%
34	LA	1976-1977	0.00%
35	MN	1976-1977	0.00%
36	MO	1976-1977	0.00%
37	MS	1976-1977	0.00%
38	NH	1976-1977	0.00%
39	NV	1976-1977	0.00%
40	OH	1976-1977	0.00%
41	OK	1976-1977	0.00%
42	OR	1976-1977	0.00%
43	PA	1976-1977	0.00%
44	SD	1976-1977	0.00%
45	TN	1976-1977	0.00%
46	UT	1976-1977	0.00%
47	WA	1976-1977	0.00%
48	WI	1976-1977	0.00%

	State	Period	Loss
1	NY	1977-1978	0.59%
2	NJ	1977-1978	0.54%
3	CT	1977-1978	0.37%
4	DE	1977-1978	0.34%
5	NH	1977-1978	0.29%
6	WA	1977-1978	0.13%
7	IA	1977-1978	0.13%
8	CO	1977-1978	0.09%
9	MT	1977-1978	0.09%
10	MI	1977-1978	0.09%
11	KS	1977-1978	0.07%
12	NE	1977-1978	0.03%
13	ND	1977-1978	0.03%
14	IL	1977-1978	0.01%
15	ID	1977-1978	0.00%
16	VT	1977-1978	0.00%
17	AL	1977-1978	0.00%
18	AR	1977-1978	0.00%
19	AZ	1977-1978	0.00%
20	CA	1977-1978	0.00%
21	FL	1977-1978	0.00%
22	GA	1977-1978	0.00%
23	IN	1977-1978	0.00%
24	KY	1977-1978	0.00%
25	LA	1977-1978	0.00%
26	ME	1977-1978	0.00%
27	MA	1977-1978	0.00%
28	MD	1977-1978	0.00%
29	MN	1977-1978	0.00%
30	MO	1977-1978	0.00%
31	MS	1977-1978	0.00%
32	NC	1977-1978	0.00%
33	NM	1977-1978	0.00%
34	NV	1977-1978	0.00%
35	OH	1977-1978	0.00%
36	OK	1977-1978	0.00%
37	OR	1977-1978	0.00%
38	PA	1977-1978	0.00%
39	RI	1977-1978	0.00%
40	SC	1977-1978	0.00%
41	SD	1977-1978	0.00%
42	TN	1977-1978	0.00%
43	TX	1977-1978	0.00%
44	UT	1977-1978	0.00%
45	VA	1977-1978	0.00%
46	WI	1977-1978	0.00%
47	WV	1977-1978	0.00%
48	WY	1977-1978	0.00%

	State	Period	Loss
1	NJ	1978-1979	0.92%
2	NH	1978-1979	0.81%
3	NY	1978-1979	0.51%
4	CT	1978-1979	0.45%
5	WV	1978-1979	0.31%
6	VT	1978-1979	0.30%
7	IL	1978-1979	0.29%
8	TX	1978-1979	0.21%
9	VA	1978-1979	0.20%
10	KY	1978-1979	0.20%
11	ME	1978-1979	0.19%
12	MA	1978-1979	0.14%
13	WA	1978-1979	0.13%
14	KS	1978-1979	0.12%
15	PA	1978-1979	0.11%
16	WY	1978-1979	0.10%
17	GA	1978-1979	0.08%
18	OH	1978-1979	0.08%
19	TN	1978-1979	0.07%
20	SC	1978-1979	0.05%
21	ND	1978-1979	0.03%
22	AL	1978-1979	0.00%
23	AR	1978-1979	0.00%
24	AZ	1978-1979	0.00%
25	CA	1978-1979	0.00%
26	CO	1978-1979	0.00%
27	DE	1978-1979	0.00%
28	FL	1978-1979	0.00%
29	IA	1978-1979	0.00%
30	ID	1978-1979	0.00%
31	IN	1978-1979	0.00%
32	LA	1978-1979	0.00%
33	MD	1978-1979	0.00%
34	MI	1978-1979	0.00%
35	MN	1978-1979	0.00%
36	MO	1978-1979	0.00%
37	MS	1978-1979	0.00%
38	MT	1978-1979	0.00%
39	NC	1978-1979	0.00%
40	NE	1978-1979	0.00%
41	NM	1978-1979	0.00%
42	NV	1978-1979	0.00%
43	OK	1978-1979	0.00%
44	OR	1978-1979	0.00%
45	RI	1978-1979	0.00%
46	SD	1978-1979	0.00%
47	UT	1978-1979	0.00%
48	WI	1978-1979	0.00%

	State	Period	Loss
1	IL	1979-1980	1.17%
2	OH	1979-1980	1.13%
3	NJ	1979-1980	1.08%
4	IN	1979-1980	0.94%
5	DE	1979-1980	0.91%
6	GA	1979-1980	0.86%
7	WV	1979-1980	0.85%
8	PA	1979-1980	0.85%
9	VA	1979-1980	0.80%
10	NH	1979-1980	0.78%
11	KY	1979-1980	0.77%
12	IA	1979-1980	0.76%
13	KS	1979-1980	0.76%
14	MO	1979-1980	0.69%
15	NY	1979-1980	0.68%
16	NM	1979-1980	0.67%
17	CT	1979-1980	0.66%
18	TN	1979-1980	0.65%
19	MD	1979-1980	0.65%
20	NV	1979-1980	0.65%
21	SC	1979-1980	0.62%
22	NC	1979-1980	0.60%
23	VT	1979-1980	0.56%
24	FL	1979-1980	0.53%
25	UT	1979-1980	0.50%
26	ND	1979-1980	0.48%
27	LA	1979-1980	0.45%
28	ME	1979-1980	0.45%
29	AZ	1979-1980	0.43%
30	RI	1979-1980	0.43%
31	AL	1979-1980	0.41%
32	MA	1979-1980	0.40%
33	MT	1979-1980	0.40%
34	NE	1979-1980	0.39%
35	TX	1979-1980	0.36%
36	WY	1979-1980	0.36%
37	CO	1979-1980	0.35%
38	WI	1979-1980	0.32%
39	OK	1979-1980	0.31%
40	MI	1979-1980	0.31%
41	MN	1979-1980	0.30%
42	SD	1979-1980	0.25%
43	AR	1979-1980	0.25%
44	ID	1979-1980	0.22%
45	OR	1979-1980	0.20%
46	MS	1979-1980	0.18%
47	WA	1979-1980	0.01%
48	CA	1979-1980	0.00%

	State	Period	Loss
1	IN	1980-1981	2.56%
2	OH	1980-1981	2.56%
3	IL	1980-1981	2.33%
4	IA	1980-1981	2.19%
5	MD	1980-1981	2.08%
6	MO	1980-1981	2.03%
7	DE	1980-1981	1.98%
8	GA	1980-1981	1.82%
9	NM	1980-1981	1.76%
10	NV	1980-1981	1.73%
11	PA	1980-1981	1.68%
12	TN	1980-1981	1.62%
13	KS	1980-1981	1.62%
14	AL	1980-1981	1.60%
15	LA	1980-1981	1.58%
16	SC	1980-1981	1.54%
17	MS	1980-1981	1.53%
18	NC	1980-1981	1.52%
19	MN	1980-1981	1.49%
20	VA	1980-1981	1.45%
21	UT	1980-1981	1.41%
22	KY	1980-1981	1.40%
23	NE	1980-1981	1.40%
24	AR	1980-1981	1.39%
25	FL	1980-1981	1.39%
26	WV	1980-1981	1.35%
27	MI	1980-1981	1.34%
28	ND	1980-1981	1.29%
29	WI	1980-1981	1.29%
30	AZ	1980-1981	1.26%
31	NJ	1980-1981	1.20%
32	MT	1980-1981	1.19%
33	OK	1980-1981	1.12%
34	CO	1980-1981	1.09%
35	RI	1980-1981	0.98%
36	NY	1980-1981	0.97%
37	SD	1980-1981	0.95%
38	ID	1980-1981	0.92%
39	WY	1980-1981	0.91%
40	CT	1980-1981	0.90%
41	OR	1980-1981	0.90%
42	VT	1980-1981	0.68%
43	NH	1980-1981	0.67%
44	WA	1980-1981	0.66%
45	ME	1980-1981	0.61%
46	MA	1980-1981	0.57%
47	CA	1980-1981	0.53%
48	TX	1980-1981	0.52%

	State	Period	Loss
1	IA	1981-1982	3.02%
2	IN	1981-1982	2.85%
3	OH	1981-1982	2.73%
4	IL	1981-1982	2.65%
5	MO	1981-1982	2.52%
6	MN	1981-1982	2.51%
7	MD	1981-1982	2.50%
8	AR	1981-1982	2.45%
9	MS	1981-1982	2.37%
10	AL	1981-1982	2.34%
11	NE	1981-1982	2.32%
12	NV	1981-1982	2.10%
13	SC	1981-1982	2.06%
14	KS	1981-1982	2.05%
15	WI	1981-1982	2.04%
16	MI	1981-1982	2.03%
17	TN	1981-1982	2.01%
18	GA	1981-1982	2.00%
19	LA	1981-1982	2.00%
20	NM	1981-1982	1.99%
21	UT	1981-1982	1.94%
22	DE	1981-1982	1.89%
23	KY	1981-1982	1.87%
24	WV	1981-1982	1.87%
25	ND	1981-1982	1.80%
26	OK	1981-1982	1.77%
27	ID	1981-1982	1.74%
28	NJ	1981-1982	1.71%
29	VA	1981-1982	1.71%
30	MT	1981-1982	1.66%
31	PA	1981-1982	1.64%
32	AZ	1981-1982	1.60%
33	OR	1981-1982	1.58%
34	CO	1981-1982	1.54%
35	NC	1981-1982	1.52%
36	FL	1981-1982	1.48%
37	SD	1981-1982	1.48%
38	WY	1981-1982	1.46%
39	WA	1981-1982	1.40%
40	NY	1981-1982	1.35%
41	CA	1981-1982	1.32%
42	RI	1981-1982	1.24%
43	CT	1981-1982	1.11%
44	VT	1981-1982	0.96%
45	ME	1981-1982	0.93%
46	TX	1981-1982	0.84%
47	NH	1981-1982	0.80%
48	MA	1981-1982	0.68%

	State	Period	Loss
1	IA	1982-1983	3.82%
2	NE	1982-1983	3.35%
3	MN	1982-1983	3.12%
4	IL	1982-1983	2.98%
5	OH	1982-1983	2.92%
6	MO	1982-1983	2.84%
7	IN	1982-1983	2.80%
8	WI	1982-1983	2.73%
9	KS	1982-1983	2.67%
10	AR	1982-1983	2.56%
11	WV	1982-1983	2.53%
12	KY	1982-1983	2.44%
13	OK	1982-1983	2.44%
14	ND	1982-1983	2.40%
15	MI	1982-1983	2.38%
16	OR	1982-1983	2.38%
17	ID	1982-1983	2.36%
18	AL	1982-1983	2.32%
19	UT	1982-1983	2.32%
20	SC	1982-1983	2.30%
21	SD	1982-1983	2.29%
22	TN	1982-1983	2.28%
23	DE	1982-1983	2.26%
24	GA	1982-1983	2.17%
25	MS	1982-1983	2.16%
26	NJ	1982-1983	2.16%
27	NV	1982-1983	2.14%
28	MT	1982-1983	2.04%
29	WY	1982-1983	2.01%
30	VA	1982-1983	2.00%
31	MD	1982-1983	1.96%
32	CO	1982-1983	1.92%
33	CA	1982-1983	1.92%
34	PA	1982-1983	1.89%
35	WA	1982-1983	1.76%
36	NY	1982-1983	1.74%
37	LA	1982-1983	1.73%
38	NM	1982-1983	1.71%
39	AZ	1982-1983	1.63%
40	NC	1982-1983	1.60%
41	FL	1982-1983	1.53%
42	RI	1982-1983	1.34%
43	ME	1982-1983	1.20%
44	CT	1982-1983	1.10%
45	VT	1982-1983	1.07%
46	MA	1982-1983	0.63%
47	TX	1982-1983	0.62%
48	NH	1982-1983	0.62%

	State	Period	Loss
1	IA	1983-1984	4.83%
2	NE	1983-1984	4.34%
3	MN	1983-1984	4.32%
4	IL	1983-1984	3.97%
5	WI	1983-1984	3.80%
6	IN	1983-1984	3.72%
7	OH	1983-1984	3.72%
8	KS	1983-1984	3.71%
9	MO	1983-1984	3.68%
10	OK	1983-1984	3.53%
11	SD	1983-1984	3.48%
12	OR	1983-1984	3.40%
13	ND	1983-1984	3.33%
14	MI	1983-1984	3.24%
15	ID	1983-1984	3.17%
16	WV	1983-1984	3.08%
17	CO	1983-1984	3.00%
18	AR	1983-1984	3.00%
19	UT	1983-1984	2.96%
20	WY	1983-1984	2.95%
21	PA	1983-1984	2.94%
22	KY	1983-1984	2.93%
23	MS	1983-1984	2.88%
24	NV	1983-1984	2.85%
25	DE	1983-1984	2.83%
26	TN	1983-1984	2.77%
27	MT	1983-1984	2.75%
28	GA	1983-1984	2.63%
29	CA	1983-1984	2.63%
30	WA	1983-1984	2.59%
31	NC	1983-1984	2.58%
32	SC	1983-1984	2.56%
33	LA	1983-1984	2.48%
34	AL	1983-1984	2.46%
35	NM	1983-1984	2.36%
36	MD	1983-1984	2.32%
37	AZ	1983-1984	2.27%
38	NY	1983-1984	2.24%
39	VA	1983-1984	2.21%
40	FL	1983-1984	2.13%
41	NJ	1983-1984	2.07%
42	TX	1983-1984	1.23%
43	RI	1983-1984	1.13%
44	ME	1983-1984	1.06%
45	VT	1983-1984	0.88%
46	CT	1983-1984	0.83%
47	MA	1983-1984	0.34%
48	NH	1983-1984	0.25%

	State	Period	Loss
1	MN	1984-1985	4.84%
2	IA	1984-1985	4.60%
3	IN	1984-1985	3.98%
4	WI	1984-1985	3.97%
5	KS	1984-1985	3.94%
6	LA	1984-1985	3.90%
7	NE	1984-1985	3.90%
8	OK	1984-1985	3.84%
9	ID	1984-1985	3.80%
10	IL	1984-1985	3.77%
11	SD	1984-1985	3.61%
12	MI	1984-1985	3.55%
13	MO	1984-1985	3.54%
14	AR	1984-1985	3.52%
15	ND	1984-1985	3.52%
16	OH	1984-1985	3.51%
17	MS	1984-1985	3.50%
18	OR	1984-1985	3.47%
19	CO	1984-1985	3.43%
20	WA	1984-1985	3.34%
21	MT	1984-1985	3.23%
22	WY	1984-1985	3.22%
23	UT	1984-1985	3.15%
24	CA	1984-1985	3.07%
25	NM	1984-1985	3.03%
26	KY	1984-1985	2.97%
27	NV	1984-1985	2.94%
28	SC	1984-1985	2.87%
29	NC	1984-1985	2.85%
30	TX	1984-1985	2.85%
31	MD	1984-1985	2.79%
32	WV	1984-1985	2.65%
33	TN	1984-1985	2.64%
34	PA	1984-1985	2.57%
35	GA	1984-1985	2.57%
36	AL	1984-1985	2.48%
37	DE	1984-1985	2.36%
38	AZ	1984-1985	2.28%
39	FL	1984-1985	2.19%
40	VA	1984-1985	2.10%
41	NY	1984-1985	1.82%
42	NJ	1984-1985	1.05%
43	RI	1984-1985	1.04%
44	ME	1984-1985	0.96%
45	VT	1984-1985	0.78%
46	CT	1984-1985	0.73%
47	MA	1984-1985	0.24%
48	NH	1984-1985	0.14%

	State	Period	Loss
1	LA	1985-1986	3.92%
2	ID	1985-1986	3.21%
3	MN	1985-1986	3.20%
4	WA	1985-1986	3.12%
5	MS	1985-1986	3.10%
6	OK	1985-1986	3.04%
7	TX	1985-1986	3.01%
8	MT	1985-1986	3.01%
9	WI	1985-1986	2.89%
10	IN	1985-1986	2.84%
11	CA	1985-1986	2.82%
12	AR	1985-1986	2.82%
13	UT	1985-1986	2.81%
14	MI	1985-1986	2.80%
15	KS	1985-1986	2.75%
16	OR	1985-1986	2.75%
17	ND	1985-1986	2.68%
18	WY	1985-1986	2.68%
19	KY	1985-1986	2.63%
20	IA	1985-1986	2.61%
21	MO	1985-1986	2.55%
22	SD	1985-1986	2.54%
23	SC	1985-1986	2.47%
24	CO	1985-1986	2.47%
25	IL	1985-1986	2.43%
26	OH	1985-1986	2.35%
27	AL	1985-1986	2.24%
28	NC	1985-1986	2.22%
29	NE	1985-1986	2.22%
30	NV	1985-1986	2.18%
31	NM	1985-1986	2.00%
32	VA	1985-1986	1.99%
33	MD	1985-1986	1.96%
34	GA	1985-1986	1.95%
35	TN	1985-1986	1.92%
36	DE	1985-1986	1.84%
37	WV	1985-1986	1.71%
38	AZ	1985-1986	1.66%
39	FL	1985-1986	1.37%
40	PA	1985-1986	1.23%
41	VT	1985-1986	1.06%
42	NY	1985-1986	0.99%
43	ME	1985-1986	0.95%
44	RI	1985-1986	0.55%
45	CT	1985-1986	0.48%
46	MA	1985-1986	0.16%
47	NH	1985-1986	0.15%
48	NJ	1985-1986	0.09%

	State	Period	Loss
1	LA	1986-1987	2.41%
2	UT	1986-1987	2.40%
3	WY	1986-1987	2.38%
4	TX	1986-1987	2.30%
5	MT	1986-1987	2.25%
6	WA	1986-1987	2.12%
7	OR	1986-1987	2.10%
8	MS	1986-1987	2.08%
9	KY	1986-1987	1.97%
10	AZ	1986-1987	1.91%
11	ID	1986-1987	1.90%
12	NV	1986-1987	1.90%
13	OK	1986-1987	1.89%
14	ND	1986-1987	1.76%
15	MI	1986-1987	1.76%
16	CO	1986-1987	1.75%
17	CA	1986-1987	1.73%
18	AL	1986-1987	1.67%
19	WI	1986-1987	1.64%
20	AR	1986-1987	1.61%
21	NC	1986-1987	1.52%
22	MO	1986-1987	1.51%
23	IN	1986-1987	1.38%
24	KS	1986-1987	1.33%
25	SD	1986-1987	1.31%
26	TN	1986-1987	1.26%
27	GA	1986-1987	1.23%
28	OH	1986-1987	1.21%
29	VA	1986-1987	1.15%
30	DE	1986-1987	1.12%
31	IL	1986-1987	1.09%
32	SC	1986-1987	1.07%
33	WV	1986-1987	1.02%
34	VT	1986-1987	1.02%
35	MN	1986-1987	0.94%
36	NY	1986-1987	0.90%
37	NM	1986-1987	0.80%
38	FL	1986-1987	0.74%
39	MD	1986-1987	0.66%
40	NE	1986-1987	0.65%
41	IA	1986-1987	0.61%
42	ME	1986-1987	0.56%
43	PA	1986-1987	0.40%
44	CT	1986-1987	0.08%
45	NH	1986-1987	0.05%
46	MA	1986-1987	0.00%
47	NJ	1986-1987	0.00%
48	RI	1986-1987	0.00%

	State	Period	Loss
1	TX	1987-1988	2.10%
2	AZ	1987-1988	2.09%
3	UT	1987-1988	2.04%
4	NV	1987-1988	1.97%
5	WY	1987-1988	1.86%
6	LA	1987-1988	1.66%
7	CO	1987-1988	1.59%
8	ND	1987-1988	1.50%
9	MT	1987-1988	1.44%
10	OR	1987-1988	1.43%
11	MS	1987-1988	1.34%
12	OK	1987-1988	1.32%
13	WI	1987-1988	1.30%
14	MI	1987-1988	1.23%
15	KY	1987-1988	1.18%
16	AR	1987-1988	1.17%
17	WA	1987-1988	1.13%
18	WV	1987-1988	1.11%
19	NY	1987-1988	1.10%
20	NC	1987-1988	1.05%
21	NM	1987-1988	1.00%
22	TN	1987-1988	0.99%
23	AL	1987-1988	0.99%
24	SD	1987-1988	0.93%
25	MO	1987-1988	0.92%
26	ID	1987-1988	0.91%
27	KS	1987-1988	0.91%
28	OH	1987-1988	0.88%
29	IN	1987-1988	0.86%
30	VT	1987-1988	0.75%
31	IL	1987-1988	0.69%
32	FL	1987-1988	0.65%
33	CA	1987-1988	0.65%
34	GA	1987-1988	0.62%
35	NH	1987-1988	0.54%
36	ME	1987-1988	0.53%
37	MD	1987-1988	0.39%
38	NE	1987-1988	0.37%
39	MN	1987-1988	0.33%
40	SC	1987-1988	0.33%
41	IA	1987-1988	0.30%
42	DE	1987-1988	0.25%
43	RI	1987-1988	0.22%
44	VA	1987-1988	0.19%
45	MA	1987-1988	0.16%
46	CT	1987-1988	0.11%
47	NJ	1987-1988	0.00%
48	PA	1987-1988	0.00%

	State	Period	Loss
1	TX	1988-1989	1.99%
2	LA	1988-1989	1.81%
3	UT	1988-1989	1.80%
4	OK	1988-1989	1.72%
5	NV	1988-1989	1.69%
6	AZ	1988-1989	1.61%
7	WV	1988-1989	1.55%
8	NH	1988-1989	1.50%
9	ND	1988-1989	1.40%
10	WI	1988-1989	1.33%
11	MD	1988-1989	1.26%
12	ME	1988-1989	1.25%
13	AR	1988-1989	1.21%
14	VT	1988-1989	1.20%
15	OH	1988-1989	1.17%
16	NC	1988-1989	1.17%
17	WY	1988-1989	1.16%
18	KS	1988-1989	1.15%
19	IN	1988-1989	1.13%
20	NY	1988-1989	1.11%
21	MS	1988-1989	1.11%
22	NE	1988-1989	1.10%
23	IL	1988-1989	1.10%
24	NM	1988-1989	1.09%
25	SD	1988-1989	1.05%
26	MT	1988-1989	1.04%
27	TN	1988-1989	1.01%
28	MO	1988-1989	0.99%
29	AL	1988-1989	0.98%
30	IA	1988-1989	0.95%
31	MI	1988-1989	0.95%
32	CO	1988-1989	0.95%
33	RI	1988-1989	0.90%
34	KY	1988-1989	0.90%
35	OR	1988-1989	0.89%
36	MA	1988-1989	0.80%
37	WA	1988-1989	0.75%
38	FL	1988-1989	0.74%
39	PA	1988-1989	0.71%
40	CT	1988-1989	0.70%
41	GA	1988-1989	0.70%
42	ID	1988-1989	0.68%
43	SC	1988-1989	0.54%
44	DE	1988-1989	0.50%
45	MN	1988-1989	0.43%
46	VA	1988-1989	0.40%
47	CA	1988-1989	0.34%
48	NJ	1988-1989	0.01%

	State	Period	Loss
1	NH	1989-1990	2.11%
2	OK	1989-1990	1.94%
3	TX	1989-1990	1.93%
4	ME	1989-1990	1.86%
5	VT	1989-1990	1.83%
6	MD	1989-1990	1.82%
7	LA	1989-1990	1.74%
8	NE	1989-1990	1.68%
9	DE	1989-1990	1.61%
10	RI	1989-1990	1.54%
11	GA	1989-1990	1.51%
12	ND	1989-1990	1.49%
13	WY	1989-1990	1.46%
14	SD	1989-1990	1.44%
15	KS	1989-1990	1.44%
16	MA	1989-1990	1.44%
17	MT	1989-1990	1.40%
18	AR	1989-1990	1.37%
19	FL	1989-1990	1.35%
20	CT	1989-1990	1.34%
21	IA	1989-1990	1.33%
22	PA	1989-1990	1.31%
23	KY	1989-1990	1.30%
24	UT	1989-1990	1.30%
25	IN	1989-1990	1.29%
26	NC	1989-1990	1.29%
27	AL	1989-1990	1.29%
28	MS	1989-1990	1.28%
29	VA	1989-1990	1.25%
30	MO	1989-1990	1.24%
31	IL	1989-1990	1.22%
32	OH	1989-1990	1.17%
33	TN	1989-1990	1.17%
34	ID	1989-1990	1.15%
35	WI	1989-1990	1.15%
36	OR	1989-1990	1.01%
37	AZ	1989-1990	1.00%
38	WA	1989-1990	0.98%
39	NY	1989-1990	0.96%
40	MI	1989-1990	0.87%
41	WV	1989-1990	0.79%
42	CO	1989-1990	0.77%
43	NM	1989-1990	0.76%
44	MN	1989-1990	0.71%
45	SC	1989-1990	0.71%
46	NV	1989-1990	0.66%
47	CA	1989-1990	0.56%
48	NJ	1989-1990	0.20%

	State	Period	Loss
1	SD	1990-1991	2.06%
2	FL	1990-1991	1.94%
3	NH	1990-1991	1.92%
4	DE	1990-1991	1.90%
5	WY	1990-1991	1.89%
6	TX	1990-1991	1.88%
7	NE	1990-1991	1.83%
8	ND	1990-1991	1.80%
9	GA	1990-1991	1.79%
10	OK	1990-1991	1.69%
11	MT	1990-1991	1.69%
12	ME	1990-1991	1.66%
13	MS	1990-1991	1.63%
14	VT	1990-1991	1.62%
15	KS	1990-1991	1.59%
16	LA	1990-1991	1.54%
17	NM	1990-1991	1.54%
18	CO	1990-1991	1.54%
19	ID	1990-1991	1.52%
20	AR	1990-1991	1.51%
21	VA	1990-1991	1.44%
22	WA	1990-1991	1.41%
23	MO	1990-1991	1.38%
24	IA	1990-1991	1.37%
25	MN	1990-1991	1.35%
26	RI	1990-1991	1.34%
27	IN	1990-1991	1.32%
28	PA	1990-1991	1.31%
29	KY	1990-1991	1.31%
30	MI	1990-1991	1.29%
31	IL	1990-1991	1.27%
32	SC	1990-1991	1.24%
33	MA	1990-1991	1.23%
34	WI	1990-1991	1.20%
35	CT	1990-1991	1.13%
36	OR	1990-1991	1.13%
37	OH	1990-1991	1.13%
38	MD	1990-1991	1.11%
39	TN	1990-1991	1.11%
40	CA	1990-1991	1.08%
41	AL	1990-1991	1.08%
42	NC	1990-1991	1.07%
43	AZ	1990-1991	0.98%
44	NY	1990-1991	0.94%
45	UT	1990-1991	0.82%
46	NV	1990-1991	0.78%
47	NJ	1990-1991	0.78%
48	WV	1990-1991	0.23%

	State	Period	Loss
1	NM	1991-1992	2.12%
2	SD	1991-1992	2.09%
3	FL	1991-1992	1.74%
4	NV	1991-1992	1.72%
5	SC	1991-1992	1.69%
6	MN	1991-1992	1.67%
7	TX	1991-1992	1.61%
8	NE	1991-1992	1.58%
9	CA	1991-1992	1.56%
10	OK	1991-1992	1.52%
11	MS	1991-1992	1.50%
12	ND	1991-1992	1.49%
13	MI	1991-1992	1.47%
14	PA	1991-1992	1.44%
15	KS	1991-1992	1.44%
16	LA	1991-1992	1.43%
17	AZ	1991-1992	1.41%
18	VA	1991-1992	1.39%
19	GA	1991-1992	1.38%
20	WI	1991-1992	1.32%
21	CO	1991-1992	1.31%
22	IL	1991-1992	1.31%
23	ID	1991-1992	1.29%
24	IA	1991-1992	1.29%
25	AR	1991-1992	1.29%
26	MO	1991-1992	1.28%
27	WA	1991-1992	1.26%
28	MT	1991-1992	1.22%
29	IN	1991-1992	1.21%
30	NJ	1991-1992	1.21%
31	OH	1991-1992	1.16%
32	NH	1991-1992	1.13%
33	WY	1991-1992	1.12%
34	DE	1991-1992	1.06%
35	WV	1991-1992	1.03%
36	NC	1991-1992	1.02%
37	TN	1991-1992	1.01%
38	ME	1991-1992	0.93%
39	KY	1991-1992	0.92%
40	VT	1991-1992	0.89%
41	NY	1991-1992	0.85%
42	AL	1991-1992	0.83%
43	OR	1991-1992	0.80%
44	RI	1991-1992	0.68%
45	UT	1991-1992	0.67%
46	MA	1991-1992	0.60%
47	CT	1991-1992	0.52%
48	MD	1991-1992	0.27%

	State	Period	Loss
1	CA	1992-1993	1.90%
2	MN	1992-1993	1.85%
3	SD	1992-1993	1.66%
4	NV	1992-1993	1.63%
5	OK	1992-1993	1.49%
6	WV	1992-1993	1.48%
7	WI	1992-1993	1.45%
8	VA	1992-1993	1.45%
9	NM	1992-1993	1.44%
10	AZ	1992-1993	1.44%
11	FL	1992-1993	1.43%
12	PA	1992-1993	1.43%
13	TX	1992-1993	1.41%
14	SC	1992-1993	1.38%
15	LA	1992-1993	1.38%
16	GA	1992-1993	1.36%
17	MI	1992-1993	1.28%
18	MS	1992-1993	1.28%
19	IA	1992-1993	1.25%
20	MO	1992-1993	1.25%
21	AR	1992-1993	1.25%
22	TN	1992-1993	1.23%
23	ND	1992-1993	1.20%
24	NE	1992-1993	1.16%
25	KS	1992-1993	1.16%
26	NJ	1992-1993	1.15%
27	NY	1992-1993	1.14%
28	NC	1992-1993	1.10%
29	IN	1992-1993	1.05%
30	IL	1992-1993	0.95%
31	WA	1992-1993	0.94%
32	OH	1992-1993	0.91%
33	NH	1992-1993	0.91%
34	ID	1992-1993	0.88%
35	KY	1992-1993	0.85%
36	ME	1992-1993	0.83%
37	VT	1992-1993	0.82%
38	MT	1992-1993	0.78%
39	RI	1992-1993	0.75%
40	DE	1992-1993	0.74%
41	MA	1992-1993	0.72%
42	AL	1992-1993	0.70%
43	CO	1992-1993	0.69%
44	CT	1992-1993	0.69%
45	UT	1992-1993	0.63%
46	WY	1992-1993	0.62%
47	OR	1992-1993	0.55%
48	MD	1992-1993	0.27%