INCIDENCE, INTENSITY, AND DURATION OF FINANCIAL STRESS AMONG FARM FIRMS

Robert W. Jolly

Arnold Paulsen

James D. Johnson

Kenneth H. Baum

Richard Prescott

Presented at the 1985 AAEA meeting, Iowa State University, Ames, Iowa,

August 4, 1985

Over the past year, evidence on the extent of farm financial stress became available (Melichar, Jolly). However, policymakers disagree, not only about the size and significance of the farm debt problems, but also about the type of intervention, if any, that would be appropriate. The objective of this paper is to provide a benchmark for subsequent policy discussion.

Financial stress requires definition. The absence of normal profit or returns to factors cause financial stress, yet these same forces drive the allocative mechanism of a market economy. Financial stress occurs when the capacity of an individual or firm or a specific sector of the economy to adjust to the forces causing stress is exceeded. Some stress is essential for efficiency and growth. Too much financial stress may lead to misallocation of resources, undesirable structural change, loss of economic and human capital, needed institutions, and individual well-being.

Two surveys are used in this report. The USDA Farm Costs and Returns Survey (FCRS) is a probability-based sample of 23,386 farm operators contacted by enumerators between February 15 and March 8, 1985. Of these initial contacts 73 percent participated in the survey (Johnson et al.). The FCRS collected income, cost, and balance sheet data for farm operators. The second data source was a mail survey of 4700 Iowa farm operators conducted in March, 1985. The Iowa Crop Reporting Service requested information on 1984 and 1985 financial conditions and operator characteristics. Approximately 23 percent of the questionnaires were returned (Jolly and Barkema).

Measuring Financial Stress

Financial stress can be determined directly by examining four long-run characteristics of the farm business: profitability, liquidity, solvency, and risk-bearing ability. Financial stress can also be measured indirectly

by aggregate indicators. Examples include land-value trends, foreclosure and loan delinquency rates, or loan losses taken by creditors. Unfortunately, there are few unambigious indicators of financial stress. Therefore, we will utilize a combination of several common financial measures. For brevity, we restrict attention to direct firm-level indicators.

Net cash flow includes income over farm cash expenses plus off-farm income less withdrawals for consumption, taxes, and debt service. Generally, if net cash flow is positive, the farm business is meeting all cash obligations and has cash available for capital replacement, additional investment, or risk reserves. A negative cash flow means cash obligations are not being met and can indicate financial stress. However profitable businesses may experience short-term cash-flow problems -- for example, if inventories or productive assets are being increased, if principal payments exceed depreciation, or if family consumption less off-farm income exceeds the cost of unpaid family labor. Similarly, unprofitable businesses may have positive cash flow in the short run if inventories or productive assets are being liquidated or principal payments are being delayed.

Much of the recent analysis of financial stress has focused on the debt to asset (D/A) ratio. The D/A ratio is a balance sheet measure obtained by dividing total liabilities by total assets. It measures relative indebtedness and, consequently, the solvency and risk-bearing ability of the business. However, the D/A ratio can also be used to assess income or debt service capacity by relating returns on assets to the servicing requirements of existing liabilities. In most of the financial surveys, stress has been inferred from the D/A ratio as a measure of profitability or cash flow (Melichar, Jolly). Often this has been because of a paucity of reliable farm income data.

Insolvency occurs when the value of the firm's debts plus contingent liabilities, such as taxes and broker's fees, exceeds the value of its assets (the D/A ratio exceeds 100). Normally, insolvency results in liquidation of the business. Lenders are unwilling to advance additional credit and risk loan losses that would result were the business to be liquidated. Frequently, insolvency is associated with a negative cash flow.

The return to equity combines income and balance sheet information in a single ratio. Normally, it is calculated by first adding off-farm income to net farm income and subtracting family consumption expenditures and taxes. This calculation gives income available for capital replacement, investment, or principal reduction. Dividing by the current net worth of the business, gives a measure of the rate at which equity is increasing or decreasing from earnings. A negative return to equity is a relative measure of financial stress. The absolute size of this ratio gives a rough measure of the rate at which a financially stressed business is consuming its own capital stock.

Incidence

To assess the incidence of farm financial stress, we use two financial measures: the debt to asset ratio (D/A) ratio and the occurrence of a negative cash flow in 1984. These stress indicators are estimated from FCRS data. The D/A ratio is based on the farm operator's total owned assets and liabilities as of January 1, 1985. Cash flows were estimated from reported net cash farm and nonfarm income less estimated family-living expenditures and principal repayment (Johnson et al.). Farms with a low D/A ratio and positive cash flow would generally be considered financially stable. Farms with a high D/A ratio and negative cash flow could be vulnerable to both solvency and liquidity problems.

Nationally, nearly 19 percent of all farm operators had D/A ratios exceeding 40 percent (Table 1). Only 3 percent of the operators were insolvent. Slightly over half, 50.3 percent, of all farm operators in the United States had negative cash flows. In fact, 75 percent of U.S. operators with negative cash flows had D/A ratios of less than 40 percent. This suggests, in part, that the D/A ratio is not a consistent measure of financial stress. Approximately 46.5 percent of operators with D/A ratios of less than 40 percent did not have a positive cash flow in 1984. Using a joint criterion, 12.6 percent of U.S. operators had D/A ratios greater than 40 percent and a negative cash flow. Over 43 percent of the operators had D/A ratios less than 40 percent and produced a positive cash flow.

Most of the financially stressed operators are located in the Corn Belt, Lake States, and Northern Plains.[1/] More than 60 percent of the operators with D/A ratios exceeding 40 percent and negative cash flows are located in these three regions. Of all insolvent operations, 55 percent are located here as well. However, the frequency of stress is high in these regions largely because they account for a large proportion of U.S. farm operators, 44.7 percent.

Thirty-four percent of the operators experiencing negative cash flow have annual sales less than $40,000 (Table 2). Over 54 percent of these smaller farms did not have positive cash flow in 1984. Small farms, however, dominated the farm population defined by the FCRS survey, constituting 62 percent of the sample. Of commercial farms, those with sales over $40,000, approximately 43 percent, did not have a positive cash flow. Most insolvent farms, 80 percent, did not show a positive cash flow, and 65 percent of the insolvent assets and debts were on large farms selling over $100,000 per year. Approximately 6 percent of the large operators were insolvent, twice the national average.

Intensity

Of all U.S. farm debt, 62 percent is held by farm operators with D/A ratios over 40 percent. Approximately 13.3 percent is held by insolvent operators and 29 percent by farms with D/A ratios over 70 percent. Farms with negative cash flows control 64 percent of the debt. Combining these measures, 45.6 percent of the debt is held by operators with D/A ratios exceeding 40 percent and having negative cash flows.

Table 3 gives the distribution of farm operators, debts, and assets by the return on equity (ROE). Operations with an ROE from -5 to +5 percent are financially stable, in the short run. In the long run, they will need to make some operating changes and may be vulnerable to asset value declines. Nationally, 28 percent of the operators fall into this category and hold over 22 percent of the debt and 40 percent of the assets. Farmers with an ROE less than -5 percent are failing at a modest to rapid rate. Almost one-third of U.S. farm operators are either insolvent or have an estimated ROE of less than -5 percent. This group controls 42 percent of the debt and 23 percent of the assets.

On the other hand many operators earned a positive ROE in 1984. With an ROE greater than 5 percent, a farm should partly or completely meet principal obligations and capital replacement requirements. More than 39 percent of U.S. farm operators fall into this category. Further, they control 36 percent of the farm debt and 36 percent of the assets.

The incidence of farm financial stress is greatest in the Corn Belt, Lake States, and Northern Plains. The intensity of financial stress, however, is greatest in the Delta, Southeast, Southern Plains, Northeast, and the Pacific.

In the Corn Belt, for example, only 29.5 percent of the operators are insolvent or have an ROE of less than -5 percent. They control 39.6 percent

of the debt in the Corn Belt. In the Delta, 43.7 percent of the operators fall into this category. They control 51.2 percent of the regional debt.

At the other extreme, 44.5 percent of the operators in the Corn Belt have an ROE greater than +5 percent. They control 40.5 percent of the debt. In the Delta, only 29.3 percent of the operators controlling 23.7 percent of the debt earned an ROE over 5 percent.

Debt held by insolvent operators also varies by region. In the Corn Belt, Lake States, and Northern Plains, 11 percent of the debt is held by insolvent farmers, slightly less than the national average. In the Delta 17 percent of the debt is held by insolvent businesses. This compares with 23.4 percent for the Southeast and 24 percent for the Pacific.

Small farms are most likely to experience financial stress by virtue of their greater frequency. However, most of the debt, 83 percent, is held by farms with sales exceeding $40,000. Approximately 52.6 percent of the debt is held by commercial farms with negative cash flow, 82.2 percent of all debt controlled by farms with negative cash flows. Commercial farms with negative cash flows and D/A ratios over 40 percent owe 38.8 percent of the debt.

Generally the larger operations showed lower than average concentration of operators with a negative ROE (Table 4). In contrast, however, the largest size group had 27.6 percent of all debt held by insolvent businesses.

The financial condition of Iowa farm operators changed significantly from 1984 to 1985 (Table 5). Asset values per operator declined $109,000, or 19 percent. This matches the average decline in Iowa land values. Liabilities increased only slightly, 3.2 percent. However, non-real-estate debt increased 13 percent, and real estate fell 2 percent, suggesting that short-term lenders again loaned to make land payments and capitalized unpaid

interest. Average net worth per operator decreased $114,000 or nearly 25 percent.

The highest debt group experienced a greater decline in asset values, about 26 percent between 1984 and 1985, indicating that partial liquidation probably occurred. Average debts in the over-70-percent D/A group was reduced by approximately 10 percent. The average net worth of these farmers fell 88 percent. Therefore, despite efforts to survive, negative cash flow and falling asset values during 1984 probably drove most Iowa farmers with D/A ratios over 70 percent to insolvency in a single year.

Duration

The FCRS provides evidence that about 50 percent of both farm operators and assets did not have a positive cash flow and that 64 percent of debt was not fully serviced in 1984. This national survey documents enough financial stress in all regions to play havoc with most farmers' net worth, deplete specialized lenders' capital, and weaken land and machinery prices. The problem will surely persist for several years.

Although Jolly and Doye estimated that at least 10 to 15 percent of farm assets must find new owners, little progress was made in 1985. Cash flow likely deteriorated because of falling prices for many commodities. Asset prices continued to decline. Buyer interest lagged. More assets were put on the market this past year, and few sold.

The duration of financial stress depends on the rate at which (a) asset markets can rearrange ownership and (b) credit institutions can write off unpayable debts and grant new loans to qualified buyers. We would hope the duration will be less than the two decades required to resolve the financial stress of the 1920s. However, if the farm land market can only rearrange ownership for 2 to 4 percent each year, the historical rate,

the ownership change may take a decade. Furthermore, the resolution of the 1980s farm debt problem may require, as did the 1920s stress, significant innovation in financial institutions, new price-support mechanisms, and changes in the macroeconomy.

On the bright side, 28 percent of U.S. farm operators and 22 percent of farm assets were profitable in 1984 and earned more than 10 percent on equity according to Table 4. However, important structural implications are evident from this data. Nearly 57 percent of all high-profit assets are owned by larger commercial operations selling over $100,000 annually. This suggests that most of the economic power to expand remains with larger farms. High-profit farms control over 25 percent of assets in the Corn Belt, Lake States, and Northern Plains while insolvent and low profit farms own less than 15 percent of assets. The potential for resolution may be more favorable there because the high-profit farms have the financial strength to assume some of the assets and debts of failing operations. In contrast, three regions, the Mountain States, Delta, and Northeast, have fewer high-profit farms relative to the volume of assets on stressed farm businesses. This may imply a reduced capacity to restructure within these regions without outside capital. It is not clear, in addition, that high-profit farms have sufficient expansion capacity, or willingness to expand, to significantly ameliorate financial stress.

Conclusion

The picture of financial stress that we have presented is a complex one. A minority of the farmers hold most of the debt and face significant economic adjustments. A nearly equal number remain profitable even under fairly adverse conditions. Our picture is just that, a snapshot in time that masks the dynamics of economic change. Some financially stressed farmers can ride out the storm. Others have few choices than to quit farming and start a new life. As financial conditions continue to erode, the opportunities for stressed farms to adjust shrink dramatically. The financial diversity of the farm population greatly complicates the formulation and implementation of public policy. The ultimate reality of farm financial stress is that adjustment will and must occur. Which direction and how far the adjustment proceeds will significantly influence the future structure and performance of U.S. agriculture.

Table 1. Distribution of Farm Operators, Debts, and Assets by Debt/Asset Ratio and Region January 1, 1985 1/

Region	Debt/Asset Ratio											
	0-10		11-40		41-70		70-100		100+		All Farms	
	Total	NCF Farms	Total	NCF Farms	Total	NCF Farms	Total	NCF Farms	Total	NCF Farms	Total	NCF Farms
Northeast												
Percent operators	4.15	2.62	2.05	1.21	0.63	0.40	0.21	0.17	0.22	0.13	7.21	4.53
Percent debt	0.21	0.12	2.38	1.31	1.53	1.03	0.52	0.32	0.16	0.32	5.38	3.10
Percent assets	3.50	2.14	2.22	1.20	0.66	0.43	0.14	0.08	0.10	0.05	6.62	3.90
Lake States												
Percent operators	5.43	2.07	4.04	1.54	2.00	1.34	0.83	0.71	0.42	0.37	12.72	6.02
Percent debt	0.37	0.14	5.41	2.07	5.28	3.70	3.13	2.81	1.55	1.40	15.74	10.12
Percent assets	3.88	1.13	4.70	1.77	2.14	1.46	0.86	0.77	0.25	0.22	11.84	5.35
Corn Belt												
Percent operators	10.18	4.35	5.86	2.33	3.09	1.80	1.34	0.89	0.82	0.52	21.27	9.87
Percent debt	0.63	0.19	7.25	2.94	8.43	5.54	4.41	3.10	3.02	2.43	23.74	14.20
Percent assets	7.35	2.46	6.59	2.56	3.45	2.25	1.17	0.82	0.49	0.40	19.05	8.49
Northern Plains												
Percent operators	4.76	1.78	3.10	1.45	1.74	1.15	0.69	0.58	0.43	0.31	10.72	5.26
Percent debt	0.64	0.17	4.78	2.60	5.41	3.99	2.38	2.00	1.39	0.87	14.61	9.63
Percent assets	4.96	1.36	4.25	2.18	2.21	1.58	0.63	0.53	0.23	0.14	12.28	5.79
Appalachia												
Percent operators	9.61	4.75	2.79	1.03	0.99	0.54	0.18	0.14	0.13	0.13	13.71	6.58
Percent debt	0.26	0.08	2.27	0.93	1.71	0.94	0.49	0.36	0.24	0.23	4.97	2.54
Percent assets	4.76	2.01	2.24	0.90	0.72	0.39	0.13	0.10	0.03	0.03	7.88	3.43
Southeast												
Percent operators	3.82	1.76	1.37	0.58	0.45	0.32	0.16	0.08	0.18	0.15	5.98	2.89
Percent debt	0.24	0.10	1.32	0.69	1.06	0.83	0.57	0.35	0.97	0.86	4.15	2.83
Percent assets	3.78	1.37	1.24	0.60	0.44	0.35	0.15	0.09	0.15	0.14	5.76	2.55
Delta												
Percent operators	3.30	2.08	1.10	0.67	0.58	0.40	0.15	0.13	0.22	0.17	5.36	3.45
Percent debt	0.15	0.07	1.39	0.73	1.72	1.40	0.49	0.39	0.77	0.60	4.51	3.19
Percent assets	2.29	1.26	1.29	0.68	0.72	0.60	0.13	0.10	0.11	0.08	4.54	2.72
Southern Plains												
Percent operators	8.44	4.08	2.18	1.18	0.72	0.39	0.37	0.31	0.25	0.17	11.96	6.12
Percent debts	0.60	0.30	2.73	1.59	1.91	1.18	1.47	1.28	1.16	0.95	7.86	5.30
Percent assets	9.30	4.17	2.48	1.38	0.83	0.52	0.40	0.35	0.19	0.15	13.19	6.57
Mountain												
Percent operators	2.55	1.11	1.63	1.03	0.83	0.52	0.22	0.13	0.13	0.09	5.37	2.87
Percent debt	0.45	0.19	3.61	2.50	3.00	1.85	1.03	0.71	1.03	0.90	9.12	6.15
Percent assets	4.65	1.79	3.49	2.33	1.29	0.81	0.28	0.19	0.16	0.15	9.87	5.27
Pacific												
Percent operators	3.10	1.31	1.65	0.75	0.61	0.38	0.16	0.12	0.18	0.15	5.71	2.71
Percent debt	0.32	0.13	3.07	1.62	2.86	2.07	1.28	1.02	2.38	2.13	9.91	6.97
Percent assets	4.24	2.04	2.90	1.46	1.19	0.88	0.34	0.27	0.28	0.25	8.96	4.90
United States												
Percent operators	55.34	25.92	25.77	11.79	11.65	7.17	4.31	3.25	2.99	2.18	100.00	50.31
Percent debt	3.87	1.49	34.20	16.97	32.91	22.54	15.77	12.35	13.25	10.69	100.00	64.03
Percent assets	48.71	19.74	31.41	15.06	13.65	9.27	4.23	3.31	1.99	1.62	100.00	48.97

Source: 1984 Farm Costs and Returns Survey, USDA.

1/ NCF= negative cash flow: when net cash income from the farming operation plus non-farm income less estimated family living allowance and principal payments (8.6 percent of debt) is negative. 2/ Percent of U.S. farms. 3/ Percent of U.S. operator debt. 4/ Percent of U.S. operator assets.

Table 2. Distribution of Farm Operators, Debt, and Assets by Debt/Asset Ratio and Sales Class, January 1, 1985 1/

Region	Debt/Asset Ratio											
	0-.10		.11-.40		.41-.70		.70-1.00		Greater Than 1.00		All Farms	
	All Farms	NCF Farms	All Farms	NCF Farms	All Farms	NCF Farms	NCF Farms	NCF Farms	All Farms	NCF Farms	All Farms	NCF Farms
$500,000 and over												
Percent operators2	0.50	0.17	0.66	0.22	0.38	0.19	0.16	0.08	0.11	0.06	1.80	0.72
Percent debt3/	0.41	0.15	4.86	2.05	5.31	3.27	2.63	1.55	3.66	2.95	16.88	9.97
Percent assets4/	3.99	1.54	4.27	1.75	2.23	1.38	0.71	0.41	0.51	0.40	11.70	5.48
$250,000 - $499,999												
Percent operators	0.97	0.22	1.53	0.48	0.96	0.45	0.36	0.25	0.24	0.14	4.06	1.54
Percent debt	0.36	0.09	6.14	2.56	5.85	3.28	2.83	2.31	1.88	1.33	17.05	9.57
Percent assets	3.28	0.70	5.38	2.10	2.44	1.36	0.77	0.63	0.30	0.21	12.16	5.00
$100,000-$249,999												
Percent operators	4.14	0.90	4.97	1.76	2.80	1.59	1.04	0.74	0.64	0.44	13.59	5.43
Percent debt	1.03	0.27	9.77	4.36	10.74	7.51	5.03	3.88	3.29	2.73	29.86	18.75
Percent assets	9.17	2.20	8.77	3.75	4.45	3.07	1.37	1.06	0.50	0.42	24.26	10.40
$40,000 - $99,999												
Percent operators	7.37	2.04	5.78	2.94	3.03	2.10	1.10	0.93	0.83	0.63	18.11	8.64
Percent debt	0.91	0.41	6.41	3.91	6.44	5.19	3.09	2.82	2.29	1.95	19.13	14.28
Percent assets	9.72	3.59	6.18	3.55	2.64	2.10	0.80	0.73	0.37	0.32	19.70	10.29
$20,000 - $39,999												
Percent operators	6.41	3.06	3.20	2.06	1.22	1.12	0.54	0.40	0.47	0.36	11.80	7.01
Percent debt	0.40	0.22	2.46	1.74	1.86	1.77	0.82	0.65	0.91	0.87	6.47	5.25
Percent assets	5.31	2.39	2.31	1.64	0.78	0.74	0.22	0.18	0.15	0.14	8.77	5.09
$10,000 - $19,999												
Percent operators	7.26	3.70	2.55	1.53	0.93	0.56	0.41	0.36	0.34	0.25	11.48	6.41
Percent debt	0.24	0.10	1.42	0.96	1.08	0.74	0.67	0.59	0.54	0.48	3.95	2.87
Percent assets	4.78	2.32	1.34	0.90	0.44	0.29	0.18	0.16	0.09	0.08	6.82	3.75
Less than $10,000												
Percent operators	28.70	15.82	7.08	2.80	2.33	1.16	0.70	0.49	0.37	0.29	39.17	20.56
Percent debt	0.52	0.25	3.13	1.39	1.63	0.77	0.69	0.54	0.69	0.38	6.67	3.33
Percent assets	12.46	7.01	3.17	1.37	0.68	0.32	0.18	0.14	0.08	0.06	16.57	8.90
All Farms												
Percent operators	55.34	25.92	25.77	11.79	11.65	7.17	4.31	3.25	2.99	2.18	100.00	50.31
Percent debt	3.87	1.49	34.20	16.97	32.91	22.54	15.77	12.35	13.25	10.69	100.00	64.03
Percent assets	48.71	19.74	31.41	15.06	13.65	9.27	4.23	3.31	1.99	1.62	100.00	48.97

Source: 1984 Farm Costs and Returns Survey, USDA.

1/ NCF= negative cash flow: when net cash income from the farming operation plus non-farm income less estimated family living allowance and principal payments (8.6 percent of debt) is negative. 2/ Percent of U.S. farms. 3/ Percent of U.S. operator debt. 4/ Percent of U.S. operator assets.

Table 3.- Distribution of Farm Operators, Debts, and Assets by Return to Equity and Region, January 1, 1985 1/

Region	Insolvent Farms	Less than -.20	-.20 to -.10	-.10 to -.05	-.05 to .05	.05 to .10	.10 to .20	Greater than .20	All Farms
Northeast									
Percent operators2/	0.22	0.97	0.90	0.82	2.25	0.63	0.64	0.79	7.21
Percent debt3/	0.76	0.68	0.47	0.43	1.17	0.47	0.60	0.79	5.38
Percent assets4/	0.10	0.39	0.63	0.69	2.86	0.66	0.66	0.63	6.62
Lake State									
Percent operators	0.42	1.19	1.08	0.94	3.65	1.74	1.83	1.88	12.72
Percent debt	1.55	2.09	1.21	0.78	3.70	2.18	2.64	1.58	15.74
Percent assets	0.25	0.76	0.79	0.68	3.95	2.16	2.26	0.98	11.84
Corn Belt									
Percent operators	0.82	2.19	1.44	1.82	5.54	2.67	2.70	4.09	21.27
Percent debt	3.02	3.66	1.15	1.56	4.74	2.55	2.32	4.74	23.74
Percent assets	0.49	1.39	0.92	1.44	6.43	3.29	2.47	2.64	19.05
Northern Plains									
Percent operators	0.43	1.45	0.76	0.71	3.10	1.44	1.33	1.49	10.72
Percent debt	1.39	2.14	1.14	1.44	3.45	1.57	1.52	1.96	14.61
Percent assets	0.23	0.96	0.76	0.88	4.65	2.09	1.69	1.02	12.28
Appalachia									
Percent operators	0.13	1.85	1.27	1.31	3.65	1.36	1.91	2.23	13.71
Percent debt	0.24	0.60	0.30	0.25	1.14	0.49	0.78	1.17	4.97
Percent assets	0.03	0.42	0.45	0.64	3.16	0.97	1.19	1.03	7.88
Southeast									
Percent operators	0.18	0.77	0.68	0.51	1.49	0.53	0.87	0.94	5.98
Percent debt	0.97	0.59	0.47	0.19	0.65	0.35	0.32	0.60	4.15
Percent assets	0.15	0.40	0.41	0.46	2.48	0.60	0.56	0.72	5.76
Delta									
Percent operators	0.22	0.80	0.66	0.66	1.45	0.38	0.43	0.76	5.36
Percent debt	0.77	0.70	0.35	0.49	1.13	0.22	0.21	0.64	4.51
Percent assets	0.11	0.38	0.45	0.54	1.81	0.41	0.41	0.44	4.54
Southern Plains									
Percent operators	0.25	1.83	1.30	0.97	3.27	1.35	1.17	1.81	11.96
Percent debts	1.16	1.60	0.98	0.55	1.40	0.64	0.58	0.96	7.86
Percent assets	0.19	1.01	0.99	1.24	6.20	1.36	1.12	1.09	13.19
Mountain									
Percent operators	0.13	0.62	0.32	0.41	2.10	0.58	0.52	0.68	5.37
Percent debts	1.03	1.21	0.68	0.71	2.70	0.81	0.89	1.08	9.12
Percent assets	0.16	0.65	0.42	0.74	5.27	1.28	0.73	0.62	9.87
Pacific									
Percent operators	0.18	0.43	0.47	0.51	1.77	0.74	0.81	0.81	5.71
Percent debts	2.38	1.10	0.49	0.65	2.06	1.24	0.78	1.21	9.91
Percent assets	0.28	0.47	0.53	0.63	3.99	1.38	0.88	0.79	8.96
United States									
Percent operators	2.99	12.10	8.87	8.65	28.27	11.43	12.21	15.48	100.00
Percent debts	13.27	14.37	7.25	7.05	22.15	10.52	10.66	14.72	100.00
Percent assets	1.99	6.82	6.34	7.93	40.79	14.21	11.97	9.95	100.00

Source: 1984 Farm Costs and Returns Survey, USDA.

1/ Return to equity is net cash income from the farming operation plus non-farm income minus estimated living allowance divided by operator farm equity. 2/ Percent of U.S. farms. 3/ Percent of U.S. operator debt. 4/ Percent of U.S. operator assets.

Table 4. Distribution of Farm Operators, Debts, and Assets by Return to Equity and Sales Class, January 1 1985 1/

Sales Size Class	Insolvent Farms	Less than -.20	-.20 to -.10	-.10 to -.05	-.05 to .05	.05 to .10	.10 to .20	Greater than .20	All Farms
$500,000 - and over									
Percent operators2/	0.11	0.18	0.10	0.06	0.34	0.19	0.23	0.59	1.80
Percent debt3/	3.66	1.85	0.47	0.79	3.07	2.00	1.58	3.45	16.88
Percent assets4/	0.51	1.02	0.67	0.83	3.36	1.75	1.46	2.09	11.70
$250,000 - $499,999									
Percent operators	0.24	0.39	0.13	0.17	0.82	0.55	0.69	1.08	4.06
Percent debt	1.88	1.94	0.70	0.99	3.95	1.66	2.87	3.06	17.05
Percent assets	0.30	0.86	0.44	0.54	4.37	1.86	2.12	1.67	12.16
$100,000-$249,999									
Percent operators	0.64	1.13	0.65	0.74	3.13	2.39	2.13	2.78	13.59
Percent debt	3.29	3.53	2.42	2.20	6.74	4.22	3.40	4.06	29.86
Percent assets	0.50	1.40	1.24	1.49	9.18	4.67	3.29	2.49	24.26
$40,000 - $99,999									
Percent operators	0.83	1.94	1.31	1.23	5.84	2.52	2.10	2.34	18.11
Percent debt	2.29	3.74	2.18	1.65	4.84	1.58	1.19	1.67	19.13
Percent assets	0.37	1.50	1.40	1.55	9.36	2.70	1.76	1.06	19.70
$20,000 - $39,999									
Percent operators	0.47	1.53	0.84	1.00	4.76	1.16	1.01	1.01	11.80
Percent debt	0.92	1.33	0.61	0.58	1.87	0.38	0.33	0.44	6.47
Percent assets	0.15	0.67	0.55	0.75	4.74	0.86	0.62	0.43	8.77
$10,000 - $19,999									
Percent operators	0.34	1.61	1.05	1.23	3.50	1.20	1.13	1.41	11.48
Percent debt	0.54	1.02	0.30	0.36	0.55	0.30	0.31	0.58	3.95
Percent assets	0.09	0.52	0.43	0.77	3.09	0.77	0,72	0.44	6.82
Less than $10,000									
Percent operators	0.37	5.32	4.79	4.23	9.86	3.41	4.92	6.27	39.17
Percent debt	0.69	0.96	0.58	0.48	1.13	0.39	0.96	1.47	6.67
Percent assets	0.08	0.84	1.61	2.00	6.68	1.61	2.00	1.76	16.57
All Farms									
Percent operators	2.99	12.10	8.87	8.65	28.27	11.43	12.21	15.48	100.00
Percent debt	13.27	14.37	7.25	7.05	22.15	10.52	10.66	14.72	100.00
Percent assets	1.99	6.82	6.34	7.93	40.79	14.21	11.97	9.95	100.00

Source: 1984 Farm Costs and Returns Survey, USDA.

1/ Return to equity is net cash income from the farming operation plus non-farm income minus estimated living allowance divided by operator farm equity. 2/ Percent of U.S. farms. 3/ Percent of U.S. operator debt. 4/ Percent of U.S. operator assets.

Table 5. Average Financial Condition of Sample Iowa Farm Operators By 1984 Debt-to-Asset Ratio

Panel A: 1984 Condition

	Debt-to-Asset Ratio (%)					
	0-10	10-40	40-70	70-100	100+	All
Assets ($1000)						
Non-real-estate	149	188	246	164	72	182
Real Estate	354	506	499	306	145	433
Total	503	694	745	470	217	615
Debts ($1000)						
Non-real-estate	5	47	128	168	152	53
Real Estate	6	113	255	207	110	103
Total	11	160	383	375	262	156
Net Worth ($1000)	492	534	362	95	-45	459
Debt-to-Asset Ratio (%)	2.2	23.1	51.4	79.8	120.7	25.4

Panel B: 1985 Condition

	Debt-to-Asset Ratio (%)					
	0-10	10-40	40-70	70-100	100+	All
Assets ($1000)						
Non-real-estate	135	174	229	137	73	166
Real Estate	276	404	396	210	98	340
Total	411	578	625	347	171	506
Debts ($1000)						
Non-real-estate	8	58	137	164	170	60
Real Estate	10	112	251	172	74	101
Total	18	170	388	336	244	161
Net Worth ($1000)	393	408	237	11	-73	345
Debt-to-Asset Ratio (%)	4.4	29.4	62.0	96.8	142.7	31.8

Source: 1985 Iowa Farm Finance Survey.

Footnotes

Robert W. Jolly and Arnold Paulsen are professors of economics at Iowa State University; James D. Johnson, Kenneth H. Baum, and Richard Prescott are agricultural economists with the Economic Research Service, U.S. Department of Agriculture.

Journal Paper No. J-12012 of the Iowa Agriculture and Home Economics Experiment Station, Ames; Project 2629.

This paper is the result of a collaborative research effort. Senior authorship is shared.

1/ Regions are defined as follows:

Northeast: ME, NH, VT, MA, CN, RI, NY, NJ, PA, DE, MD

Lake States: MI, WI, MN

Corn Belt: OH, IN, IL, IA, MO

Northern Plains: ND, SD, KA

Appalachia: VA, WV, KY, TN, NC

Southeast: SC, GA, AL, FL

Delta: MS, LA, AR

Southern Plains: TX, OK,

Mountain: MT, ID, WY, CO, UT, NM, NV, AZ

Pacific: WA, CA, OR

References

Johnson, Jim, Kenneth Baum and Richard Prescott. Financial Characteristics of U.S. Farms, January 1985, USDA ERS Agricultural Information Bulletin 495, July 1985.

Jolly, R. W. and D. G. Doye. Farm Income and the Financial Condition of United States Agriculture, FAPRI Staff Report #8-85, Department of Economics, Iowa State University, Ames, Iowa, July 1985.

Jolly, Robert W., "1984 Iowa Farm Finance Survey: Debt and Asset Structure," Cooperative Extension Service, Iowa State University, Ames, Iowa, June 1984.

Jolly, Robert W. and Alan D. Barkema. "1985 Iowa Farm Finance Survey," Cooperative Extension Service, Iowa State University, Ames, Iowa, May 1985.

Melichar, Emanuel, "A Financial Perspective on Agriculture," Federal Reserve Bulletin, January 1984: 1-13.