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Effects of the Farm Financial Crisis on the Profitability of Agribusiness Firms

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Agriculture has been subject to frequent and dramatic shifts in production, prices, and incomes. Basic reasons for this problem include unstable international markets, weather, and even government programs. These shifts have caused economic hardships for farmers and for agribusiness firms that supply inputs to farmers and process and handle farm products. During 1981-1987 these hardships were so severe that this period was known as the "farm financial crisis years." However, in contrast to the difficulties that most farmers and agribusinesses were facing, lower feed prices actually benefitted poultry and some livestock farms and agribusinesses.

In 1985, depending on the measure of stress used, about 20 to 33 percent of the farms in the U.S. were financially stressed (Jolly, et al.). The incidence of financially stressed farms was widespread but was greatest in the Corn Belt, Lake States, and Northern Plains. However, the intensity of financial stress was greatest in the Delta, Southeast, Southern Plains, Northeast, and the Pacific.

Tubbs points out the relationship between financial difficulties on farms and the rural community. His community in Iowa lost two out of three grain buyers/farm supply stores, four out of six farm equipment dealerships, and innumerable retail stores. He cites the need to quantify the impact of the farm crisis on the entire rural economy.

Ginder, et al. state that the viability of agribusinesses, consumer and retail businesses, and social institutions such as schools and churches is directly related to the financial health and number of farmers in an area. They further point out that the farm crisis will create negative impacts on those agribusiness firms who particularly supply farm inputs and marketing services at the local level. The negative impact will be both direct and indirect.

Bowker, et al. analyzed the impacts of alternative farm policies on rural communities. Bowker reported that two groups of industries are most affected by farm policy. The first group includes firms that deal directly with agricultural production, i.e. agricultural service firms, banking and credit, and

nondurable manufacturing. The second group includes household related industries, i.e. retail trade and services.

A reduction in farm program benefits such as a drop in target prices would be felt by all sectors. Declines in crop production, value of production, and net returns would result in declines in those firms supplying inputs to agriculture and those firms related to households. Conversely, a rise in farm program benefits and consequent increases in net returns in the crop sector would enhance activity for households, retail trade, and services.

Glover concentrated on the impact of the farm crisis on agribusinesses. His analysis showed that sales of most large farm machinery during 1985 were less than half the number sold in 1979. Fertilizer use during 1985 was down 9.2 percent from the high in 1981. Other farm inputs are related to the acreage of major crops. Thus the demand for production inputs peaked in 1980-81 and bottomed in 1983. Another negative effect on agribusinesses was bad debt losses, which were estimated to be as much as \$7 billion in the U.S. during the 1982-85 period.

This study analyzes the effects of the farm financial crisis on the profitability of agribusiness firms in an 18-county area in southwest Georgia. The Georgia Agricultural Statistics Service identifies these counties as Area 7. This area is fairly representative of agriculture in the Coastal Plain region of the South with respect to crops, livestock, and farm size and in relation to input purchases and product sales. The area primarily produces row crops, is heavily dependent on agriculture, and for the study period was characterized by a high rate of delinquency on farm loans and a high rate of farm financial failures (Wise, May 1989).

The farm enterprises that serve as a base for agribusiness firms and the trends of these enterprises were reported by Wise (Dec. 1989). Peanuts and corn ranked first and second in crop value over the 1981-1987 period for the area. Soybeans were third in value until they were replaced by cotton in 1986. The value of cattle and calves ranked next to peanuts every year except one. However, overall cattle, calves, and hogs only averaged about 29 percent of the value of crops. Over the seven-year period all major crops except cotton declined in acreage and value. The value of soybeans fell by almost 80 percent, wheat by 72 percent, and corn by 52 percent. The overall decline for the six major crops was about \$108 million, or about 26 percent. The value of hogs and pigs fell by about 49 percent and the value of cattle and calves by about 28 percent. Overall the value of livestock fell by about 29 percent. The total value of crops and livestock declined by almost \$145 million or about 27 percent.

The focus of this analysis is on possible differences in the effect of the farm financial crisis on different types of agribusiness firms. However, it is recognized

that not all of the effects of the farm situation are reflected in the results. For example agribusiness firms may have added non-farm goods and services, i.e. lawn mowers, etc. In addition the study was unable to analyze the number of agribusiness firms that have failed. Thus the total impact is probably worse than that reflected in this analysis. On the other hand, the existing firms may be better off by having acquired some business from those firms that failed.

Farm Crisis and Agribusiness Firms

Poor farm financial performance would be expected to have different impacts on different types of agribusinesses. Some purchases can be delayed (land, machinery, etc.), while some can be reduced (fertilizer, feed, storage, etc.).

Agribusinesses that rely primarily on sales of goods or services that can be delayed are at a distinct disadvantage in times of financial crisis. On the other hand, firms that market goods or services that are considered variable costs to the farmer are at less risk during a farm financial crisis. The farm decision maker will allocate resources between fixed and variable costs. In hard times, investments in fixed assets should decrease relative to variable assets. An examination of different types of agribusinesses should exhibit the above characteristics.

Data and Methods

The source of data for this analysis was a sample of 94 agribusiness firms. Thirty-six of these firms provided annual data for each year, 1981-1987, and these firms were used for the analysis, yielding a total of 252 cross-section time series observations. The firms were classified into four categories based on the major source of their income. The categories were 1) capital goods and services, such as equipment dealers, which provide items that have useful lives greater than one year; 2) consumable goods and services, such as fertilizer and feed dealers, that provide items that are totally consumed within a one year production period; 3) commodity marketing, processing, storage, and handling services, such as grain elevators and cotton gins, and 4) combination firms, which are active in two or more of the first three categories. Useable data were provided by seven firms in group 1, 12 firms in group 2, 10 firms in group 3, and seven firms in group 4.

The tabular method was used to analyze changes in costs and returns for average firms over the study period. In addition the standard deviations and the coefficients of variation for annual net incomes were calculated. The standard deviation is an absolute measure of variation from the average. The coefficient of variation measures the relative (or percentage) variation from an average. In

this study the coefficient of variation measures how income varies for individual firms within a year and from one year to another, as well as how incomes vary by type of firm. Net income as used in this study is defined as the income available to pay for operating capital, depreciable assets, management, income taxes, and risk.

Results

Capital Goods and Services Firms

Table 1 shows that firms providing capital goods and services such as farm equipment were adversely affected by the farm financial crisis. Net incomes did not reflect a steady downward trend, but the average for 1986 was negative and there were large variations within and among years. For example, the coefficient of variation of average net income varied from about -2350 to 245 percent and annual changes in income varied from an increase of about 1070 percent to a decrease of about 105 percent. The variability in net income was the result of variations in both gross sales and expenses.

Consumable Goods and Services Firms

Firms providing consumable goods and services such as fertilizer and other annual inputs experienced variability in income within years as well as among years (Table 2). Although variability occurred there were no negative incomes for the average firm over the study period. In addition the relationship between gross sales, expenses, and net income was fairly constant. However, the average net incomes and the profit margins were not as high in 1984-1986 as in the other years during the period.

Firms Providing Marketing, Processing and Related Services

The individual firms in this category experienced rather large variations in income on an annual basis (Table 3). Coefficients of variation ranged from 134 to 190 percent. However, the average firm experienced annual increases in net income for four out of the seven years, and average profit margins were fairly stable.

Combination Firms

The average firm in this category did not experience any negative net incomes over the study period (Table 4). However, average net incomes varied considerably

Table 1.
*Analysis of Profitability of a Sample of Agribusiness Firms Providing Capital Goods and Services,
 Southwest Georgia, 1981-1987*

	1981	1982	1983	1984	1985	1986	1987
					(Average Values)		
Income	1,382,385	1,236,371	1,223,210	1,693,557	1,337,969	1,212,291	1,445,917
Annual Payroll	221,237	217,791	249,321	248,982	236,630	223,348	235,649
Products Purchased	956,071	780,390	814,772	996,007	821,997	905,478	1,030,221
Supplies	75,022	69,034	72,971	77,826	65,383	59,520	60,865
Utilities	14,541	13,402	13,402	18,673	14,506	13,645	16,330
Tax	3,853	3,619	3,626	3,612	3,529	3,578	3,598
Business License	25	25	25	25	25	25	25
Insurance	2,734	2,748	2,683	2,663	2,656	3,070	3,053
Maintenance	10,935	10,994	10,733	10,652	10,622	12,280	12,214
Total Expenses	1,284,419	1,098,003	1,167,534	1,358,440	1,155,349	1,220,945	1,361,957
Average Net Income	97,966	138,367	55,677	335,118	182,621	-8,654	83,960
Net Income/\$ Sales	.07	.11	.05	.20	.14	-.01	.06
Standard Deviation of Net Income	239,868	302,573	57,508	711,481	271,019	203,456	101,088
Coefficient of Variation of Net Income (%)	245	219	103	212	148	-2,351	120

Table 2.
*Analysis of Profitability of a Sample of Agribusiness Firms Providing Consumable Goods and Services,
 Southwest Georgia, 1981-1987*

	1981	1982	1983	1984	1985	1986	1987
Income	1,773,750	1,756,284	1,715,397	1,708,099	1,716,819	1,742,697	1,864,450
Annual Payroll	94,555	95,555	102,623	99,687	105,891	109,021	110,418
Products Purchased	1,417,533	1,401,108	1,367,805	1,384,678	1,383,551	1,459,848	1,462,065
Supplies	33,072	31,749	32,676	36,707	36,523	36,341	37,369
Utilities	8,376	8,544	8,603	10,350	10,554	11,430	10,238
Tax	2,622	2,639	2,740	2,850	3,123	3,260	3,273
Business License	80	80	80	80	80	80	80
Insurance	3,341	3,343	3,494	3,367	3,328	3,253	3,228
Maintenance	13,363	13,371	13,976	13,466	13,312	13,011	12,910
Total Expenses	1,572,942	1,560,380	1,531,998	1,551,185	1,556,361	1,636,244	1,639,584
Average Net Income	200,808	195,904	183,399	156,914	160,458	106,453	224,867
Net Income/\$ Sales	.11	.11	.11	.09	.09	.06	.12
Standard Deviation							
of Net Income	414,405	412,505	378,676	410,028	459,528	286,216	344,662
Coefficient of							
Variation of							
Net Income (%)	206	211	206	261	286	269	153

Table 3.
Analysis of Profitability of a Sample of Agribusiness Firms Providing Marketing, Processing, and Other Related Services, Southwest Georgia, 1981-1987

	1981	1982	1983	1984	1985	1986	1987
Income	9,057,385	10,424,878	11,452,802	12,405,122	11,755,620	13,769,691	14,019,228
Annual Payroll	489,187	505,259	532,866	534,895	566,252	508,200	527,755
Products Purchased	6,029,891	6,628,524	7,415,361	7,635,811	7,748,612	7,869,065	8,317,948
Supplies	86,061	87,846	95,883	105,616	119,176	170,443	136,321
Utilities	77,113	85,469	83,985	91,351	103,257	90,481	91,465
Tax	14,529	15,035	15,750	16,567	17,466	17,630	18,264
Business License	600	600	800	800	800	800	1,000
Insurance	23,187	23,567	23,704	23,876	24,692	24,787	25,284
Maintenance	92,746	94,268	94,816	95,504	98,769	99,149	101,137
Total Expenses	6,813,314	7,440,567	8,263,165	8,524,421	8,679,024	8,780,554	9,219,175
Average Net Income	2,244,071	2,984,311	3,189,637	3,880,701	3,076,596	4,989,136	4,800,052
Net Income/\$ Sales	.25	.29	.28	.31	.26	.36	.34
Standard Deviation of Net Income	3,682,780	5,688,610	5,937,582	5,838,355	5,842,549	8,047,223	6,425,096
Coefficient of Variation of Net Income (%)	164	191	186	151	190	161	134

Table 4.
*Analysis of Profitability of a Sample of Agribusiness Firms Providing a Combination of Goods and Services,
 Southwest Georgia, 1981-1987*

	1981	1982	1983	1984	1985	1986	1987
(Average Values)							
Income	1,561,387	1,293,918	1,267,085	2,199,510	1,838,525	1,659,508	1,720,604
Annual Payroll	110,278	109,519	104,238	107,700	102,080	92,952	102,442
Products Purchased	1,179,485	1,031,423	1,000,925	1,813,672	1,576,512	1,448,216	1,472,273
Supplies	36,593	38,196	34,877	35,558	33,777	29,671	31,873
Utilities	15,887	15,374	17,219	19,907	21,202	24,700	24,955
Tax	4,914	5,061	5,079	5,159	5,593	5,636	8,003
Business License	433	433	442	445	450	458	460
Insurance	4,926	5,009	4,893	6,940	6,861	6,696	6,946
Maintenance 19,704	20,034	19,571	27,759	27,443	26,784	27,782	27,782
Total Expenses	1,372,219	1,225,050	1,187,242	2,017,140	1,773,917	1,635,113	1,674,734
Average Net Income	189,168	68,868	79,843	182,370	64,608	24,394	45,870
Net Income/\$ Sales	.12	.05	.06	.08	.04	.01	.03
Standard Deviation							
of Net Income	281,700	102,768	113,921	299,533	129,891	127,142	127,321
Coefficient of							
Variation of							
Net Income (%)	149	149	143	164	201	521	278

over the period with annual declines of over 60 percent being recorded in three out of the seven years. Average net incomes also tended to be lower during the later three years of the period. The variation of individual firm incomes was greater during the last four years of the period.

Comparison of Profitability and Variability by Type of Firm

Firms engaged in marketing, processing, and related services showed the highest average net income over the seven-year period (Table 5). These firms were also the largest of the four types of firms as measured by gross sales. These firms also had the highest net margin relative to gross sales and the lowest coefficient of variation. A number of these firms were engaged in the buying, processing, and other services related to peanuts. Consequently, their business was not as subject to variability as firms dealing with other commodities.

Those firms providing consumable goods and services had the second highest net income and net margin relative to sales. Average gross sales ranked second and variability in income was third.

Combination firms were third in terms of size, ranked fourth in terms of net margin relative to sales, and had the third highest net income. These firms experienced the next to the lowest variability in incomes which was no doubt due to the fact that they were diversified. Firms providing capital goods and services, mostly farm equipment, had the next to the lowest average net income, next to the lowest net margin on sales, and the highest variability in income.

Concluding Remarks and Implications

Agribusiness firms in this study were adversely affected by the farm financial crisis. These adverse effects were indicated by negative incomes in some years, by low net margins relative to sales, and by rather large variations in individual firm income within years and among the seven years analyzed.

Overall, firms providing capital goods and services, mainly farm equipment, were the ones most severely affected. The adverse effects were in the form of negative incomes for individual firms and the average firm for 1986, relatively low net incomes, low net margins on sales, and high variability in incomes.

Firms providing marketing, processing, and related services were the least affected by the farm financial conditions. These firms showed the highest average incomes, the highest net margins on sales, and the lowest overall variability in income.

Table 5.

Comparison of Seven Year Averages of Profitability and Variability by Type of Agribusiness, Southwest Georgia, 1981-1987

Type of Business	Gross Income (\$)	Expenses (\$)	Net Income (\$)	Net Income (\$)/Gross Income (\$)	Coefficient of Variation of Net Income (\$)
Capital Goods and Services	1,361,671	1,235,235	126,436	.088	485
Consumable Goods and Services	1,753,928	1,578,385	175,543	.098	265
Marketing and Processing	11,840,675	8,245,745	3,594,930	.299	168
Combination of Goods and Services	1,648,648	1,555,059	93,589	.056	229

Implications for Agribusinesses

Strategies that agribusiness might consider in maintaining financial viability are discussed below.

Adding product lines and additional services, both farm and non-farm, would reduce risks and provide new profit opportunities. This diversification strategy is a method of spreading business risk. Many examples exist, but one would be that of a farm machinery and equipment dealer adding lawn and garden, construction equipment, and other types of machinery to their line. Furthermore, a firm that is heavily dependent on sales of fixed assets might reallocate resources to sales of variable assets such as repair services.

Expanding the current territory of operations would be a possibility for a number of firms. Most of the firms in this study were local and regional firms, with only about 10 percent doing business on a national scale. Over the study period the average radius of business activity for these firms was only about 145 miles.

Integration of an additional phase of the production, processing, or marketing chain is an alternative for agribusiness. This strategy has been employed successfully by many firms and others are moving in that direction. A prime example of success is the poultry industry.

Increasing the flexibility of the business so that it is able to respond to changing economic conditions is also an option. This would entail being able to change products, services, costs, etc. as the farm sector changes. Pragmatically

this would involve facilities and equipment that are capable of alternative uses and perhaps retraining programs for labor. Keeping fixed costs low relative to variable costs provides the flexibility of lowering total costs as conditions change. Keeping fixed costs low also provides the opportunity to change products, services, etc. in a relatively short time frame.

Glover adds to the above list the alternatives of scaling back operations and going out of business. Scaling back could achieve efficiencies by the elimination of unprofitable lines and by aligning costs with a decreased demand.

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