factsheet
Pork Information Gateway

Financial Leasing of Capital Assets in Pork Production

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The U.S. pork production industry continues to move rapidly towards fewer farms producing an increasing amount of the nation's hogs. This movement toward fewer, but larger, producers has been made possible by added capital investments for facilities, equipment, and various production inputs which have replaced, or have been substituted for, manual labor on many farms.

Traditionally, producers needing funds for growth used their own capital (equity) or borrowed capital (debt) to purchase the assets needed. But, with the increased capital needs and the changes in financial markets, producers are exploring leasing as an alternative method to acquire assets. Increased use of debt capital and interest rate variability have increased the financial risk-exposure for some producers. And, leasing may help reduce some financial uncertainties. Another important reason to consider leasing is that, in some cases, it may provide the lowest cost method to acquire certain assets.

Leasing consists of paying a set fee for the use of a durable asset owned by a party other than the user. The owner of the asset is termed the lessor, and the user termed the lessee. Since this arrangement can be viewed as an alternative way to finance the use of an asset, it is called financial leasing. The Financial Lease Nearly any kind of asset used in pork production can be leased. Common examples of leased assets include breeding stock, production equipment and buildings. A financial lease is a contractual commitment that enables the lessee to acquire the use of an asset in exchange for a stipulated fixed payment to the asset owner, the lessor. The lease is the contractual agreement to which both parties are legally obligated during the lease period.

To clarify the positions of both the lessor and lessee and to help avoid misunderstandings, the lease should be written. A written lease should include:

1. description of the property by location and a list of exactly what is included;
2. the expected and permitted use of the property;
3. provisions for termination of the lease;
4. timing and amount (or calculation method) of lease payments;
5. initial maintenance condition of the property;
6. rights and obligations of the lessor; for example, permission to enter the leased property premises and maintenance obligations;

7. operating obligations of the lessee. Examples include who is responsible for repairs, insurance and property taxes;
8. terms of a buy-out option at end of the lease period or any early buyout agreements; and
9. an arbitration procedure to settle disagreements that are not resolved by mutual agreement.

Advantages and Disadvantages

Some advantages to the lessee are listed. They may not be valid in all cases, but have the potential to be advantageous in other cases:

1. Leasing may require fewer dollars up front than ownership. Capital assets may be piaced in service at an initial cost that may be less than even the minimum 10% down payment commonly associated with ownership.
2 When credit limits are imposed by a producer's lender, leasing may be a way to acquire additional assets. However, producers should realize that financial leasing will affect cash flow requirements and thus may affect credit limits imposed by the primary lender. In any case, the primary lender should be made aware when a producer is considering a financial lease.
3. The lease payment schedule is often a fixed dollar amount per time period. When this occurs, cash flow planning on the outflow side may be more certain than with a variable interest rate loan under the ownership alternative.
4. The entire lease payment is a tax-deductible expense for federal income tax purposes for qualifying leases.
5. Leasing may provide more flexibility to match the payment terms to the actual expected useful life of an asset. For example, a lender may want a three year-term note on an asset which could have lease payments extended over its five-year-useful life.
6 Leasing provides clear alternatives for disposing of the capital asset at the completion date of the lease contract since the asset can be returned to the lessor, or purchased if there is a buy-out option.
7. Leasing may be less risky to the lessee than debt financed ownership. With leasing, the only collateral required is the actual capital asset being leased. With debt financing, additional collateral may be required to obtain financing.
8 Leasing can be a lower cost method of obtaining an asset than debt financing when the lessor is in a higher tax bracket, and/or has a lower cost of capital, and is willing to pass a portion of this advantage to the lessee.

Some disadvantages of leasing from the lessee's perspective relative to ownership are:

1. Depreciation and interest expense cannot be claimed by the lessee for tax deductions.
2. If the lease period is equal to, or shorter than, the time period for financing the asset using the ownership option, the before-tax cash flow requirement will most often be higher for leasing.
3 The total cost associated with leasing will often be higher than the total cost associated with debtfinancing for the ownership option.
4. The fixed dollar lease payment is often inflexible over the life of the lease with few options to refinance or delay lease payments.
5. If the primary lender is not consulted about the additional cash flow requirements of a lease, this may erode the working relationship with the lender.
6. The lessee may make cash flow commitments that are greater than the ability to make payments.

When considering expenses such as repairs, property taxes and insurance, there is generally little difference between ownership or leasing since these items are usually paid by the user directly, under the ownership option or indirectly with a higher lease payment.

Income Tax Implications

Since the financial lease is similar to ownership under a debt-purchase arrangement, questions have arisen about income tax treatment. The tax laws on lease arrangements continue to evolve. Congress specifically defined a qualifying financial lease in the Tax Equity and Fiscal Responsibility Act of 1982. A detailed set of guidelines had to be met by both the lessor and the lessee in order to qualify as a financial lease. However, farm financial leases for the first $150,000 cost basis of leased property during a year were not subject to these guidelines and did qualify as a farm financial lease. The category known as "farm financial leases"

expired at the end of 1987. Accordingly, farm property leased after 1987 falls under the guidelines of regular leases for tax treatment.

For qualified capital assets, the lessor (owner) is allowed to take interest expense and depreciation as business expenses and thereby reduce income tax liability. Pork producers who lease the capital assets are able to take the lease payments as a deductible business expense.

Since tax laws are subject to change, it is advisable to check income tax guidelines before entering into a financial lease. Sources of information on the income tax treatment of financial leases include the Farmer's Tax Guide (IRS publication), CPA's, attorneys and tax practitioners.

Comparison of Debt-Purchase

with Financial LeasingIt is important to note that the evaluation of the type of financing has little to do with whether the asset should be acquired. Before analyzing the type of financing, an evaluation of potential profitability should be made. If the asset cannot be used profitably, the best financing decision will only moderate total losses. Therefore, the first analysis should be a profitability analysis. This is then followed by the financial analysis which is shown here.

To understand the economic differences between using debt to purchase an asset or financial leasing, check the following example. The analysis involves computing the net cash outflow, or cost, each year. The net cash outflow is simply the cash outflow less the tax savings in that year. Tax savings become a critical factor since the amount of tax savings will likely vary between the two alternatives. Cash outflows occur over a series of years, therefore it becomes necessary to make some adjustment for the timing of cash outflows. We know for example, that when purchasing an asset worth $1, it is generally preferable to pay the $1 next year rather than today. How much better depends upon the cost of (borrowed) money, or upon the earning power of (saved) money. At a 12% interest rate, 89.3 cents today is equal to $1 in a year (see discount factors in Table 1). Because of this "time value" of money, it is necessary to adjust (discount) each year's cash outflow by the appropriate discount factor. By summing the annual discounted cash outflows over the years, the net-present value of the cash outflows for each alternative can be calculated. The net-present value of the cash outflows for leasing is then compared with the debt-purchase alternative.

Debt-Purchase Financing Example

Assume a producer has made a decision to purchase $30,000 of feedmill equipment under the following financial arrangements:

- Down payment is $6,000.
- Amount financed is $24,000 at a 12% interest rate.
- Payments are to be made in 5 equal yearly amounts of $6,658.
- Marginal income tax rate is 31%.
- Equipment is considered 7 year property, for tax purposes, and is depreciated using the double-declining balance method with a half-year convetion under the Modified Accelerated Cost Recovery System as specified by the Tax Reform Act of 1986.
- Equipment is sold after 7 years for the $3,000 salvage value, which is considered ordinary income for tax purposes because the asset was fully depreciated.

The financial analysis for this debt-purchase example is shown in Table 2. Annual payments of $6,658 are divided between the portion of the payment allocated to principal repayment (column A) and to interest (column B). Depreciation is shown in Column C. Column E and F compute the amount of annual income tax savings, while Column G shows the annual cash outflows after tax savings are subtracted. Finally the annual after tax outflows are multiplied by the appropriate tax adjusted discount factor in Column H to provide the annual discounted cash outflow shown in Column I. The net-present value of the cash outflows is then computed by adding the numbers in Column I. For the debt-purchase financing alternative, the net-present value of the cash outflows is $21,590 for this example.

Table 1 provides discount factors for various discount rates and years. The discount rate should be the interest rate on borrowed capital if debt is used or the rate of return that could have been eamed if equity capital is used. Commonly, producers do not finance with l00% debt, or with 100% equity, but rather with

a combination of the two. In this case, it is appropriate to use a discount rate which is a combination of the rates for interest cost and expected return on equity. In this example, the feedmill equipment was financed with $6,000 of equity and $24,000 of debt, or 20% equity and 80% debt. The discount factor to use for the debt is the 12% interest rate, and let's assume the producer required a return of 17% on the equity. Given these two rates, a weighted cost of capital could be calculated by multiplying the rates by the respective amounts of capital used. In this example, the weighted cost of capital is 13% and is calculated as (.20 x 17%) + (.80 x 12%) = 13%.

Year	6%	7%	8%	9%	10%	11%	12%	13%	14%	15%
1	.943	.935	.926	.917	.909	.901	.893	.885	877	.870
2	.890	873	.857	.842	.826	.812	.893	.885	.877	.870
3	.840	.816	.794	.792	.751	.731	.712	.693	.769	.756
4	.792	.763	.735	.708	.683	.659	.636	.613	.592	.572
5	.747	.713.	681	.650	.621	.593	.567	.543	.519	.497
6	.705	.666	.630	.596	.564	.535	.507	.480	.456	.432
7	.665	.623	.583	.547	.513	.482	.452	.425	.400	.376
8	.627	.582	.540	.502	.467	.434	.404	.376	.351	.327
9	.592	.544	.500	.460	.424	.391	.361	.333	.308	.284
10	.558	.508	.463	.422	.386	.352	.322	.295	.270	.247
11	.527	.475	.429	.388	.351	.317	.288	.261	.237	.215
12	.497	.444	.397	.356	.319	.286	.257	.213	.208	.187

Table 1. Annual Discount Factors

The weighted costs of capital should then be adjusted for tax implications. This can be done by multiplying the weighted cost of capital x (1 - tax rate). In the example used here, this would be 13% (1 - .31) = 13% x .69 or about 9%. The 9% discount factor is then used as the tax adjusted discount factor in the example.

Financial Lease Alternative

This analysis assumes the pork producer acquires the same $30,000 of feedmill equipment, but leases the equipment rather than using debt to purchase. Leasing assumptions are:

1. The lease payment rate is 24% per year for five years, or $7200 annually.
2. The first payment is due when the equipment is acquired with subsequent annual payments.
3. 31% marginal tax rate,
4. Equipment is returned to lessor after 5 years.

The lease analysis is illustrated in Table 3. Annual lease payments of $7,200 are tax deductible with the tax savings assumed to be received in the year after the payment. Tax savings each year is $2,232. This is the $7,200 lease payment times the 31% marginal tax rate and is shown in Column B. Column C shows the tax adjusted cash outflow. These numbers are multiplied by the appropriate tax adjusted discount factor in Column D so the net-present value of the cash outflows can be calculated in Column E.

Year	(A) Principal Payments	(B) Interest2 Payments	(C) Depreciation3	(D) Salvage4 Value (B+C-D)	(E) $Tax Deductible (Ex.31)	(F) Tax Savings (A+B-D-F)	(G) Tax Adjusted Cash Outflow (9%)	(H) Tax Adjusted Discount Factor (GxH)	(I) Discounted Cash OutFlow
0	6,000						6,000	1.0	6,000
1	3,778	2,880	4,287		7,167	2,222	4,436	.917	4,068
2	4,231	2,427	7,347		9,774	3,030	3,628	.842	3,055
3	4,739	1,919	5,247		7,166	2,221	4,437	.772	3,425
4	5,308	1,350	3,747		5,097	1,580	5,078	.708	3,595
5	5,944	713	2,679		3,392	1,052	5,605	.650	3,643
6			2,676		2,676	830	-930	.596	-495
7			2,679		2,679	830	-830	.547	-454
8			1,338	3,000	-1,662	-515	-2,485	.502	-1,247
							Net Present Value of Cash Outlows		$21,590

Table 2. Debt-Purchase Analysis based upon $30,000 purchase prise with $6000 down payment, financed at 12% interest with 5 equal annual payments of $6658 each, salvage value is $3000. Numbers are rounded to the nearest whole dollar amount. [2]It is assumed that interest payments are made on the annual anniversary of the loan and that the tax savings from the interest occur in the same year. This assumption may vary in individual cases. [3]Depreciation is based upon the double declining balance method with a half-year convention under the Modified Accelerated Cost Recovery System as specified by the Tax Reform Act of 1986. [4]Salvage value is assumed to be ordinary income since the asset was fully deprerciated.

The lease alternative, under the assumptions given has an adjusted cash outflow, or cost, of $21,840. This number is compared with the purchase alternative with an adjusted cash outflow of $21,590. Thus, from an economic viewpoint, the debt-purchase alternative has a lower cost in this example.

Factors That Affect The Analysis

It is possible for leasing to be the lowest cost method to acquire assets. While this is not always the case, the most likely conditions under which leasing could be more economically attractive in relation to purchasing could occur if: (1) the lessee has a lower marginal tax rate than the lessor; (2) the lessor can obtain capital at a lower cost than the lessee or has a relatively low return on their own capital, such as Certificate of Deposit rates; (3) the lease payments can be extended over a longer period than the allowable depreciable life; or (4) the lessee has a very limited amount of equity but has the opportunity to earn a high rate of return on the equity.

Other Factors to Consider

The economic comparison of the financial lease versus ownership with debt is an important analysis in decision making. However, other factors should also be considered. (1) Pride of ownership may be an important reason for owning rather than leasing. (2) Ownership may allow more flexibility if one wants to sell the asset due to going out of business or has the need to trade the asset for a larger or more technologically advanced replacement. (3) Leasing is sometimes considered a way to secure 10% financing without making a down payment out of equity funds. However, the first lease payment, which is generally due when the asset is acquired, may be near the size of a down payment. (4) Leasing may require the pork producer to justify as much credit worthiness as a lending institution would require for a purchase. (5) The decision to acquire an asset may change the marginal tax rate versus not acquiring the asset. (6) When comparing lease or purchase alternatives, the pork producer should realize that the variables used in the analysis may be different than expected. For example, the results may vary substantially if the producer expected a marginal tax rate of 20% and it was actually 40% or if interest rates were expected to be 10% but were actually 14%. Some recognition of future uncertainty probably means the producer needs to consider the impacts of a broader range of values for the key variables.

Additional Information

Only one leasing situation has been evaluated in this worksheet. Each potential leasing situation will be unique and will need to be evaluated with the producer's own variables. To help analyze these individual leasing situations, the attached worksheet, identified as Tables 4 and 5, can be used. This worksheet follows the format of the examples previously cited. Another alternative is to evaluate financial leasing versus debt purchase with the use of a micro-computer. Many leasing companies will provide this analysis as part of their service. In addition, the Cooperative Extension Service, in many states, has the capacity to provide this computer analysis. Having access to a micro-computer program will also allow you to evaluate financing alternatives under different sets of assumptions. But before entering any lease, read the provisions of the lease carefully and have a clear understanding of your obligations.

Summary

Leasing is an alternative way for a pork producer to control the use of an asset without owning the asset. The financial lease allows a producer to use assets generally over a period of years for a fixed fee. The cost of leasing assets can be compared to the use of debt to purchase the assets by examination of the alternative impacts upon

Year	(A) Lease Payments	(B) Tax[2] Savings (A x .31)	(C) Tax Adjusted Cash Outflow (A-B)	D) Tax Adjusted Discount Factor (9%)	(E) Discounted Cash Outflow (C x D)
0	7,200		7,200	1.0	7,200
1	7,200	2,232	4,698	.917	4,556
2	7,200	2,232	4,698	.842	4,183
3	7,200	2,232	4,698	.772	3,835
4	7,200	2,232	4,698	.708	3,517
5		2,232	-2,232	.650	-1,451
			Net Present Value of Cash Outflows		$21,840

Table 3. Lease Analysis Based upon annual lease payments of $7200 for 5 years on $30,000 worth of equipment. [2]Marginal income tax rate.

annual cash flows. Financial leasing is often not as economically attractive as ownership, but this is not always the case. Pork producers who are most likely to use leasing will tend to be in one or more of the following situations: they have low marginal tax rates; they have high interest cost; they have the opportunity to earn high rates of return on their equity; or they do not wish to borrow additional amounts against limited equity.

Debt-Purchase Versus Lease Wodcsheet

Table 4. Debt-Purchase Analysis

Year	(A) Principal Payment	(B) Interest Payment	(C) Depreciation	(D) Salvage Value	(E) $Tax Deductible (B+C-D)	(F) Tax Savings[1] (E x .___)	(G) Tax Adjusted Cash Outflow (A+B_D-F)	(H) Tax Adjusted DiscountFactor[2] (____%)	(I) Discounted Cash Outflow (GxH)
0									
1									
2									
3									
4									
5									
6									
7									
8									
9									
10									
								Net Present Value of Cash Outflows	

[1]Marginal income tax rate.
[2]Adjust discount rate by the marginal tax rate and use factors in Table I

Table 5. Lease Analysis

Year	(A) Lease Payments	(B) Tax1 Savings (A x.____)	(C) Tax Adjusted Cash Outflow (A-B)	(D) Tax Adjusted2 Discount Factor (___%)	(E) Discounted Cash Outflow (C x D)
0					
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
				Net Present Value of Cash Outflows	

[1]Marginal income tax rate
[2]Adjust discount rate by the marginal tax rate and use factors in Table I

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