Monitoring Lease-Financing in Agriculture

By Ann Laing Adair, John B. Penson, Jr., and Marvin Duncan

Lease-financing is a common method of acquiring the use of an asset in many sectors of the U.S. economy. The American Association of Equipment Lessors estimates the value of equipment currently under lease in the United States at $100 billion, an increase of 150 per cent from the 1974 estimate of $40 billion. Businesses currently lease such items as construction equipment, office machinery, and medical equipment.

In recent years, agricultural producers have begun viewing financial leases as an alternative method of financing the acquisition of specific types of machinery and equipment such as irrigation equipment, tractors, and harvesting equipment. In fact, some producers are using lease-financing to acquire livestock. Interest in lease-financing is growing partly because of specific advantages not available if debt-financing is used.

A financial lease is defined as a noncancellable contractual commitment for the lessee to make a series of payments to the lessor for the use of an asset, although the lessor retains title to the asset. The length of the lease period of a financial lease usually corresponds to the economic life of that asset. Thus, financial leases differ from operating leases, which are short-term rental agreements covering one production period or less.

Because of the expected growth in lease-financing, analysts should be able to examine the impact of lease-financing on the structure and performance of the farm sector. Specific information pertaining to financial leases should be reflected in the aggregate balance sheet, income statement, and cash flow statement maintained for the farm sector. However, such data currently are not collected at an aggregate level. For example, data on lease-financing do not appear in the aggregate sector financial statements compiled by the U.S. Department of Agriculture.

Lack of data on lease-financing in these sector financial statements overstates the financial position and performance of farm operators and biases many of the standard analytical ratios calculated from these statements to the extent that lease-financing represents a significant source of capital in the farm sector. This lack of data also means that models of the farm sector attempting to reflect the portfolio decisions of producers may suffer from specifica-

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tion and measurement bias.

The first section of this article gives a brief overview of the factors which influence the decision to lease an asset rather than to purchase it. Next, the specific impacts that exclusion of data on lease-financing have on the farm sector financial statements are discussed. The biases introduced into standard analytical ratios calculated from these financial statements, and the impact a continued lack of data will have upon research, are then identified. Finally, to provide a better understanding of the magnitude of the existing data gaps, the results from a survey of 131 leasing companies are presented. These results indicate that while the current use of lease-financing by agricultural producers is small, lessors expect substantial future growth of financial leases in agriculture. The results of the survey also shed some light on the characteristics of lessors active in agricultural leasing and the types of assets being leased.

FACTORS INFLUENCING THE GROWTH OF LEASE-FINANCING

By using a financial lease, lessees can gain certain advantages that are not available if the asset is debt-financed. Debt-financing usually requires a down payment of at least one-fourth of the total cost of the asset. Lease-financing, on the other hand, is often compared with 100 per cent debt-financing. This comparison is not entirely valid, however, because the annual lease payments must usually be paid at the beginning of each year. A financial lease also allows the sales tax to be spread over the term of the lease rather than being paid in a lump sum at the time of purchase.

The length of a financial lease is also usually longer than the length of a comparable loan. This allows the total cost of the asset to be spread over a longer time period, which generally means the annual lease payments are smaller than the annual loan payments. This advantage is partially offset, however, because the total cost associated with lease-financing is usually higher than the total cost associated with debt-financing.

A lessee may also derive some tax advantages from lease-financing. For example, the lessee may deduct the total annual lease payment from his tax return as a business expense, similar to other business expenses such as fuel and hired labor. Although the lessee cannot deduct depreciation on the equipment, the terms of the lease may permit him to receive all or some portion of the investment tax credit on the asset. Lease-financing may also reduce the lessee's risk exposure by reducing the risk of machinery obsolescence, if a shorter lease period is used. A financial lease can also protect the producer against unexpected increases in interest costs resulting from rising interest rates on variable rate loans.

Lease-financing would not be available to lessees unless it was also advantageous to lessors. Lessors benefit from financial leases because they can shelter business income through the depreciation deduction on the leased asset and—if the lease permits—through the investment tax credit. The actual sale price of the asset at the end of the lease period may be greater than the residual value estimated by the lessor at the initiation of a lease. If so, the lessor may realize a capital gain when selling the asset. In short, lessors can often realize higher rates of return on their equity by providing lease-financing services than they can by making loans to agricultural producers. Thus, because of the potential advantages to both lessees and lessors, lease-financing is expected to grow in the future.[1]

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[1] Further discussion of the relative advantages available to the lessee and lessor from lease-financing, and of the criteria for evaluating whether lease-financing or debt-financing is the better alternative on an individual basis, is presented in a proposed working paper by the authors.

IMPORTANT GAPS IN FARM SECTOR FINANCIAL STATEMENTS

In spite of the potential growth in lease-financing by agricultural producers, data on lease-financing do not appear in the farm sector financial statements compiled by the U.S. Department of Agriculture (USDA). The farm sector financial statements, however, are not the only places from which data on lease-financing have been excluded. Until recently, data on lease-financing were excluded from nonfarm sector financial statements as well. In 1980, the Bureau of Economic Analysis revised its published series on plant and equipment expenditures to include, among other things, expenditures by commercial banks and others for plant and equipment leased to other businesses.[2]

The current USDA statistical series on farm income and the farm sector's balance sheet do not reflect the services provided by, or obligations associated with, lease-financing by agricultural producers. This data gap will bias analyses of the sector's structure and performance based on these financial statements to the extent that lease-financing is used in the farm sector. The financial statements and potential biases related to each are discussed in the following sections.

Gaps in the Balance Sheet

The balance sheet reports information on the structure of the assets and liabilities attributable to farming (Table 1). The current stock of machinery and motor vehicles reflected in the balance sheet, for example, is equal to the stock of machinery and motor vehicles in the previous year, minus capital consumption during the year, plus annual farm expenditures given by survey data on farmers' purchases of machinery and equipment during the year. The farm expenditures survey, however, does not collect information on leased assets. Therefore, the asset category for machinery and motor vehicles excludes leased equipment currently being used in agricultural production.[3]

Nor do financial lease obligations appear in the liabilities section of the balance sheet. Since financial leases are long-term contractual commitments to make a series of payments to the lessor, they should be reported in the balance sheet as liabilities, along with other long-term financial obligations.[4] If financial leases are omitted, the balance sheet would understate the total long-term financial commitments of the farm sector.

The understatement of total liabilities resulting from the exclusion of financial leases also affects financial ratios calculated using information contained in the balance sheet. For example, the debt-to-equity ratio would be understated to the extent that lease-financing is used to acquire depreciable farm assets. Thus,

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[2] As a result of the BEA revisions, reported business investment was 10 per cent higher than previously estimated, up from $254.9 billion to $279.9 billion. U.S. Department of Commerce, Bureau of Economic Analysis, *Survey of Current Business,* Vol. 60:10, October 1980, pp. 24-39.

[3] The lessee should record a financial lease as an asset at an amount equal to the present value of the future lease payments. This value serves as a proxy for the present value of the services provided by the asset over the term of the lease. The rate of interest implicit in the lease agreement should be used to determine the present value. If this rate is not known, the lessee should use the current interest rate on a similar term loan. For further clarification, see: Financial Accounting Standards Board, *Accounting for Leases,* Statement #13 as amended and interpreted through May 1980, Stamford, Connecticut, May 1980.

[4] The discounted future lease payments should be shown as a long-term liability, while the current lease payment should be shown as a current liability. By discounting future lease payments, the lessee is accounting for the income generated by the funds that would have been used if the asset had been purchased rather than leased. For further discussion, see Financial Accounting Standards Board, *Accounting for Leases.*

the farm sector's leverage position and its exposure to financial risk would be understated. Such an understatement would suggest the presence of credit reserves that may not exist.

Gaps in the Income Statement

Omission of data on lease-financing can also affect the financial ratios calculated from the income statement, which displays information

Table 1
BALANCE SHEET OF THE U.S. FARMING SECTOR, SELECTED YEARS

Item	Billions of Dollars in Year: 1970	1975	1980*
ASSETS			
Physical Assets:			
Real estate	215.8	368.5	671.3
Non-real estate			
Livestock†	23.5	24.6	61.2
Machinery and motor vehicles	32.3	55.7	94.3
Crops stored on and off farms‡	10.9	23.3	33.1
Household equipment and furnishings	9.6	14.0	20.5
Financial Assets:			
Deposits and currency	11.9	15.1	15.9
U.S. savings bonds	3.7	4.3	4.0
Investments in cooperatives	7.2	10.5	18.6
Total	314.9	516.0	918.9
CLAIMS			
Liabilities:			
Real estate debt	29.2	46.3	82.1
Non-real estate debt to:			
CCC§	2.7	0.3	4.5
Other reporting institutions//	15.8	29.2	59.0
Nonreporting creditors#	5.3	6.0	11.7
Total liabilities	53.0	81.8	157.3
Proprietors' equities	261.9	434.2	761.6
Total	314.9	516.0	918.9

SOURCE: *Balance Sheet of the Farming Sector,* Agricultural Information Bulletin No. 416, Economic Statistics, and Cooperatives Service, U.S. Department of Agriculture.
*Preliminary.
†Beginning with 1961, horses and mules are excluded.
‡Includes all crops held on farms and crops held off farms as security for CCC loans. On January 1, 1978, the latter totaled $1,827 million.
§Nonrecourse CCC loans secured by crops owned by farmers. These crops are included as assets in this balance sheet.
//Loans of all operating banks, Production Credit Associations, the Farmers Home Administration, and discounts of the Federal Intermediate Credit Banks for agricultural credit corporations and livestock loan companies.
#Loans and credit extended by dealers, merchants, finance companies, individuals, and others.

pertaining to income and expense flows in the farm sector (Table 2). While this income statement currently reflects the obligations associated with leases on farm land, it does not include financial leases on machinery and equipment. But the current financial lease payment should be reported as an expense in the income statement. The omission of current financial lease payments for farm machinery and equipment would understate total farm production expenses and hence overstate net farm income.

These omissions introduce biases into analytical ratios normally calculated using in-

Table 2
U.S. FARM INCOME AND EXPENSES, SELECTED YEARS

Item	Billions of Dollars in Year: 1970	1975	1979
Cash Receipts:			
Marketings of crops	21.0	45.2	62.8
Marketing of livestock and livestock products	29.6	43.1	68.6
Government payments	3.7	0.8	1.4
Other cash income	0.5	1.2	2.1
Nonmoney Income:			
Value of farm products consumed	0.8	1.3	1.5
Rental value of farm dwellings	3.0	5.4	9.1
Net change in inventories	0.0	3.4	4.1
Gross income	58.6	100.4	149.6
Cash Expenses:			
Feed purchased	8.0	12.6	17.0
Livestock purchased	4.3	5.0	12.7
Seed purchase	0.9	2.3	3.4
Fertilizer and lime	2.4	6.4	6.7
Repairs and operation	4.5	7.8	13.7
Hired labor	4.3	6.4	9.2
Interest on non-real estate debt	1.6	3.0	6.6
Miscellaneous	5.0	8.6	14.4
Taxes on farm property	2.6	3.3	4.3
Interest on farm mortgage debt	1.8	3.4	6.3
Net rent to nonoperator landlords	2.1	4.6	5.3
Noncash Expenses:			
Depreciation and capital consumption	6.8	12.6	19.0
Total expenses	44.3	76.0	118.6
Net income from farming	14.3	24.4	31.0

SOURCE: *Economic Indicators of the Farm Sector: Income and Balance Sheet Statistics, 1979,* Statistical Bulletin No. 650, U.S. Department of Agriculture, 1979.

formation from the income statement. For example, an overstatement of net farm income would cause the rate of return on equity capital to be overstated. As a result, the profitability of farm investment—as measured by the rate of return on equity capital—would be overstated in comparison to nonfarm investment alternatives.

Efficiency ratios, which measure how farmers use their resources, are also calculated based on information from the income statement. The turnover ratio, for example, measures the gross farm income generated per dollar of farm business assets controlled by the farmer. To compute the ratio properly, gross farm income should be divided by all farm business assets. Because equipment and machinery acquired by lease-financing are not included in the balance sheet, the turnover ratio is overstated. The magnitude of this bias will depend, of course, upon the current amount of lease-financing in agriculture.

Gaps in the Cash Flow Statement

The exclusion of information on financial lease obligations will also affect the cash flow statement (Table 3). Current financial lease payments should either be subtracted from net cash income or listed separately as a use of funds. This would prevent the current lease payment from being reflected in "personal consumption and other cash uses," which is calculated residually, and which is typically reserved for funds used for nonfarm purposes.

Several of the standard ratios used to analyze this financial statement are listed at the bottom of Table 3. The ratio of total purchased capital to total net cash income, for example, would be understated if current lease payments are not reflected in net cash income. Net cash income divided by total cash uses would also be biased because the current lease payment is omitted from both items. Finally, the ratio of debt outstanding to net cash income would be biased for the same reason. As the importance of lease-financing grows, the biases introduced into these ratios will affect an analyst's assessment of financing outcomes in the farm sector.

Other Considerations

Measures of the productivity of inputs in farming are also affected by the omission of machinery and equipment acquired by lease-financing from the sector's financial statements. The productivity of the farm sector is estimated by dividing the index of farm output by the index of farm inputs. But this ratio is overstated to the extent that producers use assets acquired through financial leases, which are not included in the index of farm inputs. The input shares for capital will also be understated when the ratios of machinery, equipment, and building expenses to gross farm income are calculated from data that exclude assets acquired via lease-financing.

Finally, the lack of data on lease-financing in the farm sector financial statements could hamper future research, including the development of models used in policy analysis. For example, the absence of lease-financing data could bias future investigations of the investment and borrowing behavior of agricultural producers, as well as projections of future capital and credit flows in the farm sector.

SURVEY OF EQUIPMENT LESSORS

Because of the potential importance of lease-financing activity in agriculture, and because of the current sparsity of data on financial leases, a national survey of equipment lessors was conducted by the Federal Reserve Bank of Kansas City. A total of 131 leasing companies were surveyed and asked to indicate (1) the current magnitude of lease-financing by agricultural producers, (2) the expected future growth of lease-financing in this sector, and (3) the

Table 3

CASH SOURCES AND USES OF FUNDS FOR THE U.S. FARM SECTOR, SELECTED YEARS

	1970	1975	1979
		Billions of Dollars	
Cash Sources of Funds*			
1. Net cash income from farm and nonfarm sources	37.6	60.0	87.5
2. Net flow of real estate loans	1.1	4.8	11.3
3. Net flow of non-real estate loans†	1.2	4.2	10.7
4. Total cash sources of funds‡	39.9	69.0	109.5
Cash Uses of Funds:			
5. Purchases of machinery and motor vehicles	4.9	8.7	10.5
6. Capital improvement to real estate assets	2.4	4.7	5.6
7. Other capital purchases§	1.5	1.0	5.5
8. Annual capital formation	8.8	14.4	21.6
9. Purchases of real estate from discounting proprietors	4.1	9.8	13.2
10. Total purchased capital	12.9	24.2	34.8
11. Personal comsumption and other cash uses	27.0	44.8	74.7
12. Total cash uses of funds	39.9	69.0	109.5
Capital Flows:			
13. Total purchased capital	12.9	24.2	34.8
14. Change in inventories	0.0	3.4	4.1
15. Total capital flow	12.9	27.6	38.9
Real Dollar Flows:			
Total net cash income/GNP deflator (1958 = 100)	27.8	32.3	40.2
Personal consumption and other uses/GNP deflator (1958 = 100)	20.0	24.1	34.4
Analytical Ratios:		Per Cent	
Total purchased capital/total net cash income (line 10 ÷ line 1)	34	40	39.8
Total net flow of loans/total purchased capital ((2 + 3) ÷ 10)	18	37	63.2
Total net flow of loans/total capital flow ((2 + 3) ÷ 15)	18	33	56.6
Net flow of real estate loans/total cash uses (2 ÷ 12)	3	7	10.3
Net flow of non-real estate loans/total cash uses (3 ÷ 12)	3	6	9.8
Cash income/total cash uses (1 ÷ 12)	94	87	79.9
Debt outstanding/total net cash income	141	136	179.8

SOURCE: *Agricultural Finance Outlook,* U.S. Department of Agriculture, November 1979.

*Cash sources of funds from sale of real estate to the nonfarm sector are not included due to the lack of data.

†Does not include CCC loans.

‡Gross cash farm operating expenses have been deducted from gross cash farm income.

§Includes net additions to household furnishings, commercial bank deposits and currency, and purchases of breeding livestock. Purchases of breeding livestock are estimated as a percentage of total expenditures for the purchase of livestock. Census data are used to estimate the percentage values.

characteristics of agricultural lessors and the leases offered to farmers.[5] The survey results are discussed in this section, and summary statistics are presented in Table 4.

Net agricultural lease receivables—which represent the total amount of agricultural leases outstanding at a particular time—were $628 million in 1980 for the firms responding to the survey, an increase of 141 per cent over the 1979 level of $261 million. Although the increase in net agricultural lease receivables noted by survey respondents was only about 3 per cent as large as total farm gross capital expenditures in 1979, lease-financing by agricultural producers is expected to increase substantially in the near future. The lessors responding to the survey expect their net agricultural lease receivables to reach $874 million by the end of 1981, and $2.1 billion by the end of 1985. These figures represent increases above 1980 levels of 39 per cent and 234 per cent, respectively (Table 4).

Characteristics of Agricultural Lessors

Lessors involved in agricultural lease-financing generally fall into three categories: (1) captive lessors, (2) independent lessors, and (3) bank lessors.[6] Table 5 summarizes the information obtained in the survey of these three types of lessors.

Captive lessors are wholly owned leasing subsidiaries of agricultural machinery and equipment manufacturers. Financial leases are often used as a marketing device by machinery and equipment manufacturers to increase their market penetration, and as an alternative method of financing equipment during periods of tight credit. Captive lessors currently account for approximately 54 per cent of the total lease-financing by agricultural producers. In 1980, this type of lessor held net agricultural lease receivables of $336 million. Investment in lease-financing by individual captive lessor firms ranged from a low of $80,000 to a high of $133 million. Growth expectations held by these lessors reflect more optimism than those held by other lessors. Captive lessors project their net agricultural lease receivables to reach $579 million by the end of 1981, and $1.4 billion by the end of 1985. These figures represent increases above 1980 levels of 73 and 330 per cent, respectively.

Captive lessors currently lease many types of machinery and equipment. Tractors, harvesting equipment (including combines, forage harvesters, balers, etc.) and other implements (such as plows, grain drills, and cultivators) are the primary types of equipment leased. Leasing of livestock, typically dairy cattle, is another area of considerable involvement by captive lessors. Items not directly used in agricultural production are also leased. Captive lessors, as a whole, have little involvement in lease-financing of livestock equipment (hog confinement faciltities and feedlot buildings and equipment) and grain storage and handling equipment.

The second category, independent lessors,

[5] The survey included leasing companies identified as having an interest in agricultural lease-financing. However, since all lessors involved in lease-financing to agriculture cannot readily be identified, this survey should not be interpreted as a random sample of the total population of agricultural lessors. The survey results likely represent a significant proportion of the total current involvement in agricultural lease-financing, but it would be inappropriate to use these results to calculate the magnitude of biases that currently exist in the financial ratios. Rather, the survey results give an indication of the potential growth in this activity and of the primary types of assets being leased by the responding lessors.

[6] Other companies such as large insurance companies have recently become involved in lease-financing to agriculture. These companies were not included in the survey. Therefore, the results reported based on survey responses understate agricultural lease-financing.

Table 4

CHARACTERISTICS OF THE AGRICULTURAL LEASING INDUSTRY

(Based on Survey Results*)

	Involvement in Leases by All Responding Lessors	Involvement by Any Individual Lessor	
		Minimum	Maximum
Total Net Lease Receivables in 1980 (Millions $)	2459.9	.015	523.2
Net Agricultural Lease Receivables in 1980 (Millions $)	627.7	.015	133.2
Percentage Net Agricultural Lease Receivables are of Total Net Lease Receivables in 1980	25.5%	——†	——
Net Agricultural Lease Receivables in 1979 (Millions $)	260.6	.036	58.1
Percentage Increase in Net Agricultural Lease Receivables From 1979 to 1980	140.9%	——	——

	All Responding Lessors	Minimum	Maximum
Estimated Level of Net Agricultural Lease Receivables (Millions $)			
In 1 Year	874.3	.054	337.1
In 5 Years	2097.8	.057	830.1
Percentage Increase Expected From 1980 in the Value of Net Agricultural Lease Receivables			
In 1 Year	39.3%	——	——
In 5 Years	234.2%	——	——

	Average	Minimum	Maximum
Length of Leases (Years) (Mean Value)	5.6	3.5	7.6
Estimated Residual Value (Per Cent of Original Purchase Price) (Mean Value)	14.2%	5.0%	36.1%

	Percentage of Leases Accounted For by Type of Equipment	Highest Percentage of Total Lease Business by Type of Equipment for an Individual Lessor
Types of Equipment Leased (%)		
Tractors	14.3	85.0
Autos	0.8	31.0
Trucks	4.3	100.0
Irrigation Equipment	26.8	100.0
Grain Storage and Handling Equipment	9.1	80.0
Harvesting Equipment	11.6	100.0
Livestock Buildings and Equipment	5.3	40.0
Livestock	14.4	100.0
Implements and Other Machinery	7.9	100.0
Non-Production Items	5.6	100.0
	100%	

*The figures presented in this table are a summary of survey responses, which are not a randomly distributed sample.
†Not applicable.

Table 5
CHARACTERISTICS OF LESSORS INVOLVED IN AGRICULTURAL LEASE-FINANCING
(Based on Survey Results*)

	Types of Lessors		
	Banks	Captive	Independent
1980			
Total Net Lease Receivables (Millions $)	804.4	1004.2	651.2
1980			
Net Agricultural Lease Receivables (Millions $)	105.3	335.7	186.8
Minimum	.056	.080	.015
Maximum	41.9	133.2	57.5
1979			
Net Agricultural Lease Receivables (Millions $)	56.5	88.1	116.0
Minimum	.036	.416	.186
Maximum	15.7	40.4	58.1
Estimated Level of Net Agricultural Lease Receivables (Millions $)			
In 1 Year	120.9	579.4	174.0
In 5 Years	166.4	1444.1	487.4
Length of Lease (Years) (Mean Value)			
Minimum	4.2	2.8	3.4
Average	6.6	4.5	5.4
Maximum	8.1	7.6	7.2
Estimated Residual Value (Per Cent of Original Purchase Price) (Mean Value)	9.39	24.16	13.97
Percentage of Leases Accounted For by Type of Equipment			
Tractors	5.04	24.69	17.11
Autos	2.13	0.0	0.05
Trucks	2.47	0.25	7.26
Irrigation Equipment	44.17	3.25	23.15
Grain Storage and Handling Equipment	11.78	1.25	10.25
Harvesting Equipment	14.94	19.33	6.05
Livestock Buildings and Equipment	1.30	1.25	10.03
Livestock	0.0	25.00	20.90
Implements and Other Machinery	9.73	12.49	4.60
Non-Production Items	8.61	12.50	0.62
	100%	100%	100%

*The figures presented in this table are a summary of survey responses, which are not a randomly distributed sample.

have as their primary business the leasing of assets. Although most leases made by independent lessors are made directly to lessees, some do participate in lease-financing arrangements with equipment dealers and with banks. In 1980, independent lessors accounted for 30 per cent of the total net agricultural receivables, totalling $187 million. Independent lessors surveyed expect their net agricultural lease receivables to remain about the same in 1981 as they were in 1980. By 1985, however, their agricultural receivables are expected to total $487 million, an increase of 161 per cent over 1980.

Leases of irrigation equipment and livestock currently account for approximately 44 per cent of agricultural leases held by independent lessors. Tractors, grain storage and handling equipment, and livestock equipment comprise the other major categories of equipment leased by these lessors.

A third category is composed of banks and bank-affiliated lessors. Bank lessors currently have the smallest involvement in agricultural lease-financing of the three types of lessors examined, although their involvement has almost doubled since 1979. They held $105 million in net agricultural lease receivables in 1980. Although these lessors anticipate growth in this activity, their estimates are more conservative than those of other lessors. Bank lessors expect net agricultural lease receivables to increase 15 per cent in the next year, and 58 per cent by the end of 1985. This type of lessor usually has a smaller average net agricultural lease receivable value than do the other lessors.

Bank lessors, as a whole, have almost 44 per cent of their leases in irrigation equipment, with harvesting equipment and grain storage and handling equipment also being important. They also lease-finance other implements and non-production items to a greater extent than do the other lessors. However, bank lessors have little involvement in lease-financing of tractors and trucks, and almost no involvement in livestock leasing.

Characteristics of Financial Leases to Agriculture

The terms of a financial lease are important in analyzing the nature of a lessee's liability associated with lease-financing. The length of the lease period is also important in determining the future cash inflow to the lessor.

The leasing firms responding to the survey indicated an average lease period of 5.6 years. The minimum period was 3.5 years, and the maximum period was 7.6 years. Captive lessors appear to structure slightly shorter lease periods than do lessors in general. The average lease period for a captive lessor was 4.5 years, with a minimum length of 2.8 years and a maximum length of 7.6 years. Independent lessors reported an average lease period of 5.4 years, only slightly different from the industry average. The minimum lease period for independent lessors was 3.4 years, and the maximum length was 7.2 years. Both are slightly less than the industry average. Longer lease periods are structured by bank lessors, possibly because the items they lease, such as irrigation equipment, have on average a longer useful life. The average lease period offered by bank lessors was 6.6 years, the minimum was 4.2 years, and the maximum was 8.1 years.

Lessors, at initiation of a financial lease, must estimate what the residual value of the asset leased will be when the lease period expires. Payments are then amortized to cover the cost of the asset, less the estimated residual value. The lessor normally receives the residual value when the asset is sold at the end of the lease period. The actual residual value received for the asset, however, may differ substantially from the lessor's original estimate. In recent years, with rising prices for new and used machinery, the value at the end of the lease

period has usually exceeded the estimated residual value.

Lessors as a whole estimated the residual value of the assets they leased to be approximately 14.2 per cent of their original value. Captive lessors estimate a higher residual value, 24.2 per cent of the asset's original value, although this may be due to the shorter lease periods used by captive lessors. Independent lessors estimate the residual value to be 14.0 per cent of the asset's original value. Finally, bank lessors typically estimate a 9.4 per cent residual value, which reflects in part their somewhat longer lease periods.

SUMMARY

Financial leases are increasingly viewed by agricultural producers as an alternative to debt-financing the acquisition of assets. As the average size of farms increases, producers will require even greater amounts of capital equipment for production. Lease-financing provides the producer with some advantages not available if debt-financing is used. For these and other reasons, lease-financing is expected to continue to grow in the future.

Financial leases are presently not reflected in the financial statements of the farm sector. While lease-financing is shown to be relatively small at present, efforts should be undertaken now to collect information that would enable analysts to monitor the future growth of lease-financing. Without such efforts, the standard financial ratios based upon data from these financial statements could become biased. Research conducted using data from these financial statements would also be affected. The farm sector's financial statements should begin now to account for the services provided by financial leases, and the obligations associated with them, if its financial structure and performance are to be accurately measured.

While the results of the survey reported in this article suggest that the magnitude of lease-financing to agriculture currently is not large, the amount of net agricultural lease receivables reported here understates total involvement in agricultural lease-financing. Furthermore, firms in the industry predict that lease-financing will grow rapidly in the near future. The survey results thus reinforce the importance of beginning efforts now to include information on lease-financing in the financial statements for the farm sector.