

GAO

Briefing Report to the Honorable
Bill Bradley
United States Senate

March 1986

FARM FINANCE

Farm Debt, Government Payments, and Options to Relieve Financial Stress







UNITED STATES GENERAL ACCOUNTING OFFICE
WASHINGTON, D.C. 20548

RESOURCES, COMMUNITY,
AND ECONOMIC DEVELOPMENT
DIVISION

March 18, 1986

B-220507

The Honorable Bill Bradley
United States Senate

Dear Senator Bradley:

As requested in your November 8, 1985, letter and modified in subsequent discussions with your office, we are providing you with information on (1) the nature of current farm debt, (2) the distribution of federal farm program direct payments to financially-stressed farms, and (3) alternatives for reducing excessive farm debt. You indicated that the long-run interests of American farmers may be better served by their placing less reliance on future federal farm program payments if the federal government could initiate new programs to ease their current debt problems. This briefing report presents the results of our work.

We have divided the briefing report into five sections. The first summarizes the report. The second section provides information on the nature of farm debt, including how much is held by each major lender; how much is held by financially-stressed farms and by farms receiving federal farm program direct payments; and how much is nonperforming and/or delinquent.

The third section identifies the distribution of direct payments to farms in 1984 by sales class and debt-to-asset ratio class. This section also analyzes the importance of direct payments to farmers' 1984 cash flow and compares the leverage and profitability of farms that did and did not receive federal farm program direct payments in 1984.

Section four presents an analysis of alternatives for dealing with excessive farm debt. Iowa State University's Robert W. Jolly and Damona G. Doye prepared this analysis under contract with us using their cash flow model. The analysis provides estimates of the costs and impacts of these alternatives on farm assets, farm debt, farm operators, the government, and lenders. The alternatives, in probable increasing order of direct cost to the government, are:

- a federal loan guarantee with a 10 percent principal write-down by lenders,
- an interest rate buydown,

B-220507

--a holding tank that would buy farm land and other assets and lease them out to farmers, and

--a federal discharge of debt.

Section five describes our objectives, scope, and methodology in preparing this briefing report. Details on Jolly and Doye's cash flow model are presented in this section. We obtained overall farm debt information from various sources, such as the Federal Reserve System, the Farm Credit System, and the Department of Agriculture's Farmers Home Administration and Economic Research Service (ERS). The information developed on the distribution of federal farm program direct payments was based on our analyses of ERS data.

As agreed with your office, we did not obtain agency comments, but we did discuss the results of the analyses in sections two and three with ERS officials and incorporated their comments where appropriate. As arranged with your office, we plan no further distribution of this report until 15 days after the issue date, unless you publicly announce its contents earlier. We will then send copies to the chairmen of the House and Senate agricultural committees, Secretary of Agriculture, Director of the Office of Management and Budget, and other interested parties. If we can be of further assistance, please contact me on (202) 275-5138.

Sincerely yours,



Brian P. Crowley
Senior Associate Director

Contents

SECTION		<u>Page</u>
1	REPORT SUMMARY	7
	Figure 1.1 Average direct federal farm payments as percentage of average cash farm sales	11
	Figure 1.2 Debt-to-equity ratio by sales class	13
	Table 1.1 Estimated results from Jolly and Doye's analysis of alternatives for reducing excessive farm debt	16
2	NATURE OF FARM DEBT	19
	Table 2.1 Total farm debt held by major institutional lenders, September 30, 1985	20
	Table 2.2 Amount and percent of total farm debt by debt-to-asset ratio and sales class	22
	Table 2.3 Percentage of farms, debt, and assets for commercial farms by debt-to-asset ratio and sales class	24
	Table 2.4 Average amount of debt and the average value of assets for all farms by debt-to-asset ratio and sales class	26
	Table 2.5 Average debt, assets, and debt-to-asset ratio for commercial, noncommercial, and all farms	27
	Table 2.6 Amount and percent of nonperforming and/or delinquent farm loans held by four major institutional lenders, September 30, 1985	28
	Table 2.7 Farm debt for farms with negative cash balances	30

SECTION		<u>Page</u>
	Table 2.8 Percentage of total farm debt for farms with negative cash balances	30
	Table 2.9 Amount and percent of debt held by farms that participated in and that did not participate in government payment programs, by debt-to-asset ratio	32
3	DISTRIBUTION OF FEDERAL FARM PROGRAM DIRECT PAYMENTS	35
	Table 3.1 Government payments received by participating farms	36
	Table 3.2 Government farm payments (GFP) received by participating farms by debt-to-asset ratio	38
	Table 3.3 Number and percentage of farms receiving government farm payments by sales class	40
	Table 3.4 Percentage of farms receiving government farm payments by sales class and debt-to-asset ratio	40
	Table 3.5 Average government farm payments received by participating farms by sales class and debt-to-asset ratio	42
	Table 3.6 Government farm payments (GFP) and cash balances for commercial farms receiving payments by sales class and debt-to-asset ratio	44
	Table 3.7 Ratio of average government farm payments to average cash farm sales	46
	Table 3.8 Commercial farms average assets, debt, and equity by sales class	48
	Table 3.9 Commercial farms average assets, debt, and equity by debt-to-asset ratio	48

SECTION		<u>Page</u>
	Table 3.10 Commercial farms debt-to-asset (d/a) ratio and debt-to-equity (d/e) ratio by sales class	49
	Table 3.11 Commercial farms average cash balances including and excluding off-farm income (OFI) by sales class	50
	Table 3.12 Commercial farms average cash balances including and excluding off-farm income (OFI) by debt-to-asset ratio	50
	Table 3.13 Commercial farms return on equity by sales class	52
	Table 3.14 Commercial farms return on equity by debt-to-asset ratio	52
	Table 3.15 Selected information on commercial farms by sales class	54
	Table 3.16 Percentage of selected balance sheet and income measures held by commercial and noncommercial farms by sales class	56
	Table 3.17 Cash balances and operating margins of all farms with negative cash flows by debt-to-asset ratio	58
	Table 3.18 Cash balances and operating margins of commercial farms with negative cash flows by debt-to-asset ratio	58
4	ALTERNATIVES FOR REDUCING EXCESSIVE DEBT	61
	Table 4.1 Average financial position of commercial farm operators by debt-to-asset (d/a) ratio, <u>Farm Journal</u> data	62
	Table 4.2 Distribution of commercial farm operators, assets and debts by debt-to-asset ratio, <u>Farm Journal</u> data	64

SECTION		<u>Page</u>
	Table 4.3 Annual interest and principal payment shortfalls of commercial operators under three cash rates of return to owned assets	66
	Table 4.4 Asset liquidation of commercial farmers scaling back to service debt from projected cash flows	68
	Table 4.5 Estimated impact of a targeted loan guarantee program	70
	Table 4.6 Distribution of benefits and annual costs to government of a fixed rate interest buydown	72
	Table 4.7 Estimated restructuring under the holding tank alternative	74
	Table 4.8 Debt discharge required for commercial farmers to service debt from projected cash flows	76
5	OBJECTIVES, SCOPE, AND METHODOLOGY	79
	Table 5.1 Factors affecting costs of alternatives	88
APPENDIX		
I	Farm Costs and Returns Survey: Sample and Procedures	89
II	ERS Definitions of Debt-to-Asset Ratio and Cash Balances	90

ABBREVIATIONS

ERS	Economic Research Service
FCRS	Farm Costs and Returns Survey
FJ	<u>Farm Journal</u>
FmHA	Farmers Home Administration
GAO	General Accounting Office
GFP	Government farm payments
D/A	Debt-to-asset ratio
D/E	Debt-to-equity ratio
OFI	Off-farm income

SECTION 1

REPORT SUMMARY

This section summarizes information on (1) the nature of current farm debt, (2) the distribution of federal farm program direct payments to financially-stressed farms, and (3) alternatives for reducing excessive farm debt.

NATURE OF FARM DEBT

There is more than \$200 billion of outstanding farm debt. As of September 30, 1985, five major institutional lenders--Farm Credit System (FCS), commercial banks, Farmers Home Administration (FmHA), Commodity Credit Corporation, and life insurance companies--reported that they held \$168 billion of farm debt. The balance was held by individuals, input suppliers, and others. The debt was split about equally between real estate and non-real estate loans. (See p. 20.)

The extent of debt repayment problems can be measured in various ways. One is the debt held by financially-stressed farmers. According to the the Department of Agriculture's Economic Research Service (ERS):

--Seventy four billion dollars in farm debt was held in 1984 by all farms with debt-to-asset ratios of 40 percent or more. (See p. 22.) ERS has found that financial troubles typically begin at the 40 percent ratio and worsen as the ratio increases.

--Of this \$74 billion, \$36 billion was held by farms receiving federal farm program direct payments. (See p. 32.)

Another measure of debt repayment problems is the amount of delinquent and/or nonperforming farm loans. As of September 30, 1985, the major lenders reported that such loans totaled \$25.7 billion. (See p. 28.)

DISTRIBUTION OF FEDERAL FARM
PROGRAM DIRECT PAYMENTS

Using ERS's 1984 Farm Costs and Returns Survey (FCRS) data, we identified the recipients of federal farm program direct cash payments (deficiency, conservation, storage, and diversion) by sales class and debt-to-asset ratio class. We did not attempt to identify trends over time or variations by farm type and location.

--Direct government farm payments totaled \$3.3 billion in 1984. Commercial farms (sales of \$40,000 or more) received \$3.0 billion, or 91 percent, of these payments. Commercial farms with debt-to-asset ratios of 40 percent or more received almost \$1.2 billion. (See p. 36.)

--The average payment per commercial farm by debt-to-asset ratio ranged from \$13,868 for the most-leveraged farms (100 percent or more debt-to-asset ratios) to \$10,606 for the least-leveraged farms (0-39 percent debt-to-asset ratios). By sales class, small commercial producers (sales between \$40,000 and \$99,999) received an average \$5,847 per farm. The largest producers (sales of \$500,000 or more) received an average payment of \$35,175. (See pp. 38 to 43.)

--About 43 percent of commercial farms received direct payments. (See p. 40.)

Cash Flow

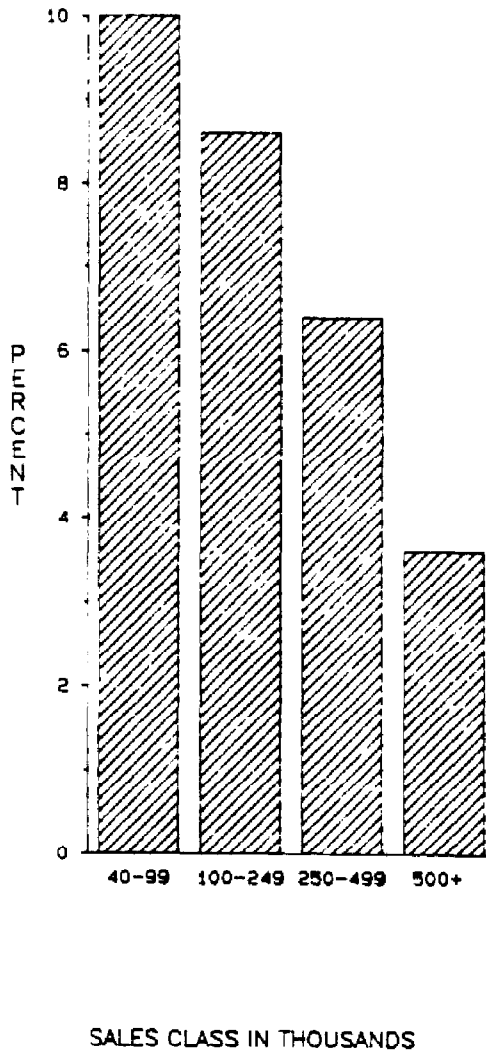
Overall, 44 percent of the commercial farms had a negative cash flow in 1984. The total shortfall for these farms was \$14.8 billion. (See p. 58.)

We analyzed the importance of direct government farm payments to farmers' annual cash flow (see p. 92 for definition of cash

flow). First, we divided the average government farm payment by the average cash farm sales. The analysis showed that government payments became relatively less important as a percentage of farm sales as farms got larger. Payments were, on average, 10 percent of sales for farms with sales between \$40,000 and \$99,999 and 3.6 percent for farms with sales of \$500,000 or more. (See p. 46.)

Figure 1.1

AVERAGE DIRECT FEDERAL FARM PAYMENTS AS PERCENTAGE OF AVERAGE CASH FARM SALES



Source: GAO analysis of ERS data.

Second, we subtracted total government farm payments from the total cash flow of farms receiving payments. With this calculation,

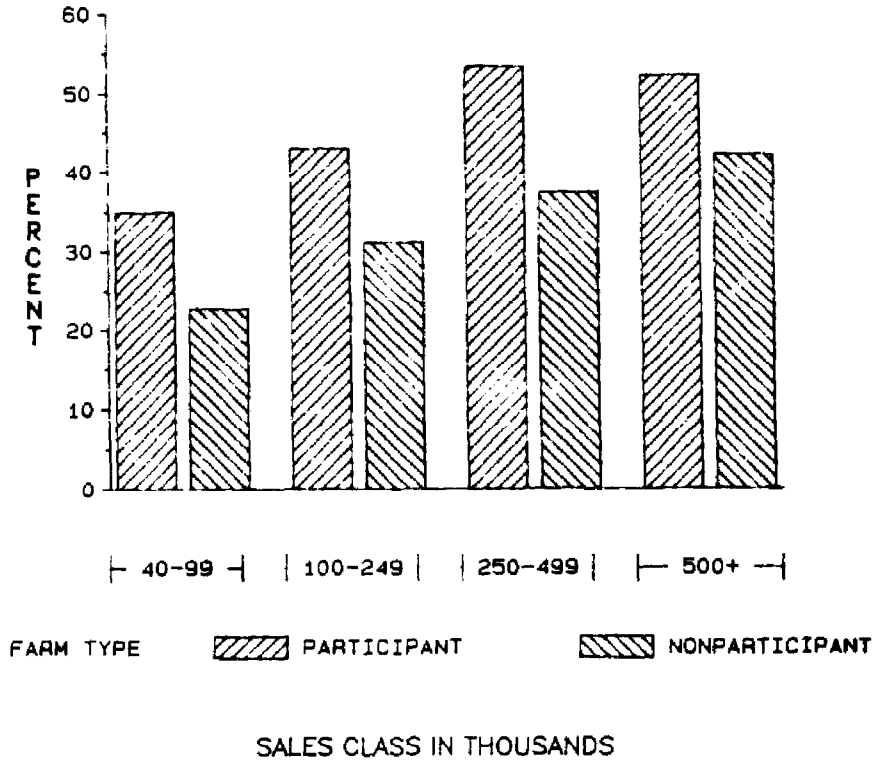
- only the largest and least-leveraged groups of farms retained their positive cash flow,
- the positive cash flow for the second largest group of farms (\$250,000 - \$499,999) was almost wiped out,
- the group of farms with sales between \$100,000 and \$249,999 went from a positive to negative total cash flow, and
- small commercial farms (\$40,000 - \$99,999) and farms with debt-to-asset ratios of 40 percent or more, which already had a negative cash flow, ended up with an even more negative cash flow. (See p. 44.)

Leverage and Profitability

We compared the level of leverage and profitability of commercial farms that did receive and did not receive direct government farm payments in 1984. We found that participating farms (those receiving payments) were more highly leveraged, on average, than nonparticipating farms. In the aggregate, participating farms held an average debt of \$189,690 with a 43.9 percent debt-to-equity ratio, while nonparticipating farms held an average debt of \$131,044 with a 30.9 percent debt-to-equity ratio. (See pp. 48 to 49.)

Figure 1.2

DEBT-TO-EQUITY RATIO BY SALES CLASS



Source: GAO analysis of ERS data.

The higher leverage subjects farms to greater financial risks. In the boom years of the 1970's, when rates of return to assets exceeded the cost of debt, leverage worked to the advantage of farmers. In the troubled 1980's, rates of return plunged relative to the cost of debt, and leverage worked to their disadvantage.

Our analysis of profitability also revealed differences between participating and nonparticipating farms. We divided cash

flow by equity to determine the returns on equity (excluding unrealized capital gains and losses). Participating farms had generally lower returns on equity than nonparticipating farms.

--Including off-farm income, the average returns on equity were 2.00 percent for participating farms and 2.33 percent for nonparticipating farms. Excluding off-farm income, the returns on equity became slightly negative for both farm groups.

--By sales class, participating farms had lower returns on equity in 1984 than nonparticipating farms for all but the largest sales class (\$500,000 or more). For example, including off-farm income, the average returns on equity for farms with sales between \$250,000 and \$499,999 were 3.20 percent for participating farms and 4.32 percent for nonparticipating farms. Excluding off-farm income, the returns on equity were 1.74 percent for participating farms and 2.49 percent for nonparticipating farms. (See p. 52.)

For the purposes of this study, we made no attempt to determine why participating farms, on average, had more debt and lower returns on equity.

ALTERNATIVES FOR REDUCING EXCESSIVE DEBT

American agriculture in the 1980's has been suffering from excessive debt, high real interest rates, lower commodity prices, reduced exports, and declining asset values.¹ Indications are

¹The financial trends of the 1970's and 1980's are detailed in our recent report, Financial Condition of American Agriculture (GAO/RCED-86-09, October 10, 1985).

that the farm sector had even weaker cash flow and returns on equity in 1985 than in 1984, and the prospects for 1986 are widely considered to be poor. The current farm debt is not expected to be fully repaid at projected levels of income, although the amount of the eventual write-off is not known.

We contracted with Iowa State University's Robert W. Jolly and Damona G. Doye for the use of their cash flow model, which uses the Farm Journal (FJ) 1984 survey data base to analyze alternatives for reducing excessive debt against a "status quo" approach. These alternatives, in probable increasing order of direct cost to the government, are:

--a federal loan guarantee with a 10 percent principal write-down by lenders,

--an interest rate buydown, ranging from 1.60 to 2.86 percentage points,

--a holding tank that would buy farm land and other assets and lease them out to farmers, and

--a federal discharge of debt.

We consider the model and data base to be adequate for the purposes of identifying "order of magnitude" estimates of costs and impacts. The estimates depend, of course, on assumptions about debt levels, asset values, interest rates, rates of return on assets, and other variables. The estimates can be higher or lower if different assumptions are made. (See page 88.)

The estimated results, as shown in Table 1.1, are for a mid-range set of assumptions--for example, cash rates of return on owned assets of 6.5 percent and recovery rates on liquidated

Table 1.1
Estimated Results from Jolly and Doye's Analysis of Alternatives
for Reducing Excessive Farm Debt

ALTERNATIVE	FARM ASSETS	FARM DEBT	OPERATORS	COST TO GOVERNMENT	COST TO LENDERS
STATUS QUO	*21 percent of assets sold for restructuring purposes (\$136 billion)	*57 percent of debt liquidated for restructuring purposes (\$91 billion)	*25 percent of operators go out of business (almost 160,000) *25 percent sell some assets to remain in business	*cost of current programs plus costs associated with economic dislocations	*7 percent of debt written off (\$11 billion)
LOAN GUARANTEE	*asset sales unnecessary for qualified operators *asset sales still required for other operators	*\$62,206 of debt discharged per qualified operator *debt liquidation still required for farms not covered by program	*3 percent of operators qualify *25 percent go out of business *20 percent still need to sell assets to remain in business	*\$11 billion contingent liability	*\$1.22 billion principal written down *writeoff of debt n covered by guarantee
INTEREST RATE BUYDOWN (2.11 percentage points)	*asset sales delayed for qualified operators *asset sales required for other operators	*debt liquidation delayed for farms helped to achieve zero cashflow *debt liquidation still required for farms not achieving zero cashflow	*35 percent qualify *13 percent go out of business *59 percent of aid goes to farms with debt-to-asset ratios of more than 70 percent	*\$1.31 billion annual subsidy *\$5,864 per farm	*\$2.04 billion interest shortfall remains
HOLDING TANK	*18 percent of assets purchased by tank and leased back to operators	*51 percent of debt liquidated	*22 percent sell all assets to tank *26 percent sell some assets to tank	*annual cost is interest on \$82 billion in Treasury securities less rental payments received on leased assets	*7 percent of debt written off
DEBT DISCHARGE	*no asset sales required because government discharged all debt of operators with negative cash flows	*42 percent discharged by government	*22 percent get all debt discharged *26 percent get some debt discharged *operators receive assets free and clear	*\$66 billion	*lenders receive \$66 billion from federal government

assets of 70 percent. Higher and lower sets of assumptions are also used, and the range of results is provided in section 4. The alternatives are targeted to commercial farmers (sales of \$40,000 or more) with negative cash flows who can make only partial or no interest payments; the intention of each alternative is to balance a farm's cash inflows and outflows. For the analysis, total farm assets are estimated to be \$647 billion, farm operator debt is \$159 billion, and the number of farm operators is 636,456.

Other Questions and Considerations

These estimated results tell, of course, only part of the story. Other questions could be raised in reviewing alternatives for reducing farm financial stress. For example, (1) what are the indirect costs to taxpayers and consumers; (2) who benefits from government actions; (3) who bears the risks of further declines in asset values or receives the benefits of future increases in asset values; (4) who bears the risks of future changes in interest rates; (5) does the proposal encourage the necessary adjustments and promote economic efficiency in the farm sector; (6) what are the administrative costs and feasibility of program implementation; and (7) is the program flexible enough to change with changing conditions?²

In examining the alternatives, we think certain considerations are important. First, for the purpose of these analyses, it is assumed that the federal government pays the full cost. Since the current situation can, arguably, be attributed to actions of the federal government, farmers, and lenders, the costs of making the necessary adjustments could be shared. Further, since farmers, lenders, and others would receive benefits from any

²These questions are discussed in "The Financial Crisis in U.S. Agriculture," by Neil Harl, Iowa State University, November 1985.

federal intervention, they might be expected to share in the costs. Recent interest buydown proposals, for example, have made provision for federal and state government and lender participation in the costs of such buydowns.

Second, while targeting of benefits on the basis of need may reduce costs of the alternatives, it also poses some difficulties. There may be little sense in supporting farmers who cannot be expected to survive even with assistance. Also, farmers who took a conservative approach and stayed out of debt may resent benefits flowing to their risk-taking neighbors.

SECTION 2

NATURE OF FARM DEBT

Table 2.1
Total Farm Debt Held by Major Institutional Lenders
September 30, 1985

<u>Lender</u>	<u>Real estate</u>	<u>Non-real estate</u>	<u>Total</u>
	(billions)		
Farm Credit System: ^a			
Federal Land Banks	\$49.3	\$ 0	\$ 49.3
Production Credit Associations	0	16.4	16.4
Commercial banks	11.0	39.3	50.3
Farmers Home Administration	9.9	18.1	28.0
Commodity Credit Corporation	0	12.2	12.2
Life insurance companies	<u>12.0</u>	<u>0</u>	<u>12.0</u>
Total ^b	<u>\$82.2</u>	<u>\$86.1</u>	<u>\$168.2</u>

^aFCS loans from Federal Intermediate Credit Banks (FICBs) and Banks for Cooperatives (BCs) are not included here because they do not make loans directly to farmers. FICB loans are made to Production Credit Associations and other financial institutions serving agriculture. BC loans are made to businesses rather than farm commodity producers.

^bTotals may not add due to rounding.

MOST FARM DEBT IS HELD BY
FIVE MAJOR INSTITUTIONAL LENDERS

Five major institutional lenders provide most of the loans to the nation's farmers. As of September 30, 1985, the outstanding debt held by these institutional lenders totaled over \$168 billion.

In addition, ERS annually reports on the farm debt held by other lenders, such as individuals. ERS's current estimate is that, as of December 31, 1985, these other lenders had \$25.9 billion outstanding in real estate loans and \$16.9 billion outstanding in non-real estate loans.

Table 2.2
Amount and Percent of Total Farm Debt by Debt-to-Asset Ratio and Sales Class

Sales class (thousands)		Debt-to-asset ratio ^b									
		0 - 39%		40 - 69%		70 - 99%		100% and more		Total ^a	
		A m o u n t (bil.)	P e r c e n t	A m o u n t (bil.)	P e r c e n t	A m o u n t (bil.)	P e r c e n t	A m o u n t (bil.)	P e r c e n t	A m o u n t (bil.)	P e r c e n t
\$500 and more	Amount Percent	\$6.3 5.2	\$6.3 5.3	\$3.3 2.7	\$4.4 3.7	\$20.2 16.9					
\$250- 499	Amount Percent	7.9 6.6	6.9 5.8	3.4 2.9	2.3 1.9	20.4 17.2					
\$100- 249	Amount Percent	12.8 10.8	13.0 10.9	5.8 4.8	3.9 3.3	35.5 29.8					
\$40- 99	Amount Percent	8.7 7.3	7.8 6.5	3.7 3.1	2.8 2.4	22.9 19.3					
\$0-39	Amount Percent	9.5 8.0	5.4 4.6	2.4 2.0	2.7 2.3	20.0 16.8					
Total ^a	Amount Percent	\$45.1 37.9	\$39.4 33.1	\$18.5 15.5	\$16.1 13.5	\$119.1 100.0					

^aTotals may not add due to rounding.

^bThe debt-to-asset ratio compares the value of assets to the amount of debt and is one indicator of financial soundness. According to ERS, farmers start having difficulties making principal payments at a 40-percent ratio. At 70 percent, farmers generally have problems making principal and interest payments and may start moving toward insolvency. At 100 percent, farmers are technically insolvent, unable to make principal and interest payments, and the value of assets, if sold, would not be sufficient to pay the debts.

Source: GAO analysis of ERS data.

FARM DEBT BY SALES CLASS AND
DEBT-TO-ASSET RATIO

In March 1985, ERS reported that total farm debt outstanding was \$212.1 billion as of December 31, 1984.¹ For our analysis, ERS provided us with farm debt information (from its 1984 Farm Costs and Returns Survey) that showed 1984 farm debt of \$119.1 billion. An ERS official explained the difference between the two figures. First, the \$119.1 billion only included farm operators' debt related to farming operations, including real estate used in those operations. Second, it excluded farm operators debt held for non-farm purposes, farm debt held by individuals other than farm operators, some Commodity Credit Corporation loans, and some small, noncommercial farmers. The \$212.1 billion included all of these debts.

Comparing farms by sales class, ERS's data show: (1) the greatest share of farm debt, 29.8 percent, was held by commercial farms with \$100,000 to \$249,999 in sales, (2) commercial farms with sales of \$500,000 or more accounted for 16.9 percent of the total farm debt, and (3) noncommercial farms (sales less than \$40,000) accounted for 16.8 percent of the debt.

Comparing farms by debt-to-asset ratio, ERS's data shows: (1) the greatest share of farm debt, 37.9 percent, was held by farms with less than a 40 percent ratio and (2) farms with a 70-percent or greater debt-to-asset ratio accounted for 29 percent of the total farm debt.

¹The Current Financial Condition of Farmers and Farm Lenders, Economic Research Service's Agriculture Information Bulletin Number 490, March 1985.

Table 2.3
Percentage of Farms, Debt, and Assets for Commercial Farms by
Debt-to-Asset Ratio and Sales Class

		Debt-to-asset ratio														
		0 - 39%			40 - 69%			70 - 99%			100% and more			Total		
Sales class (thousands)		F	D	A	F	D	A	F	D	A	F	D	A	F	D	A
		a	e	s	a	e	s	a	e	s	a	e	s	a	e	s
		r	b	s	r	b	s	r	b	s	r	b	s	r	b	s
		m	t	e	m	t	e	m	t	e	m	t	e	m	t	e
		s	t	s	s	t	s	s	t	s	s	t	s	s	t	s
		(percent)			(percent)			(percent)			(percent)			(percent)		
\$500 and more	Farms	3.1			1.0			0.4			0.3			4.8		
	Debt	6.3			6.4			3.3			4.4			20.4		
	Assets	12.2			3.3			1.1			0.8			17.3		
\$250- 499	Farms	6.7			2.5			1.0			0.6			10.8		
	Debt	7.9			7.0			3.4			2.3			20.6		
	Assets	12.8			3.5			1.1			0.4			18.0		
\$100- 249	Farms	24.1			7.6			2.6			1.7			36.2		
	Debt	12.9			13.1			5.8			4.0			35.8		
	Assets	26.4			6.6			1.9			0.8			35.7		
\$40- 99	Farms	34.9			8.2			2.9			2.2			48.2		
	Debt	8.8			7.8			3.7			2.8			23.2		
	Assets	23.4			3.9			1.2			0.6			29.0		
Total	Farms	68.8			19.3			7.0			4.9			100.0		
	Debt	35.9			34.3			16.3			13.5			100.0		
	Assets	74.7			17.4			5.4			2.5			100.0		

Source: GAO analysis of ERS data.

PERCENTAGE OF FARMS, DEBTS, AND
ASSETS FOR COMMERCIAL FARMS

Our analysis of commercial farms' financial data shows that

--A relatively small percentage of commercial farms (11.9 percent) had a debt-to-asset ratio of 70 percent or more. These farms had a relatively high amount of debt (29.8 percent) yet had a smaller amount of assets (7.9 percent).

--Most commercial farms (68.8 percent) had a debt-to-asset ratio of less than 40 percent. These farms accounted for a relatively much smaller amount of debt (35.9 percent) but a large proportion of assets (74.7 percent).

--The largest commercial farms, which have annual sales of \$500,000 or more, accounted for 4.8 percent of all commercial farms, yet had 20.4 percent of the debt and 17.3 percent of the assets.

Table 2.4
Average Amount of Debt and the Average Value of Assets for All Farms
by Debt-to-Asset Ratio and Sales Class

		Debt-to-asset ratio										Overall
		0 - 39%		40 - 69%		70 - 99%		100% and more		Average		
Sales Class (thousands)	Debt Assets	D	A	D	A	D	A	D	A	D	A	Average debt-to- asset ratio (percent)
		t	s	t	s	t	s	t	s	t	s	
		(thousands)		(thousands)		(thousands)		(thousands)		(thousands)		
\$500 and more	Debt Assets	\$322	\$2,316	\$990	\$1,905	\$1,181	\$1,461	\$2,392	\$1,517	\$665	\$2,104	31.6
\$250- 499	Debt Assets	185	1,118	435	823	550	680	566	411	298	969	30.8
\$100- 249	Debt Assets	84	638	268	507	345	431	356	257	155	577	26.9
\$40- 99	Debt Assets	39	390	150	281	199	234	198	145	75	351	21.4
\$0-39	Debt Assets	10	171	73	138	95	118	126	87	19	166	11.4
Average	Debt Assets	\$33	\$321	\$200	\$378	\$268	\$329	\$306	\$213	\$71	\$325	21.8
Overall average debt-to-asset ratio (percent)		10.3		52.9		81.4		143.6		21.8		

Source: GAO analysis of ERS data.

AVERAGE DEBT AND AVERAGE
ASSETS FOR ALL FARMS

As would be expected, the largest commercial farms had the highest average amounts of debt and assets. These farms also had the highest overall average debt-to-asset ratio (31.6 percent). As farm sales decreased, the average debt-to-asset ratios also decreased to 21.4 percent for the smallest commercial farms and to 11.4 percent for the noncommercial farms.

Table 2.5
Average Debt, Assets, and Debt-to-Asset Ratio
for Commercial, Noncommercial, and All Farms

<u>Farms</u>	<u>Average</u>		<u>Overall average</u>
	<u>Debt owed</u> (thousands)	<u>Assets owned</u> (thousands)	<u>Debt-to-asset ratio</u> (percent)
Commercial farms	\$156	\$583	26.8
Noncommercial farms	19	166	11.4
All farms	71	325	21.8

Source: GAO analysis of ERS data.

Table 2.6
Amount and Percent of Nonperforming and/or Delinquent Farm Loans Held by Four
Major Institutional Lenders, September 30, 1985^a

Lender	Real estate	Non-real estate	Total	Percent of portfolio nonperforming and/or delinquent ^f
	------(millions)-----			
Farm Credit System ^b :				
Federal Land Banks	\$ 6,098	\$ 0	\$ 6,098	12.4
Production Credit Associations	0	2,469	2,469	15.0
Commercial banks ^c	0	3,616	3,616	9.2
Farmers Home Administration ^d	3,040	8,747	11,788	42.1
Life insurance companies ^e	<u>1,729</u>	<u>0</u>	<u>1,729</u>	<u>14.4</u>
Total	<u>\$10,867</u>	<u>\$14,832</u>	<u>\$25,700</u>	<u>16.5</u>

^aExcludes Commodity Credit Corporation loans because borrowers have the option of repaying the loan or giving the commodity to the government to satisfy the loan. The Commodity Credit Corporation has estimated that the collateral crop on \$4.1 billion of its loans will be forfeited to the government during fiscal year 1986.

^bThe Farm Credit Administration (FCA) reported that the Omaha Federal Land Bank nonperforming loan data was preliminary, and it anticipated revisions. Also, FCA's data excluded some production credit associations in the St. Paul district.

^cFor commercial banks, the amount and percent of nonperforming and/or delinquent loans are incomplete because all banks are not required to report farm real estate and non-real estate loan quality data. The amount and percent included here are those reported by the Federal Reserve System.

^dDelinquency information provided by the Farmers Home Administration.

^eGAO's estimate of the delinquent amount and percent for life insurance companies is based on an adjustment to their June 1985 delinquency rates. Primary data was supplied by the American Council of Life Insurance.

^fDefinitions of nonperforming and/or delinquent farm loans vary somewhat by lender.

OVER \$25 BILLION OF FARM DEBT IS
NONPERFORMING AND/OR DELINQUENT

The farm loan portfolio of the major institutional lenders reflects the problems being experienced in the nation's farm sector. These lenders are experiencing stress in terms of high rates of nonperforming and delinquent loans, nonaccruals,² and loan charge-offs.³ Table 2.6 shows that, as of September 30, 1985, nonperforming and/or delinquent loans held by four of these institutional lenders totaled \$25.7 billion, or 16.5 percent of their total outstanding principal.

Nonaccrual loans are the most severe category of nonperforming loans and may indicate future loan charge-offs by lenders, given continued high stress in agriculture. As of September 30, 1985, nonaccrual farm loans totaled \$2.2 billion, for commercial banks and totaled \$4.2 billion for Federal Land Banks and Production Credit Associations in the Farm Credit System.

High levels of nonaccrual loans have occurred despite the rising trend in farm loan charge-offs. Through the first three quarters of 1985, charge-offs totaled \$775 million for commercial banks and \$622 million for Federal Land Banks and Production Credit Associations in the Farm Credit System.

²Nonaccrual loans are those where the accrual of interest has been suspended because full collection of principal and interest is in doubt.

³Loan chargeoffs are that portion of loans written off by lenders as uncollectible.

Table 2.7
Farm Debt For Farms With Negative Cash Balances^a

<u>Sales class</u> (thousands)	<u>-----Debt-to-asset ratio-----</u>				<u>Total debt</u>
	<u>0-39%</u>	<u>40-69%</u>	<u>70-99%</u> (millions)	<u>100% +</u>	
\$500 and more	\$ 2,620	\$ 3,692	\$ 1,787	\$ 3,573	\$11,672
250-499	3,216	3,930	2,739	1,548	11,434
100-249	5,479	8,933	4,645	3,216	22,272
40- 99	5,121	6,193	3,335	2,263	16,912
0- 39	<u>5,598</u>	<u>3,930</u>	<u>2,025</u>	<u>2,144</u>	<u>13,697</u>
Total	<u>\$22,034</u>	<u>\$26,679</u>	<u>\$14,530</u>	<u>\$12,744</u>	<u>\$75,986</u>

^aSee appendix II for ERS's definition of cash balances.

Source: GAO analysis of ERS data.

Table 2.8
Percentage of Total Farm Debt For Farms With Negative Cash Balances

<u>Sales class</u> (thousands)	<u>-----Debt-to-asset ratio-----</u>				<u>Total debt</u>
	<u>0-39%</u>	<u>40-69%</u>	<u>70-99%</u> (percent)	<u>100% +</u>	
\$500 and more	2.2	3.1	1.5	3.0	9.8
\$250-499	2.7	3.3	2.3	1.3	9.6
\$100-249	4.6	7.5	3.9	2.7	18.7
\$ 40- 99	4.3	5.2	2.8	1.9	14.2
\$ 0- 39	<u>4.7</u>	<u>3.3</u>	<u>1.7</u>	<u>1.8</u>	<u>11.5</u>
Total	<u>18.5</u>	<u>22.4</u>	<u>12.2</u>	<u>10.7</u>	<u>63.8</u>

Source: GAO analysis of ERS data.

MOST FARM DEBT HELD BY FARMS
WITH NEGATIVE CASH BALANCES

One measure of a farm's financial condition is its cash flow. The annual cash flow or--to use ERS's term--cash balance is derived by adding up all income received (including cash farm sales, off-farm income, and government payments) and subtracting expenses (including operating costs, interest and principal payments, and family living expenses). If a farm has a negative cash flow, it must cover the shortfall by using existing savings, selling off owned assets, or borrowing additional funds. Of course, care must be taken in using a cash flow measure. Even profitable businesses may experience annual cash flow problems if, for example, they are increasing inventories or productive assets. Conversely, unprofitable firms may have a positive cash flow in the short run if assets are being liquidated.

The FCRS survey shows that farms with negative cash balances in 1984 held \$76 billion, or 64 percent, of all U.S. farm debt. Some 46 percent of the debt was held by operators with negative cash balances and debt-to-asset ratios of 40 percent or more. If farmers continue to suffer cash shortfalls, the risk of defaults on these loans of course increases.

Table 2.9
Amount and Percent of Debt Held by Farms that Participated In and That Did
Not Participate In Government Payment Programs, by Debt-to-Asset Ratio

Debt-to-Asset Ratio (percent)	Participating farms		Nonparticipating farms		Total ^a	
	Debt (millions)	Percent	Debt (millions)	Percent	Debt (millions)	Percent
0 - 39 Amount Percent	\$20,137	16.9	\$24,999	21.0	\$45,137	37.9
40 - 69 Amount Percent	20,341	17.1	19,066	16.0	39,406	33.1
70 - 99 Amount Percent	8,996	7.6	9,482	8.0	18,478	15.5
100 and more Amount Percent	6,642	5.6	9,438	7.9	16,080	13.5
Total Amount Percent	\$56,116	47.1	\$62,985	52.9	\$119,101	100.0

^aTotals may not add due to rounding.

Source: GAO analysis of ERS data.

DEBT HELD BY PARTICIPATING
AND NONPARTICIPATING FARMS
BY DEBT-TO-ASSET RATIO

Farms receiving government farm payments in 1984 accounted for \$56.1 billion, or 47.1 percent, of the \$119.1 billion debt reported by ERS. Some 13.2 percent, or \$15.6 billion, of this debt was held by participating farms that had a 70 percent or greater debt-to-asset ratio.

SECTION 3

DISTRIBUTION OF FEDERAL FARM
PROGRAM DIRECT PAYMENTS

Table 3.1
Government Payments Received by Participating Farms

<u>Sales class</u> <u>(thousands)</u>	<u>Debt-to-asset ratio</u>				<u>Total</u>
	<u>0-39%</u>	<u>40-69%</u>	<u>70-99%</u>	<u>100% +</u>	
	<u>(millions)</u>				
<u>Commercial farms</u>					
\$500 and more	\$ 244.36	\$104.30	\$ 52.69	\$ 39.10	\$ 440.45
250-499	326.00	204.82	50.25	28.83	609.89
100-249	825.12	280.19	95.26	69.76	1,270.33
40- 99	<u>471.63</u>	<u>126.45</u>	<u>63.47</u>	<u>42.91</u>	<u>704.46</u>
Subtotal	<u>\$1,867.11</u>	<u>\$715.76</u>	<u>\$261.67</u>	<u>\$180.60</u>	<u>\$3,025.14</u>
<u>Noncommercial farms</u>					
\$20-39	\$ 146.33	\$ 28.44	\$ 7.12	\$ 5.85	\$ 187.74
10-19	51.79	7.98	a	a	72.42
5- 9	24.41	0.29	a	a	26.82
0- 4	<u>11.75</u>	<u>0.49</u>	<u>a</u>	<u>a</u>	<u>12.27</u>
Subtotal	\$ <u>234.28</u>	\$ <u>37.20</u>	\$ <u>7.12</u>	\$ <u>5.85</u>	\$ <u>299.25</u>
Total	<u>\$2,101.39</u>	<u>\$752.95</u>	<u>\$277.96</u>	<u>\$192.08</u>	<u>\$3,324.39</u>

^aData not available.

Source: GAO analysis of ERS data.

MOST GOVERNMENT FARM PAYMENTS RECEIVED BY COMMERCIAL FARMS AND FARMS WITH LOW DEBT-TO-ASSET RATIOS

Direct government farm payments to participating farms under the commodity programs totaled \$3.3 billion in 1984. Commercial farms received \$3.0 billion, or 91 percent, of these payments. Commercial farms with debt-to-asset ratios of 40 percent or more received almost \$1.2 billion, or 38 percent, of payments to commercial farms.

Direct government farm payments are defined by ERS as cash income from deficiency, storage, conservation, and diversion payments. Deficiency payments are cash payments made directly to farmers to supplement their incomes when a commodity's market price is lower than a set or target price established by law. Storage payments reimburse farmers for storing commodities in the farmer-owned grain reserve. Conservation payments are made to farmers to encourage soil conservation. Diversion payments are made under certain circumstances to farmers who agree to take a specified percentage of their acreage (or dairy cows) out of production. Not included in the definition of government farm payments are any payment-in-kind disbursements and indirect price benefits to farms from the commodity programs' acreage reduction provisions or non-recourse loan rates.

Table 3.2
Government Farm Payments (GFP) Received by Participating Farms by
Debt-to-Asset Ratio

<u>Debt-to-asset</u> <u>ratio</u> (percent)	<u>GFP for</u> <u>all</u> <u>farms</u> ----- <u>(millions)</u> -----	<u>GFP for</u> <u>commercial</u> <u>farms</u>	<u>No. of</u> <u>farms</u>	<u>No. of</u> <u>commercial</u> <u>farms</u>	<u>Average GFP</u>	
					<u>All</u> <u>farms</u>	<u>Commercial</u> <u>farms</u>
100 or more	\$ 192.0	\$ 180.6	18,062	13,023	\$10,635	\$13,868
70 - 99	278.0	261.7	27,492	22,300	10,111	11,734
40 - 69	753.0	715.8	72,622	60,766	10,368	11,779
0 - 39	<u>2,101.4</u>	<u>1,867.1</u>	<u>302,285</u>	<u>176,039</u>	<u>6,952</u>	<u>10,606</u>
Total	<u>\$3,324.4</u>	<u>\$3,025.1</u>	<u>420,460</u>	<u>272,128</u>	<u>\$ 7,907</u>	<u>\$11,117</u>

Source: GAO analysis of ERS data.

GOVERNMENT FARM PAYMENTS
BY DEBT-TO-ASSET RATIOS

About 36.8 percent of total government farm payments in 1984 went to farms with debt-to-asset ratios of 40 percent or more. Technically-insolvent farms (with ratios of 100 percent or more) received \$192.0 million.

Technically-insolvent commercial farms received an average of 30.8 percent, or \$3,262, more in payments than low-leveraged commercial farms (debt-to-asset ratios of less than 40 percent). Farms with debt-to-asset ratios between 70 and 99 percent received 10.6 percent, or \$1,128, more than low-leveraged farms.

Table 3.3
Number and Percentage of Farms Receiving Government
Farm Payments by Sales Class

<u>Sales class</u> <u>(thousands)</u>	<u>Total</u> <u>number</u> <u>of farms</u>	<u>Number</u> <u>of farms</u> <u>receiving</u> <u>payments</u>	<u>Percentage</u> <u>of farms</u> <u>receiving</u> <u>payments</u>
\$500 and more	30,363	12,522	41
250-499	68,578	30,779	45
100-249	229,255	108,345	47
40- 99	305,949	120,483	39
20- 39	198,460	61,028	31
10- 19	193,086	36,808	19
5- 9	201,412	25,452	13
0- 4	<u>442,206</u>	<u>25,044</u>	<u>6</u>
Total	<u>1,669,308</u>	<u>420,460</u>	<u>25</u>

Source: GAO analysis of ERS data.

Table 3.4
Percentage of Farms Receiving Government Farm Payments by
Sales Class and Debt-to-Asset Ratio

<u>Sales class</u> <u>(thousands)</u>	<u>-----Debt-to-asset ratio-----</u>				<u>Aggregate</u> <u>average</u>
	<u>0-39%</u>	<u>40-69%</u>	<u>70-99%</u>	<u>100% +</u>	
	<u>-----(percent)-----</u>				
\$500 and more	41	45	38	39	41
250-499	41	56	46	41	45
100-249	45	55	54	39	47
40- 99	37	43	50	45	39
20- 39	30	34	30	33	31
10- 19	19	13	a	a	19
5- 9	13	4	a	a	13
0- 4	<u>6</u>	<u>8</u>	<u>a</u>	<u>a</u>	<u>6</u>
Aggregate average	<u>22</u>	<u>37</u>	<u>40</u>	<u>34</u>	<u>25</u>

^aData not available.

Source: GAO analysis of ERS data.

MANY COMMERCIAL FARMS
RECEIVED PAYMENTS

Federal direct support for agricultural producers is commodity specific. Commodities that receive direct government farm payments include wheat, feedgrains, cotton, and rice.

The overall rate of farms receiving direct farm program payments was 25 percent in 1984. There were, however, differences in rates by sales class. Commercial farms (sales of \$40,000 or more) had rates ranging from 39 percent to 47 percent with an average of 43 percent. Farms with sales of less than \$10,000 had much lower rates.

Table 3.5
Average Government Farm Payments Received by
Participating Farms by Sales Class and Debt-to-Asset Ratio

<u>Sales class</u> (thousands)	-----Debt-to-asset ratio-----				<u>Aggregate average</u>
	<u>0-39%</u>	<u>40-69%</u>	<u>70-99%</u>	<u>100% +</u>	
\$500 and more	\$30,924	\$36,353	\$50,596	\$55,118	\$35,175
250-499	18,712	23,097	17,508	17,801	19,815
100-249	12,076	10,515	10,450	16,396	11,725
40-99	5,725	5,649	6,845	6,664	5,847
20-39	3,001	3,931	3,308	2,030	3,076
10-19	1,644	3,983	a	a	1,967
5-9	1,049	689	a	a	1,054
0-4	517	223	a	a	490
 Aggregate average	 \$ <u>6,952</u>	 <u>\$10,368</u>	 <u>\$10,111</u>	 <u>\$10,635</u>	 \$ <u>7,907</u>

^aData not available.

Source: GAO analysis of ERS data.

AVERAGE GOVERNMENT FARM PAYMENTS
VARIED WITH SIZE OF FARM

Small commercial farms (sales between \$40,000-\$99,999) received less than \$6,000 in payments, on average, in 1984. Large producers (sales of \$500,000 or more) received about \$35,000, on average.

There were no clear trends in government farm payments within a sales class for different debt-to-asset ratios. However, among the largest producers, the size of the average payment increased significantly as the debt-to-asset ratio increased.

Table 3.6
Government Farm Payments (GFP) and Cash Balances for
Commercial Farms Receiving Payments By Sales Class and
Debt-to-Asset Ratio

<u>Sales class</u> (thousands)	<u>Cash</u> <u>balances</u> ----- <u>(millions)</u> -----	<u>GFP</u>	<u>Cash balances</u> <u>minus GFP</u>	<u>GFP/</u> <u>cash balances</u> (percent)
\$500 and more	\$1,543.7	\$ 440.5	\$1,103.3	28.5
250 - 499	665.3	609.9	55.4	91.7
100 - 249	578.2	1,270.3	(692.1)	219.7
40 - 99	<u>(437.7)</u>	<u>704.5</u>	<u>(1,142.2)</u>	<u>(160.9)^b</u>
	<u>\$2,349.6^a</u>	<u>\$3,025.1^a</u>	<u>(\$ 675.6)</u>	<u>128.8</u>
<u>Debt-to-asset</u> <u>ratio</u> (percent)				
100 and more	\$ (472.3)	\$ 180.6	\$ (652.9)	(38.2) ^b
70-99	(635.2)	261.7	(896.9)	(41.2) ^b
40-69	(974.9)	715.8	(1,690.6)	(73.4) ^b
0-39	<u>4,432.0</u>	<u>1,867.1</u>	<u>2,564.9</u>	<u>42.1</u>
	<u>\$2,349.6</u>	<u>\$3,025.1^a</u>	<u>(\$675.6)^a</u>	<u>128.8</u>

^aTotals may not add due to rounding.

^bIn the absence of government farm payments, cash balances would have decreased by these percentages.

Source: GAO analysis of ERS data.

IMPORTANCE OF GOVERNMENT FARM PAYMENTS

The importance of government farm payments to farmers' cash flow is analyzed by using two indicators. One is the proportion of total payments to total cash balances. By sales class, total payments were less than 30 percent of the largest farms' (\$500,000 and more in sales) total cash balance in 1984. Payments were a much higher proportion for other farms. For farms with sales between \$100,000 and \$249,999, total payments were more than twice the amount of the total cash balance.

The second indicator is the contribution that payments make to farmers' cash balances. If payments were excluded, the farms with sales between \$100,000 and \$249,999 would go from a positive to negative total cash balance. Almost the entire positive cash balance for the next largest group (\$250,000 to \$499,999) would be wiped out. By debt-to-asset ratio, the farms with ratios of 100 percent or more, 70 to 99 percent, and 40 to 69 percent--which already have negative cash balances--would have even lower cash balances. This is particularly true for farms with debt-to-asset ratios between 40 and 69 percent. For this group the total cash balance would move from -\$974.9 million to -\$1,690.6 million.

Table 3.7
Ratio of Average Government Farm Payments
To Average Cash Farm Sales^a

<u>Sales class</u> (thousands)	-----Debt-to-asset ratio-----				Aggregate average
	<u>0-39%</u>	<u>40-69%</u>	<u>70-99%</u>	<u>100% +</u>	
	-----(percent)-----				
\$500 and more	3.5	3.6	4.4	3.8	3.6
250-499	6.1	7.5	5.5	6.1	6.4
100-249	8.9	7.3	7.7	12.1	8.6
40- 99	9.9	9.0	11.9	12.0	10.0
Aggregate average	<u>7.1</u>	<u>6.6</u>	<u>6.7</u>	<u>7.4</u>	<u>6.9</u>

^aCash farms sales is an average for all farms.

Source: ERS Bulletin No. 495, Appendix Table 5, and GAO analysis of ERS data.

RATIO OF GOVERNMENT FARM PAYMENTS TO
CASH SALES DECREASED WITH FARM SIZE

Farmers receive income from the cash sales of crops and livestock and from other sources such as customwork, machine hire, off-farm income, and government payments.

In 1984 government payments were more important as a percentage of sales to the smaller commercial farmers, regardless of their debt-to-asset ratio. On average, government farm payments were 10 percent of cash farm sales for small commercial farms, decreasing to 3.6 percent for the large commercial farms.

It should be noted that we had data on the average government payments to participating farms, but not on cash farm sales for participating farms only. Therefore, we divided average government farm payments for participating farms by average cash farm sales for all farms.

Table 3.8
Commercial Farms
Average Assets, Debt, and Equity
By Sales Class

<u>Participating farms</u>				<u>Nonparticipating farms</u>		
<u>Average assets</u>	<u>Average debt</u>	<u>Average equity</u>	<u>Sales class</u> (thousands)	<u>Average assets</u>	<u>Average debt</u>	<u>Average equity</u>
\$2,238,460	\$764,453	\$1,472,608	\$500 and more	\$2,009,977	\$593,857	\$1,416,064
1,034,666	359,336	675,363	250-499	915,474	248,208	667,266
617,001	184,817	432,184	100-249	540,543	127,988	412,555
351,560	90,892	260,667	40-99	350,512	64,610	285,896
\$621,312	\$189,690	\$431,623	Aggregate average	\$554,749	\$131,044	\$423,719

Source: GAO analysis of ERS data.

Table 3.9
Commercial Farms
Average Assets, Debt, and Equity
By Debt-to-Asset Ratio

<u>Participating farms</u>				<u>Nonparticipating farms</u>		
<u>Average assets</u>	<u>Average debt</u>	<u>Average equity</u>	<u>Debt-to-asset ratio</u> (percent)	<u>Average assets</u>	<u>Average debt</u>	<u>Average equity</u>
\$327,396	\$454,545	(\$127,457)	100 and more	\$280,182	\$413,338	(\$133,100)
457,982	373,991	84,215	70-99	436,968	354,914	82,145
591,499	315,143	276,306	40-69	459,486	240,121	219,414
674,032	103,443	570,601	Less than 40	606,279	66,763	539,508
\$621,312	\$189,689	\$431,623	Aggregate average	\$554,749	\$131,044	\$423,719

Source: GAO analysis of ERS data.

PARTICIPATING COMMERCIAL FARMS
WERE MORE HIGHLY LEVERAGED

Participating commercial farms (those receiving government farm payments) held greater amounts of debt, on average, than nonparticipating farms in relation to their assets and equity in 1984. In the aggregate, participating commercial farms held an average debt of \$189,690 with a 43.9 percent debt-to-equity ratio. Nonparticipating farms held an average debt of \$131,044 with a 30.9 percent debt-to-equity ratio. We made no attempt to determine why participating commercial farms were more highly leveraged.

Participating farms' relatively higher financial leverage--as measured by debt-to-asset and debt-to-equity ratios--subject participating farms to greater financial risks and possibly negative returns on equity when rates of return on assets decline relative to the cost of debt (as in the 1980's). Conversely, more highly-leveraged farms enjoy greater returns to equity than low-leveraged farms when returns to assets exceed the cost of debt (as in the 1970's).

Table 3.10
Commercial Farms Debt-to-Asset (D/A) Ratio
and Debt-to-Equity (D/E) Ratio By Sales Class

<u>Participating farms</u>		<u>Sales class</u> (thousands)	<u>Nonparticipating farms</u>	
<u>D/A ratio</u> ----- (percent)	<u>D/E ratio</u> ----- (percent)		<u>D/A ratio</u> ----- (percent)	<u>D/E ratio</u> ----- (percent)
34.2	52.0	\$500 or more	29.5	42.0
34.7	53.2	250-499	27.1	37.2
30.0	42.8	100-249	23.7	31.0
25.9	34.9	40-99	18.4	22.6
30.5	43.9	Aggregate average	23.6	30.9

Source: GAO analysis of ERS data.

Table 3.11
Commercial Farms Average Cash Balances Including and
Excluding Off-Farm Income (OFI) by Sales Class

<u>Participating farms</u> <u>average cash balances</u>			<u>Nonparticipating farms</u> <u>average cash balances</u>	
<u>Including</u> <u>OFI</u>	<u>Excluding</u> <u>OFI</u>	<u>Sales class</u> <u>(thousands)</u>	<u>Including</u> <u>OFI</u>	<u>Excluding</u> <u>OFI</u>
\$123,303	\$103,658	\$500 and more	\$69,559	\$59,302
21,606	11,762	250-499	28,837	16,641
5,335	(2,999)	100-249	13,713	1,448
(3,635)	(12,607)	40-99	(2,211)	(11,717)
\$ 8,636	(\$672)	Aggregate average	\$ 9,886	(\$862)

Source: GAO analysis of ERS data.

Table 3.12
Commercial Farms Average Cash Balances Including and
Excluding Off-Farm Income (OFI) by Debt-to-Asset Ratio

<u>Participating farms</u> <u>average cash balances</u>			<u>Nonparticipating farms</u> <u>average cash balances</u>	
<u>Including</u> <u>OFI</u>	<u>Excluding</u> <u>OFI</u>	<u>Debt-to-asset</u> <u>ratio</u> <u>(percent)</u>	<u>Including</u> <u>OFI</u>	<u>Excluding</u> <u>OFI</u>
\$(36,241)	\$(41,616)	100 and more	\$(41,667)	\$(49,490)
(28,475)	(35,381)	70-99	(23,190)	(31,427)
(16,045)	(24,471)	40-69	(12,119)	(19,264)
25,176	15,411	0-39	21,462	9,385
\$ 8,636	(\$672)	Aggregate average	\$ 9,886	(\$862)

Source: GAO analysis of ERS data.

PARTICIPATING COMMERCIAL FARMS GENERALLY HAD
LOWER CASH BALANCES

Commercial farms receiving government farm payments generally had lower cash balances than those not receiving payments in 1984. In the aggregate, participating farms had an average balance of \$8,636 compared to \$9,886 for nonparticipating farms. The exception to this rule is the \$500,000 and more sales class, which had significantly higher cash balances for participating farms. When off-farm income is excluded, both participating and nonparticipating farms had a small average negative cash balance. We made no attempt to determine why participating commercial farms generally had lower cash balances.

Table 3.13
Commercial Farms Return On Equity By Sales Class

<u>Participating farms</u> <u>return on equity</u>		<u>Sales class</u> <u>(thousands)</u>	<u>Nonparticipating farms</u> <u>return on equity</u>	
<u>Including</u> <u>off-farm</u> <u>income</u> ----- (percent)	<u>Excluding</u> <u>off-farm</u> <u>income</u> ----- (percent)		<u>Including</u> <u>off-farm</u> <u>income</u> ----- (percent)	<u>Excluding</u> <u>off-farm</u> <u>income</u> ----- (percent)
8.37	7.04	\$500 and more	4.91	4.19
3.20	1.74	250-499	4.32	2.49
1.23	(0.69)	100-249	3.32	0.35
(1.39)	(4.31)	40-99	(0.77)	(4.10)
2.00	(0.16)	Aggregate average	2.33	(0.20)

Source: GAO analysis of ERS data.

Table 3.14
Commercial Farms Return On Equity By Debt-to-Asset Ratio

<u>Participating farms</u> <u>return on equity</u>		<u>Debt-to-asset</u> <u>ratio</u> ----- (percent)	<u>Nonparticipating farms</u> <u>return on equity</u>	
<u>Including</u> <u>off-farm</u> <u>income</u> ----- (percent)	<u>Excluding</u> <u>off-farm</u> <u>income</u> ----- (percent)		<u>Including</u> <u>off-farm</u> <u>income</u> ----- (percent)	<u>Excluding</u> <u>off-farm</u> <u>income</u> ----- (percent)
a	a	100 and more	a	a
(33.81)	(42.01)	70-99	(28.23)	(37.40)
(5.81)	(8.86)	40-69	(5.52)	(8.78)
4.41	2.70	0-39	3.98	1.74
2.00	(0.16)	Aggregate average	2.33	(0.20)

^aNegative equity precludes use of return-on-equity measure.

Source: GAO analysis of ERS data.

PARTICIPATING COMMERCIAL FARMS GENERALLY
HAD LOWER RETURNS ON EQUITY

We calculated returns on equity by dividing cash balance by equity, excluding unrealized capital gains and losses. Substantial capital losses have been experienced by much of the farm sector in recent years, driving the sector's overall return on equity below zero.

Participating commercial farms generally had lower returns on equity than nonparticipating farms in 1984. The aggregate returns on equity were 2.00 percent for participating farms and 2.33 percent for nonparticipating farms. Excluding off-farm income, the returns became negative. We made no attempt to determine why participating farms generally had lower returns on equity than nonparticipating farms.

Table 3.15
Selected Information on Commercial Farms by Sales Class

	Sales class (thousands)				Total
	\$40 to 99	\$100 to 249	\$250 to 499	\$500 and over	
Number of farms	305,949	229,255	68,578	30,359	634,141 ^a
Percent of commercial farms	48.2	36.2	10.8	4.8	100.0
----- (average per farm) -----					
Cash sales	\$58,711	\$136,908	\$307,227	\$971,860	\$157,572
Off-farm income	9,298	10,409	11,141	14,120	10,130
Operating expenses	49,704	106,750	242,642	819,331	128,038
Interest payments	8,430	17,565	35,048	76,634	17,876
Principal payments	6,447	13,317	25,636	57,166	13,434
Total assets	350,924	576,675	968,977	2,104,025	583,314
Total debt	74,962	154,843	298,090	664,723	156,205
Equity/net worth	277,948	424,827	674,956	1,443,342	429,774
----- (percent) -----					
Average debt-to-asset ratio	21.4	26.9	30.8	31.6	26.8
Commercial farm debt	23.2	35.8	20.6	20.4	100.0
Farms with negative or zero cash flow	48.0	40.0	38.0	40.0	43.6

^aERS has also reported that there were 636,456 commercial farms in 1984.

Source: GAO analysis of ERS data.

SELECTED INFORMATION ON COMMERCIAL FARMS

In 1984 there were approximately 634,000 commercial farms (sales of \$40,000 or more) in the United States. While these farms overall had a relatively low average debt-to-asset ratio and substantial net worth, they were not all necessarily financially strong. Between 38 and 48 percent of these farms, depending on sales class, had negative or zero cash flows.

Table 3.16
Percentage of Selected Balance Sheet and Income Measures Held
by Commercial and Noncommercial Farms by Sales Class

<u>Sales class</u> (thousands)	<u>Sales</u>	<u>Assets</u>	<u>Debts</u>	<u>Off-farm income</u>	<u>Cash balances</u>
	----- (percent) -----				
Commercial farms					
\$500 and more	27.1	11.8	16.9	10.3	38.8
250-499	19.2	12.3	17.2	10.9	24.5
100-249	28.6	24.4	29.8	22.9	31.2
40- 99	16.3	19.8	19.3	20.0	(11.8)
Subtotal	91.2	68.3	83.2	64.1	82.6
Noncommercial farms					
\$ 20- 39	4.4	8.8	6.5	9.4	7.8
10- 19	2.2	6.8	3.9	7.7	(2.5)
0- 9	2.2	16.1	6.4	18.8	12.1
Subtotal	8.8	31.7	16.8	35.9	17.4
Total	<u>100.0</u>	<u>100.0</u>	<u>100.0</u>	<u>100.0</u>	<u>100.0</u>

Source: ERS publication No. 495, Table 1, and GAO analysis of ERS data.

COMMERCIAL FARMS ACCOUNTED FOR HIGH PERCENTAGE OF
SELECTED BALANCE SHEET AND INCOME MEASURES

In 1984 commercial farms (those with sales of more than \$40,000) accounted for 91 percent of sales, 68 percent of assets, and 83 percent of debts. They also accounted for 64 percent of off-farm income and 83 percent of cash balances. The top two categories--farms with sales of at least \$250,000--accounted for 46 percent of all sales, 24 percent of assets, 34 percent of debt, 21 percent of off-farm income, and 63 percent of cash balances.

Noncommercial farms (sales of less than \$40,000) accounted for 9 percent of sales, 32 percent of assets, 17 percent of debt, 36 percent of off-farm income, and 17 percent of cash balances.

Table 3.17
Cash Balances and Operating Margins Of
All Farms With Negative Cash Flows by Debt-to-Asset Ratio

	<u>Debt-to-asset ratio</u>				<u>Total</u>
	<u>0-39%</u>	<u>40-69%</u>	<u>70-99%</u>	<u>100% +</u>	
Farms					
Total farms	621,913	119,662	51,820	38,932	832,327
Receiving payments	116,486	46,077	22,079	13,169	197,811
Not receiving payments	505,427	73,584	29,742	25,763	634,515
----- (millions) -----					
Cash balances					
Total cash	(\$12,748.83)	(\$5,046.15)	(\$2,605.37)	(\$2,447.06)	(\$22,847.40)
Farms receiving payments	(2,982.47)	(2,331.47)	(1,105.07)	(838.07)	(7,257.09)
Farms not rec. pay.	(9,766.36)	(2,714.67)	(1,500.29)	(1,608.99)	(15,590.32)
Cash operating margin					
Total operating cash	(6,384.07)	(2,161.80)	(1,123.43)	(1,167.58)	(10,836.87)
Farms receiving payments	(1,309.18)	(863.88)	(394.99)	(370.65)	(2,938.70)
Farms not rec. pay.	(5,074.90)	(1,297.91)	(728.44)	(796.93)	(7,898.18)

Source: GAO analysis of ERS data.

Table 3.18
Cash Balances and Operating Margins of
Commercial Farms with Negative Cash Flows by Debt-to-Asset Ratio

	<u>Debt-to-asset ratio</u>				<u>Total</u>
	<u>0-39%</u>	<u>40-69%</u>	<u>70-99%</u>	<u>100% +</u>	
Farms					
Total farms	143,327	72,874	33,050	21,019	270,270
Receiving payments	55,951	37,899	17,044	8,751	119,645
Not receiving payments	87,376	34,975	16,006	12,268	150,625
----- (millions) -----					
Cash balances					
Total cash	(\$6,668.61)	(\$4,088.36)	(\$2,112.57)	(\$1,935.92)	(\$14,805.45)
Farms receiving payments	(2,212.69)	(2,088.77)	(987.85)	(740.50)	(6,029.82)
Farms not rec. pay.	(4,455.92)	(1,999.59)	(1,124.71)	(1,195.42)	(8,775.64)
Cash operating margin					
Total operating cash	(4,033.80)	(1,611.92)	(822.17)	(914.05)	(7,381.94)
Farms receiving payments	(1,078.29)	(727.85)	(325.36)	(319.75)	(2,451.26)
Farms not rec. pay.	(2,955.51)	(884.07)	(496.80)	(594.30)	(4,930.68)

Source: GAO analysis of ERS data.

SIGNIFICANT CASH SHORTFALLS

AFFECTED MANY FARMS

About one-half of all farms and more than two-fifths of all commercial farms had negative cash balances in 1984. This means that farm sales and other sources of income could not pay all production expenses, principal and interest payments, and family living expenses (assumed to be \$12,950). "Cash balances" is a short-run measure that does not allow for depreciation of capital or return on land, machinery, and labor. Another measure used to evaluate the profitability of a farming operation is "cash operating margin"--the difference between gross farm cash income and gross farm cash expenses--excluding off-farm income, principal repayment, and family living expenses.

In 1984 all farms with negative cash flows would have needed \$22.85 billion to make their cash balances equal to zero and \$10.84 billion to make their cash operating margins equal to zero. If the universe of negative cash flow farms is limited to those commercial farms receiving government farm payments, then \$6.03 billion would have been needed to make the cash balances equal to zero and \$2.45 billion to make the cash operating margins equal to zero.

Interestingly, there were many farms with debt-to-asset ratios less than 40 percent that have negative cash flows. Among 634,000 commercial farms, there were over 143,000 such farms, for a negative cash balance of \$6.67 billion.

SECTION 4

ALTERNATIVES FOR REDUCING EXCESSIVE DEBT

Table 4.1
Average Financial Position of Commercial Farm Operators by Debt-to-Asset (D/A) Ratio
Farm Journal Data^a

Region	Debt-to-asset ratio				All FJ	FCRS ^b
	0-9%	10-39%	40-69%	70+%		
East						
Assets	\$ 598,851	\$ 535,688	\$ 527,690	\$373,625 ^d	\$ 555,000	\$419,049
Debts	16,969	135,129	261,206	334,484	111,327	96,565
Net worth	\$ 581,882	\$ 400,559	\$ 266,484	\$ 39,141	\$ 443,673	\$322,484
D/A ratio (%)	2.83	25.23	49.50	89.52	20.06	23.04
South						
Assets	\$ 870,659	\$ 846,759	\$ 465,673	\$216,683 ^d	\$ 716,101	\$627,844
Debts	12,045	205,247	248,189	218,583	152,756	127,496
Net worth	\$ 858,614	\$ 641,512	\$ 217,484	\$ -1,900	\$ 563,345	\$500,348
D/A ratio (%)	1.38	24.24	53.30	100.90	21.33	20.31
Central						
Assets	\$ 599,895	\$ 657,841	\$ 616,603	\$350,580	\$ 572,991	\$496,404
Debts	11,823	165,527	333,188	341,602	197,302	157,207
Net worth	\$ 588,072	\$ 492,314	\$ 283,415	\$ 8,978	\$ 375,689	\$339,197
D/A ratio (%)	1.97	25.16	54.04	97.44	34.43	31.67
West						
Assets	\$1,047,738	\$1,264,257	\$1,144,096	\$542,933	\$1,098,232	\$978,628
Debts	42,215	267,189	626,798	465,444	274,987	246,890
Net worth	\$1,005,523	\$ 997,068	\$ 517,298	\$ 77,489	\$ 823,245	\$731,738
D/A ratio (%)	4.03	21.13	54.79	85.73	25.04	25.23
United States^c						
Assets	\$ 763,815	\$ 827,129	\$ 684,080	\$358,247	\$ 719,540	\$581,844
Debts	18,147	191,821	371,261	341,959	199,726	156,446
Net worth	\$ 745,668	\$ 635,308	\$ 312,819	\$ 16,288	\$ 519,814	\$425,398
D/A ratio (%)	2.38	23.19	54.27	95.45	27.76	26.89

^aSource: Farm Journal Financial Survey, 1984.

^bSource: ERS's 1984 Farm Costs and Returns Survey.

^cWeighted using regional distributions of assets and debts calculated from the 1984 FCRS.

^dLess than 15 observations in sample.

COMPARISON OF BALANCE SHEET DATA FOR 1984:
FARM JOURNAL AND FARM COSTS AND RETURNS SURVEY

For the various alternatives in this section, the analysis performed under contract to GAO by Jolly and Doye of Iowa State University calculated percentages of assets, debt, and farm operators. "Order of magnitude" dollar figures can be derived by multiplying these percentages by

--\$647 billion of farm assets and
\$159 billion of farm debt¹ and
--636,456 farm operators.²

The Jolly and Doye analysis was limited to commercial farms (sales of \$40,000 or more).

In Table 4.1, the Farm Journal (FJ) data used in the analysis of alternatives for reducing excessive farm debt are presented. The FJ data are also compared to the Farm Costs and Returns Survey (FCRS) data. For 1984, the FJ data shows consistently higher levels of average assets and debts, regardless of region, than the FCRS data. For the United States overall, FJ average assets were \$719,540 and FCRS average assets were \$581,844. Average debt was \$199,726 and \$156,446, respectively. The average debt-to-asset ratios were quite similar; they were less than one percent apart.

¹Jolly and Doye estimates.

²ERS estimate.

Table 4.2
Distribution of Commercial Farm Operators,
Assets and Debts By Debt-to-Asset Ratio
Farm Journal Data^a

<u>Region</u>	<u>Debt-to-asset ratio</u>				<u>U.S.^b</u>
	<u>0-9%</u>	<u>10-39%</u>	<u>40-69%</u>	<u>70+%</u>	
East					
Operators	45.57	33.54	15.82	5.06	8.19
Assets	49.17	32.38	15.04	3.40	5.90
Debts	6.95	40.72	37.12	15.21	5.05
South					
Operators	32.20	38.14	19.49	10.17	23.76
Assets	39.15	45.09	12.68	3.08	25.63
Debts	2.54	51.24	31.67	14.55	19.36
Central					
Operators	26.85	30.56	23.15	19.44	55.50
Assets	28.11	35.08	24.91	11.90	47.35
Debts	1.61	25.63	39.09	33.67	55.78
West					
Operators	33.47	38.91	17.57	10.04	12.56
Assets	31.93	44.79	18.31	4.96	21.12
Debts	5.14	37.81	40.06	17.00	19.81
United States^c					
Operators	30.49	33.66	20.98	14.88	100.00
Assets	32.99	39.54	19.80	7.67	100.00
Debts	2.76	33.76	37.75	25.73	100.00
FCRS^d					
Operators	34.55	34.44	19.08	11.92	100.00
Assets	38.56	36.26	17.33	7.86	100.00
Debts	3.27	32.78	34.18	29.79	100.00

^aSource: Farm Journal Financial Survey, 1984.

^bSource: ERS's 1984 Farm Costs and Returns Survey.

^cWeighted using regional distributions of operators, assets, and debts calculated from the 1984 FCRS.

^dBased on national estimates of number of operators, assets, and debts of commercial operators from the 1984 FCRS.

COMPARISON OF PERCENTAGES OF OPERATORS, ASSETS, AND DEBTS:
FARM JOURNAL AND FARM COSTS AND RETURNS SURVEY

The two surveys produced similar national data on the percentage of farm operators, assets, and debts in the different debt-to-asset ratio classes. The FJ data shows that percentages of assets and debts held by farms with 40 percent or more debt-to-asset ratios are extremely close.

Table 4.3
Annual Interest and Principal Payment Shortfalls of Commercial
Operators Under Three Cash Rates of Return to Owned Assets

<u>Rate of</u> <u>return</u> <u>(percent)</u>	<u>Interest</u> <u>shortfall</u> -----	<u>Principal</u> <u>shortfall</u> <u>(billions)</u>	<u>Total</u> <u>shortfall</u> -----	<u>Debt not</u> <u>fully</u> <u>serviced</u> -----	<u>Debt with</u> <u>interest not</u> <u>fully paid</u> -----
				-----	-----
5.5	\$4.528	\$5.305	\$9.833	75.75	58.45
6.5	3.353	4.650	8.003	66.68	45.84
7.5	2.545	3.925	6.470	59.85	34.94

Source: Jolly and Doye estimates.

"STATUS QUO" APPROACH: ANNUAL
PRINCIPAL AND INTEREST SHORTFALLS

The Jolly and Doye analysis estimated the effects of a "status quo" approach--under which current federal policies and economic conditions are assumed to continue. At different rates of return to owned assets, Table 4.3 presents estimates of annual interest and principal payment shortfalls. The mid-range scenario estimates an interest shortfall of \$3.35 billion and principal shortfall of \$4.65 billion. Two-thirds of commercial farm debt is not fully serviced.

Table 4.4
Asset Liquidation of Commercial Farmers Scaling Back to Service
Debt From Projected Cash Flows

	Rate of return to owned assets	Assets sold	Debt liquidated	Debt written off	Assets potentially purchased within sector	Operators selling out	Operators scaling back	Total operators transferring assets
----- (percent) -----								
Recovery Rate = 85 percent								
Low	5.5%	20.0	61.2	3.9	21.8	19.9	36.6	56.5
Medium	6.5%	17.1	53.1	3.9	30.4	18.6	29.2	47.8
High	7.5%	14.6	45.8	3.9	41.2	18.0	24.4	42.4
Recovery Rate = 70 percent								
Low	5.5%	24.4	64.7	6.9	21.8	26.6	30.1	56.7
Medium	6.5%	21.1	57.2	6.9	30.4	24.9	22.9	47.8
High	7.5%	18.3	50.5	6.9	41.2	24.2	18.3	42.5
Recovery Rate = 55 percent								
Low	5.5%	30.5	69.2	13.2	21.7	37.7	19.2	56.9
Medium	6.5%	27.1	63.2	13.2	30.3	36.0	12.9	48.9
High	7.5%	24.3	57.9	13.2	41.0	35.2	8.8	44.0

Source: Jolly and Doye estimates.

"STATUS QUO" APPROACH: RESTRUCTURING
REQUIREMENTS FOR THE FARM SECTOR

To fully reduce its excess debt burden without government intervention, the farm sector would have to go through some very major restructuring. Financially-sound farm operators or outside investors would have to purchase huge amounts of assets from financially stressed farmers. In the mid-range scenario (recovery rate from liquidations of 70 percent and 6.5 percent rate of return to owned assets), Jolly and Doye's analysis came up with these estimated results: 21.1 percent of assets would be sold, 57.2 percent of debt would be liquidated, 6.9 percent of debt would be written off by lenders, and 24.9 percent of farm operators would sell all assets and go out of business.

Could farmers and their lenders conceivably absorb such major changes? Significant economic and social upheavals, particularly in the Midwest, might result. The capacity of asset markets, institutions, and rural communities to adjust gradually to such changes is highly questionable.

Table 4.5
Estimated Impact of A Targeted Loan Guarantee Program^a

	<u>Rate of return (percent)</u>	<u>Percent of debt discharged</u>	<u>Amount of debt discharged (millions)</u>	<u>Percent of operators who qualify^b</u>	<u>Number of operators who qualify</u>	<u>Debt of qualifying operators as a percent of stressed debt^c</u>	<u>Average amount of debt discharged per qualifying operator</u>
Low	5.5	0.44	\$ 704.6	2.10	13,370	7.58	\$ 52,700
Medium	6.5	0.77	1,218.0	3.08	19,580	16.99	62,206
High	7.5	0.35	561.9	1.84	11,740	12.39	47,862

^aOnly a small number of operators in the sample qualify for the loan guarantee (less than 10 observations in all cases), hence the results should be interpreted with caution.

^bTo qualify for the loan guarantee, the operator must have a negative net cash flow before principal and interest payments prior to the loan guarantee and a positive net cash flow before principal payments after a write-off of ten percent of the outstanding debt.

^cStressed debt is the debt held by stressed operators.

Source: Jolly and Doye estimates.

LOAN GUARANTEE WITH LENDER
WRITEDOWN OF PRINCIPAL

Similar to the Debt Adjustment Program that the federal government initiated in 1984, the loan guarantee alternative analyzed here is targeted to marginal farmers. To be eligible, farm operators must be unable to make full interest payments without a principal writedown of 10 percent. After the lender writes down the principal by 10 percent, the federal government would guarantee the remaining principal.

Table 4.5 shows that relatively few operators would qualify. Under the mid-range scenario, 3.08 percent of all operators qualify for the program. Given the estimated results of the status quo alternative, 20 percent of the operators do not qualify and must restructure without the federal loan guarantee. Twenty-five percent of the operators go out of business. Table 4.5 shows that the average amount of discharged debt is \$62,206. The cost to lenders is \$1.218 billion plus the writedown of debt held by operators who are going out of business. The federal government's contingent liability on the full principal remaining after the lender writedown is \$10.96 billion.³

³The contingent liability was calculated as follows: 19,580 (number of qualified operators) x \$622,050 (average total debt per qualified operator) x 0.90 (federal guarantee) = \$10.96 billion (contingent liability).

Table 4.6

Distribution of Benefits and Annual Costs to Government of a Fixed Rate Interest Buydown

Rate of return (percent)	Debt-to-asset ratio				Total	Farmers receiving aid (percent)	Number of farmers receiving aid	Average payment per farm
	0-9%	10-39%	40-69%	70+%				
	-----(millions)-----							
5.5 (2.86 buydown)	\$3.9	\$173.7	\$995.2	\$1,076.6	\$2,249.4	41.0	260,690	\$ 8,629
6.5 (2.11 buydown)	1.5	78.5	449.0	776.9	1,305.9	35.0	222,700	5,864
7.5 (1.60 buydown)	1.0	42.6	197.1	573.3	814.0	28.9	184,230	4,418

Source: Jolly and Doye estimates.

INTEREST RATE BUYDOWN

Jolly and Doye analyzed the costs and coverage of a fixed interest rate buydown for financially-stressed operators.⁴ The purpose of this alternative would be to pay that portion of interest that farmers cannot. Lenders would be kept current on interest payments while they work with the farmers to sell off assets and restructure the farm business. Presumably, the operator would be required to make needed long term changes so the subsidy would not have to be continued indefinitely.

The analysis is presented in Table 4.6. Using the mid-range scenario, 35 percent of farm operators would receive an average buydown of \$5,864. The total program cost of this option is \$1.31 billion annually. About \$777 million, or 59.5 percent, of that amount would go to farmers with debt-to-asset ratios of 70 percent or more. Farmers with this level of leverage will have practical difficulties in trying to restructure. A smaller amount--\$449 million or 34.4 percent--would go to farmers more able to restructure, those with debt-to-asset ratios between 40 and 69 percent. Even with the \$1.31 billion subsidy, annual interest shortfalls would still total \$2.04 billion. Because the fixed buydown is designed for the "average farm" with an interest shortfall, many of the negative cash flow operators would need more than \$5,864 to achieve a zero cash flow.

We also looked at the effect of an interest buydown ceiling of \$15,000 on costs. There would be a negligible effect on total costs. The payment limit tends to be most restrictive for operators with very large debts.

⁴The fixed interest rate buydown is determined by dividing total interest shortfall by total debt. For the mid-range scenario, the buydown is 2.11 percentage points or 211 basis points.

Table 4.7
Estimated Restructuring under the Holding Tank Alternative

Rate of return	Assets sold and leased back	Debt liquidated	Debt written off	Operators selling all assets	Operators selling & leasing back assets	Total operators transferring assets	
------(percent)-----							

Recovery rate = 85 percent							
Low	5.5	18.3	57.3	3.9	17.2	39.3	56.5
Medium	6.5	14.9	47.3	3.9	15.9	31.9	47.8
High	7.5	12.1	39.2	3.9	15.3	27.1	42.4

Recovery rate = 70 percent							
Low	5.5	22.2	60.4	6.9	23.3	33.3	56.6
Medium	6.5	18.1	50.6	6.9	22.1	25.7	47.8
High	7.5	15.0	42.9	6.9	20.6	21.9	42.5

Recovery rate = 55 percent							
Low	5.5	28.1	65.8	13.2	34.1	22.8	56.9
Medium	6.5	24.1	58.8	13.2	30.4	18.5	48.9
High	7.5	21.1	53.5	13.2	28.1	16.0	44.1

Source: Jolly and Doye estimates.

HOLDING TANK PURCHASES LARGE
QUANTITIES OF FARM ASSETS

The national decline in the value of farm assets over the past few years has been substantial. This decline has been even more pronounced in the midwestern states. The purpose of a "holding tank" is to help stabilize asset markets. Basically, the federal government would purchase land and other assets that stressed farmers need to sell to restructure their businesses and reduce excess debt burdens. Farmers could have the option of leasing back those liquidated assets. To administer the holding tank, the government could set up a new agency or work through existing financial institutions. One effect of the holding tank's purchases would be to maintain asset values above levels determined by the forces of supply and demand without government intervention.

Jolly and Doye's analysis presumes that all negative cash flow farms sell assets to the holding tank, which finances its purchases through the sale of Treasury securities. The cost to the federal government is interest paid on the securities less any rental payments received from leasing back the assets. The mid-range scenario assumes a 6.5 percent cash rate of return on owned assets and asset acquisition or "recovery" rate of 70 percent of fair market value. The analysis shows that the holding tank purchases 18 percent of farm assets, 50.6 percent of debt is liquidated, 6.9 percent of debt is written off by lenders, and 47.8 percent of farm operators sell assets to the tank.

If the value of assets in the holding tank increased, the government could sell them and recoup their annual expenses. As a practical matter, if the government controlled such large quantities of assets, it could not only stabilize asset markets but also drive up prices by tightening the supply of assets for sale. If the value of assets decreased, the government's costs would be greater.

Table 4.8
Debt Discharge Required for Commercial Farmers to Service Debt From Projected Cash Flows

	Rate of return to owned assets ----- (percent)	Debt Discharged ----- (billions)	Amount of debt discharged (billions)	Operators requiring all debt discharged ----- (percent)	Operators requiring some debt discharged ----- (percent)
Recovery rate = 85 percent					
Low	5.5	44.7	\$70.9	20.8	56.6
Medium	6.5	37.8	59.9	17.1	47.8
High	7.5	32.2	51.0	16.0	42.4
Recovery rate = 70 percent					
Low	5.5	47.7	\$75.6	25.1	56.6
Medium	6.5	41.5	65.9	21.7	47.9
High	7.5	36.7	58.2	20.7	42.5
Recovery rate = 55 percent					
Low	5.5	56.9	\$90.2	31.9	56.9
Medium	6.5	52.6	83.5	28.7	48.9
High	7.5	49.6	78.6	27.9	44.1

Source: Jolly and Doye estimates.

DEBT DISCHARGE

"Debt discharge" is an extreme means of reducing excessive farm debt. With this approach, the federal government discharges enough debt for each farm to achieve a positive cash flow. Fairness is not a consideration here; the government simply pays off one farmer's debt because he is losing money and does not pay off another's because he is making money.

In Table 4.8 the mid-range scenario shows that 41.5 percent of debt is discharged by the government. The estimated cost is \$65.9 billion. Almost one-half of commercial farm operators have debt discharged by the government. About 22 percent of operators get all debt discharged. Asset sales by farmers would not be required, because the government discharges all debt held by negative cash flow farm operators.

SECTION 5

OBJECTIVES, SCOPE, AND METHODOLOGY

OBJECTIVES, SCOPE, AND METHODOLOGY

In his November 8, 1985, letter, Senator Bradley raised several concerns related to the impact of federal farm programs on the financial status of American farmers. More specifically, he asked us to respond to three sets of questions:

- (1) What is the nature of present farm debt? What is the total value of debt? How much is long-term debt? How much is short-term debt? How is the debt distributed among farmers with different debt-to-asset ratios? In your estimation, what percentage of the debt is not recoverable?
- (2) Can you quantify the cross-correlation between a farmer's debt-to-asset ratio and the degree of support received through federal farm programs? It would be extremely useful to know if taxpayer dollars are efficiently targeted to farmers who are most at risk of financial default or are federal subsidies flowing to substantially well-off individuals or corporations?
- (3) What options are available to the government with respect to restructuring of debt or even federal assumption of debt? The analysis should include different categories of debt-to-asset ratios, interest rates, repayment periods, and other relevant parameters, and the cost of each option.

Our approach to the first set of questions was to obtain the most current available data on farm debt and hold discussions with officials from the Farm Credit Administration, Federal Reserve System, U.S. Department of Agriculture's (USDA's) Farmers Home Administration, USDA's Commodity Credit Corporation, American

Council of Life Insurance, and USDA's Economic Research Service (ERS). We could not, with any level of confidence, estimate the percentage of farm debt that is not recoverable. We have, however, compiled information that might help to indicate future levels of nonrecoverable debt. Such information includes nonperforming and/or delinquent loans and total debt held by farms with high debt-to-asset ratios and negative cash flows.

In approaching the second set of questions, we analyzed data obtained from ERS. The data is based on ERS's 1984 Farm Costs and Returns Survey, which went to a probability sample of farm operators. The 1984 survey results were published in ERS's Agriculture Information Bulletin Number 495 - "Financial Characteristics of U.S. Farms, January 1985." From this survey data base, ERS provided us with cross-tabulations of government farm payments, assets, debt, cash balances, equity and off-farm income by sales class and debt-to-asset ratio class. We then used these cross-tabulations to perform various analyses to characterize, by sales class and debt-to-asset ratio, the extent to which direct government farm payments do or do not affect the financial condition of farmers. We made no attempt to draw cause/effect relationships from the distributional data. More detail on the Farm Costs and Returns Survey sampling and procedures is provided in appendix I.

Direct government farm payments are defined by ERS for our analysis as cash income from deficiency, storage, conservation, and diversion payments. Deficiency payments are farm income cash payments made directly to farmers to supplement their income when a commodity's market price is lower than a set or target price established by law. Storage payments reimburse farmers for storing commodities in the farmer-owned grain reserve. Conservation payments are made to farmers to encourage soil conservation. Diversion payments are made under certain circumstances to farmers who agree to take a specified percentage of their acreage (or dairy cows) out of production. Not included in the definition of direct government farm payments are any

payment-in-kind disbursements and indirect price benefits to farmers from the commodity programs' acreage reduction provisions or non-recourse loan rates.

To evaluate the distribution and impact of direct government farm payments, we used ERS's balance sheet and cash flow measures. Debt-to-asset ratios are commonly used to indicate a farm's financial position. According to ERS, cash flow difficulties typically begin when the debt-to-asset ratio reaches 40 percent. While many farms have positive cash flows with debt-to-asset ratios exceeding 70 percent, the typical farm has trouble making debt repayments at this level and may start sliding toward insolvency (defined technically as a 100 percent or more debt-to-asset ratio). GAO's analyses compare the profitability of farms that do receive ("participate in") and do not receive direct government farm payments. For an assessment of a farming operation's profitability, we have subtracted off-farm income from the cash flow for selected analyses. A more detailed discussion of ERS's definitions of balance sheet and cash flow measures is provided in appendix II.

For the third set of questions, the annual costs and impacts of specific alternatives for reducing excessive farm debt were analyzed. For this analysis, GAO contracted with Iowa State University's Robert W. Jolly and Damona G. Doye for the application of their cash flow model¹ and the Farm Journal (FJ) data base to evaluate specific alternatives and target groups that GAO selected. We have reviewed the model and data base and consider them to be adequate for the purpose of identifying "order

¹The model is described in Jolly and Doye, Farm Income and the Financial Condition of United States Agriculture, Food and Agricultural Policy Institute (FAPRI) Staff Report No. 8-85, July 1985. The data base is described in National Farm Survey on Financial Stress, FAPRI Staff Report No. 6-85, July 1985.

of magnitude" estimates of costs and impacts. The estimates do, of course, depend on assumptions about debt levels, asset values, interest rates, recovery rates on liquidated assets, rates of return, and other variables. The estimates can be higher or lower if different assumptions are made. We did not perform quality checks on the computer programming and actual calculations performed with the cash flow model.

The Farm Journal survey data base was generated from a mail survey of farm operators in January 1985. A sample of 8000 was drawn from a data bank of over one million farm operators maintained by the Farm Journal magazine. Approximately 20 percent of the operators returned the survey instrument. This analysis is based on 731 valid responses for commercial farms. Jolly and Doye compared the FJ data to ERS's FCRS data. The results of that assessment are provided in Tables 4.1 and 4.2. Farms in the FJ data have more assets and debts, but they have debt-to-asset ratios almost identical to those farms in the FCRS data. Jolly and Doye weighted their regional estimates using FCRS data to derive national estimates. They found that 36 percent of commercial farms had debt-to-asset ratios of 40 percent or more and held 63 percent of the farm debt in 1984. This is very similar to the 31 percent of farms and 64 percent of debt in the FCRS data.

To estimate restructuring requirements and costs of the alternatives, the sample survey data were used in conjunction with a simulation model that describes farm-level adjustments to be made by a financially-troubled business.

Net cash flow (NCF) is calculated for each farm where:

$$\text{NCF} = (r^*)A - (i+p)D + \text{OFI} - \text{CONS} \quad (1)$$

r^* = cash return on all assets divided by owned assets
before payment of interest and principal

A = value of owned assets for the farm

i = average interest rate on debt

p = average principal repayment rate

D = value of outstanding debt

OFI = off-farm income

CONS = family consumption expenditures

In this report, calculations are made for three values of r^* : 5.5 percent, 6.5 percent, and 7.5 percent. Both the FJ sample and FCRS data yield average cash rates of return for commercial operators of about 6 percent in 1984. Therefore, the 6.5 percent rate of return represents a continuation of 1984 cash income levels. Asset (A), debt (D) and off-farm income (OFI) values are from the FJ survey and vary from farm to farm. The average interest rate and principal repayment rates are 10 and 5 percent, respectively. Jolly and Dove estimated that average farm interest rates averaged 10 to 11 percent in early 1986. The 5 percent principal repayment rate implies that scheduled annual principal payments equal 5 percent of total liabilities. Family living expenditures are assumed to be \$15,000 in all cases.

From the NCF calculations, operators are classified into one of three categories:

--those with positive cash flow,

--those with negative cash flow who are able to make full interest payments but not full principal payments, and

--those with negative cash flow who are unable to make full interest payments and make no principal payments.

Interest payments are assumed to take first priority after family living expenses. Principal payments are, therefore, a residual. Financial aid is targeted at the third category of operators--those farms not making interest or principal payments. It is assumed that lenders could tolerate principal payment shortfalls in the short run if interest payments were kept current.

The potential for financial stress is particularly acute for farms with no off-farm income. Equation (1) can be manipulated to show that a farm operator with no OFI and no debt must own assets of \$200,000 to cash flow with cash rates of return of 7.5 percent and must own \$272,727 worth of assets if low (5.5 percent) rates of return prevail. OFI for the commercial operators in the FJ sample averaged \$8,698. The average OFI figure declined as gross sales from farm products increased. For farms with sales of \$40,000-100,000, the average OFI figure was \$10,295 while farms with sales of more than \$500,000 reported an average of \$4,290 OFI.

To make national farm sector estimates, adjustments for the individual operators were summed to determine total and percentage changes for the sample. These sample percentages were then applied to national estimates of the number of commercial operators and the value of debt and assets held by them. In other words, the relative changes for the sample are used to make inferences to the entire commercial farm sector.

As reported in ERS Publication No. 495, the total number of commercial operators was 636,456 in 1984. Total agricultural debt was \$212.5 billion. The 1979 Farm Finance Survey determined that 90 percent of farm debt was held by operators. The remaining 10 percent was held by nonoperating landlords, and the FCRS estimates 82.92 percent of the U.S. agricultural debt is held by commercial

farms. Therefore, the aggregate debt figure for commercial farm operators used in the section 4 analysis is \$212.5 x 0.9 x 0.8292 = \$158.6 billion. Jolly and Doye estimated that total assets were \$647 billion in 1984.

The long term response to financial stress requires restructuring of assets and liabilities. Table 4.4 lists projected operator, asset, and debt liquidation statistics assuming operators scale back to service debt. The equation which determines the extent of restructuring required is:

$$gA = \frac{r^*A - (i+p) D + OFI - CONS}{r - h (i+p)} = \frac{NCF}{r - h (i+p)} \quad (2)$$

where

gA = change in assets, i.e. value of liquidated assets

r = cash rate of return to operated assets before debt service

h = average cash recovery rate (in percent) from liquidated assets and NCF, L, P and r* are the same as equation (1)

The average return to operated assets for the sector is calculated using:

$$r = \frac{r^* + yc}{1+y} \quad (3)$$

where

c = asset rental rate, 4 percent

y = ratio of rented to owned assets, 0.408

The values for h and y were derived by Jolly and Doye in their July 1985 report (see footnote on page 82). For $r^* = 5.5$ percent, $r = 5.065$ percent; for $r^* = 6.5$ percent, $r = 5.776$ percent; for $r^* = 7.5$ percent, $r = 6.486$ percent.

On Table 5.1, we identify the direction in which costs will move if different assumptions are made in the analysis of debt reduction alternatives.

Table 5.1

Factors Affecting Costs of Alternatives

Cost Will Go Up If...

- ° rate of return goes down.
- ° price supports go down.
- ° the FJ data understates the financial problems of farmers.
- ° the FJ data is dated and more financial stress is evident today and more debt is at risk.
- ° off-farm income assumptions should be lower.
- ° interest rate assumptions should be higher.
- ° family consumption assumptions should be higher.
- ° if farm cash income is or should be lower.
- ° if farm cash operating expenses are or should be higher.
- ° if the amount of debt is more than \$159 billion.
- ° if the recovery rate on liquidated assets goes lower.
- ° if the annual principal and interest shortfall is underestimated.
- ° private restructuring cannot occur because asset markets are not functioning adequately.

Costs Will Go Down If...

- ° rate of return goes up.
- ° price supports go up.
- ° the FJ data overstates the financial problems of farmers.
- ° the FJ data is dated and many farmers have gone out of business, thereby reducing the need for helping them.
- ° off-farm income assumptions should be higher.
- ° interest rate assumptions should be lower.
- ° family consumption assumptions should be lower.
- ° if farm cash income is or should be higher.
- ° if farm cash operating expenses are lower.
- ° if the amount of debt is less than \$159 billion.
- ° if the recovery rate on liquidated assets goes higher.
- ° if the annual principal and interest shortfall is over-estimated.
- ° private restructuring can occur because asset markets are functioning adequately.

FARM COSTS AND RETURNS SURVEY:
SAMPLE AND PROCEDURES¹

The Farm Costs and Returns Survey (FCRS) is a multiframe probability-based survey. This means that the sample of farm operators consists of farmers chosen from a list of known operators compiled by the Statistical Reporting Service and areas of rural land of known size in which all residents were interviewed to determine if they qualify as farm operators. A sample of 23,386 rural residents was contacted by enumerators between February 15 and March 8, 1985. Of those contacted, 72.8 percent participated in the survey. Since only a probability sample of farms is taken in the survey, each respondent represents a number of other farms of a similar size and type.

Data supplied by the survey respondents were used to develop coordinated cash flow and balance sheet statements for farm operators. These statements were then sorted, tabulated, and averaged for farms with various production, sales, and debt characteristics. The analysis of farmer's debt load is based on reported debts and assets, cross-tabulated against farm size by sales class, type of farm, and region. The cash surplus or shortfall is based on each farm's calculated cash balance.

To qualify as a farm for the FCRS survey, an operation must have produced or sold at least \$1,000 worth of agricultural products or spent at least \$1,000 for feed, supplies, equipment, or other supplies for the purpose of producing agricultural products. Most FCRS undercounting of farm numbers, compared to census data, is for the small sales classes, especially for farms that have less than \$5,000 in sales. The survey, according to ERS officials, provides a fairly close count of farms with sales over \$40,000, those generally considered to be commercial-size farm units.

¹This appendix is based on information from ERS's Agriculture Information Bulletin No. 495, July 1985, pp. 3-4.

ERS DEFINITIONS OF DEBT-TO-ASSET
RATIO AND CASH BALANCES¹

The financial position of farms and ranches can be analyzed for a particular time period by developing a balance sheet that shows the assets and liabilities of the farm business. The balance sheet contrasts the amount of money that the operator (owner) has invested versus the amount owed to creditors. The balance sheet is usually summarized by a debt-to-asset ratio. This ratio of debts to assets is often used as a measure of the firm's financial obligations and indicates overall financial soundness and risk-bearing ability.

Cash flow statements provide information about the sources of cash income, farm and off-farm, available to pay current production expenses, to service principal and interest payments on farm debt, and to provide for family living needs. The cash flow measure developed for ERS's analysis is a short run measure since it does not take into account allowances for depreciation of capital or for a return to owner-operator inputs: labor, land, or machinery.

The debt-to-asset ratio of a farm is one of the primary measures that determines whether the farm will have cash flow difficulties. At July 1985 prices, input costs, and asset values, most farms start having difficulties meeting principal repayment commitments at debt-to-asset ratios of around 40 percent. Another critical point is reached if the debt-to-asset ratio of the farm reaches 70 percent. Above this point, farms generally have problems meeting either their interest commitments or their principal repayment commitments. With debt-to-asset ratios above 70 percent, many farms start sliding toward insolvency. The final

¹This appendix is based on information from ERS's Agriculture Information Bulletin, No. 495, July 1985, pp. 5-6.

critical point is insolvency where the total debts of the farm exceed the total value of owned assets. At this point, a farm generally cannot meet either interest or principal payments and the value of assets, if sold, would not be enough to retire the debts. Thus, there are four categories of farms by debt-to-asset ratios:

- 0-39 percent: generally few financial problems and very strong net worth.
- 40-69 percent: problems meeting principal repayment but adequate net worth.
- 70-99 percent: problems meeting principal repayment and current interest due, and declining net worth.
- 100 percent or more: severe problems meeting principal and interest commitments and negative net worth. These farms are technically insolvent and sale of the farm's assets would be insufficient to retire its debts.

The coordinated cash flow and balance sheet of farms and ranches, sources of cash operator's income from both farm and off-farm sources, production expenses, farm debts, and assets were derived from primary survey data. But the estimates of funds needed to provide for family living needs and to meet principal repayment commitments were developed from secondary information. Family living needs were estimated as the median family income for nonmetropolitan counties reduced by the implicit net rental value of farm dwellings and income taxes. The reasons for these adjustments are that the operator's dwelling is usually provided on the farm and that farms with cash flow shortfalls would usually have losses for income tax purposes and thus reduced tax liability. After making these adjustments, the family living income allowance was estimated at \$12,950 for the average farm family.

ERS's data recognizes the following components of cash flow:

Cash Flow Components

Total crop and livestock sales

Plus

Other farm income (customwork, machine hire,
government payments, etc.)

Equals

Gross income from farm operation

Less

Cash operating expenses

Equals

Net cash income from farm operation

Plus

Off-farm income

Equals

Income from farm operation and off-farm
sources

Less

Estimate of debt repayment and family living
allowance

Equals

Cash balance

(029153)

Requests for copies of GAO reports should be sent to:

U.S. General Accounting Office
Post Office Box 6015
Gaithersburg, Maryland 20877

Telephone 202-275-6241

The first five copies of each report are free. Additional copies are \$2.00 each.

There is a 25% discount on orders for 100 or more copies mailed to a single address.

Orders must be prepaid by cash or by check or money order made out to the Superintendent of Documents.

