



LEASING VS. BUYING MACHINERY

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Leasing vs. Buying Machinery

Listed below are the factors to consider when comparing leasing versus purchasing equipment and machinery.

Only those factors that would differ between the ownership and lease of equipment would be considered. For example, fuel costs would be the same, so it is not included in the cost comparison. Also, it is assumed that there are no repair costs associated with leasing the equipment.

Item	Buy	Lease
Repairs (cashflow&economic)	yes	no
Down Payment (cashflow)	yes	no
Up Front Charges (cashflow)	no	yes
Loan Payments (cashflow)	yes	no
Lease Payments (cashflow&economic)	no	yes
Tax Depreciation (neither)	yes	no
Tax Reduction (cashflow&economic)	yes	yes
Lease Penalty Expenses (cashflow)	no	yes
Functional Depreciation (economic)	yes	no
Interest Cost on Investment (economic)	yes	no
Salvage Value (cash flow)	yes	no

An Example

Assume the following:

- New cost of a tractor is \$55,000.
- The tractor is financed at an interest rate of 8% for 7 years, with an annual payment of \$10,564.
- Down payment on purchased tractor is \$5,000.
- Front-end charge on a 3 year lease is \$3,000.
- Lease rate for the same tractor is \$7,500 per year for 3 years.
- First year repair expense is \$1,000; 2nd year, \$1,500; 3rd year, \$2,500; 4th year, \$3,000; 5th year, \$3,500; 6th year, \$4,000; 7th year, \$4,500.
- Tractor is depreciated at \$8570/year for income tax purposes.
- The market value of the purchased tractor at the end of: the first year, \$50,000; 2nd year, \$46,000; 3rd year, \$43,000; 4th year, \$40,000; 5th year, \$37,000; 6th year, \$34,000; 7th year, \$31,000.
- Income tax plus SE tax rate is 28%.
- A \$1,000 lease penalty is charged at the end of each 3 year leasing period.
- Discount rate for calculating net present value (NPV) of the annual cost is 8%.
- The tractor lease can be renewed after three years, with a new tractor, for the same deal.

Results

Table 1 contains the assumptions for leasing and buying the tractor defined above. Under the purchase cash flow section, the net present value of the seven year net cost is \$34,862. In the economic cost section, the net present value of the seven year cost is \$31,327. The difference between cash and economic cost is that the principal payments on the loan under cash cost are greater than the functional depreciation of the economic cost. Also, cash flow cost takes into consideration the \$31,000 salvage value of the tractor at the end of seven years. While the cash cost considers all out-of-pocket expenses, including principal and interest payments, economic cost does not include loan repayments. Rather, economic cost includes capital (interest) expenses for the tractor investment plus the actual amount of the tractor “used up” in a year (actual depreciation). So, if the loan repayment is set up to pay off the loan more quickly than the tractor actually is used up, economic cost will generally be less than the cash flow cost.

Given the assumptions above, the net present value lease cost of \$33,988 is less than the cash flow cost, but more than the economic cost of purchasing the tractor. In this example, therefore, if the person faced with the decision to buy or lease could afford the higher cash flow amount from purchasing the tractor, it would be a better decision economically to purchase rather than lease the tractor.

Before making a decision on leasing or purchasing equipment it is important to gather all the information included above to determine which option is best. Also, each factor may have several alternative levels. In this example, straight line depreciation for the purchase option was chosen. But, additional first-year depreciation plus a different depreciation rate could have been chosen, which would have significantly changed the outcome of the comparison. Likewise, different tax rates, interest rates, loan repayment periods, etc., will achieve different outcomes.

Table 1. Leasing Versus Buying Machinery

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7
<u>PURCHASE</u>							
Cash Flow:							
Down Payment	\$5,000						
Repairs	1,000	\$1,500	\$2,500	\$3,000	\$3,500	\$4,000	\$4,500
Loan Repayment	10,564	10,564	10,564	10,564	10,564	10,564	10,564
Tax Reduction	3,912	3,914	4,045	4,024	3,990	3,942	3,879
Salvage Value							31,000
Net Cost	12,652	8,150	9,019	9,540	10,074	10,622	-19,815
NPV of Cost	\$34,862						
Economic:							
Repairs	\$1,000	\$1,500	\$2,500	\$3,000	\$3,500	\$4,000	\$4,500
Tax Reduction	3,912	3,914	4,045	4,024	3,990	3,942	3,879
Actual Depreciation	10,000	4,000	3,000	3,000	3,000	3,000	3,000
Capital Cost	4,400	3,907	3,374	2,799	2,178	1,507	783
Net Cost	11,488	5,493	4,830	4,775	4,688	4,565	4,403
NPV of Cost	\$31,327						
<u>LEASE</u>							
Up Front Charges	\$3,000			\$3,000			\$3,000
Lease Cost	7,500	\$7,500	\$7,500	7,500	\$7,500	\$7,500	7,500
Tax Reduction	2,940	2,100	2,380	2,940	2,100	2,380	2,940
Lease Penalty			1,000			1,000	
Net Cost	7,560	5,400	6,120	7,560	5,400	6,120	7,560
NPV of Cost	\$33,988						