

# Cash Flow and Profitability Are Not the Same

People often mistakenly believe that a cash flow statement will show the profitability of a business or project. Although closely related, cash flow and profitability are different. **Cash flow** represents the cash inflows and outflows from the business. When cash outflows are subtracted from cash inflows the result is net cash flow. **Profitability** represents the income and expenses of the business. When expenses are subtracted from income the result is profit (loss). You may think of cash flow as transactions that affect your business “checkbook” and profitability as items that impact your “income tax return.”

Cash inflows and outflows show **liquidity** while income and expenses show **profitability**. Liquidity is a short-term phenomenon: Can I pay my bills? Profitability is a medium-term phenomenon: Am I making money? Cash flow (liquidity) is represented in a cash flow statement while income and expenses (profitability) are represented in an income statement.

Many income items are also cash inflows. The sales of products by the business are usually both income and cash inflows (cash method of accounting). The timing is also often the same as long as a check is received and deposited in your account at the time of the sale. Many expenses are also cash outflow items. The purchase of ingredients and raw materials (cash method of accounting) are both an expense and a cash outflow item. The timing is also the same if a check is written at the time of purchase.

However, there are many cash items that are not income and expense items, and vice versa. For example, the purchase of a capital asset, such as a machine, is a cash outflow if you pay cash at the time of purchase as shown in the example in Table 1. Because the machine is a capital asset and has a life of more than one year, it is included as an expense item in an income statement by the amount it declines in value each year due to wear

and obsolescence. This is called “depreciation”. In the tables below, a \$70,000 machine is depreciated over seven years at the rate of \$10,000 per year. Because the machine is completely depreciated over the seven-year period (is shown to have no remaining value) but sold for \$15,000 at the end of year 10, \$15,000 of depreciation needs to be repaid (depreciation recapture). This is additional income in year 10.

Depreciation calculated for income tax purposes can be used. However, to more accurately calculate profitability, a more realistic depreciation amount can be used to approximate the actual decline in the value of the machine during the year.

In the example in Table 1, a \$70,000 machine is purchased and used for 10 years, at which time it is sold for \$15,000. The net cash outflow and depreciation expense are both \$55,000, although the cash flow transactions are just at the beginning and ending of the period while the depreciation expense is spread over most of the 10-year period. So the impact on annual operations from the purchase of the machine is considerably different depending on whether you are focusing on liquidity or profitability.

**Table 1. Machine Purchase - no borrowing**

|                   |                     |                             |
|-------------------|---------------------|-----------------------------|
| Purchase price    | \$70,000            |                             |
| Depreciation (SL) | 7 years             |                             |
| Sale price        | \$15,000            |                             |
|                   |                     |                             |
| <b>Year</b>       | <b>Cash Outflow</b> | <b>Depreciation Expense</b> |
| 0                 | \$70,000            | \$0                         |
| 1                 | \$0                 | \$10,000                    |
| 2                 | \$0                 | \$10,000                    |
| 3                 | \$0                 | \$10,000                    |
| 4                 | \$0                 | \$10,000                    |
| 5                 | \$0                 | \$10,000                    |
| 6                 | \$0                 | \$10,000                    |
| 7                 | \$0                 | \$10,000                    |
| 8                 | \$0                 | \$0                         |
| 9                 | \$0                 | \$0                         |
| 10                | -\$15,000           | -\$15,000                   |
| <b>Total</b>      | <b>\$55,000</b>     | <b>\$55,000</b>             |

If money is borrowed for the purchase of the machine, the cash outflows and expenses are different from those in Table 1. In this situation, the down payment is a cash outflow at the time of purchase and the annual debt payments (principal and interest) are cash outflows over the term of the loan as shown in Table 2. The total cash outflow is \$65,500 in this example versus \$55,000 in Table 1 in which no funds are borrowed. The additional \$10,500 of cash outflow is the interest payments.

When money is borrowed to finance the purchase of the machine, the amount of interest paid on the loan is included as an expense along with depreciation. Interest payments are an expense because they represent the cost of borrowing money. Conversely, principal payments are not an expense because they are merely a cash transfer between lender and borrower. The total expense is \$65,500 in this example versus \$55,000 in Table 1 where no funds are borrowed. The additional \$10,500 of expense is interest payments.

Once again the net cash outflow and expense of the machine in the example in Table 2 are the same (\$65,000). However, the timing of the cash outflows and expenses are different over the ten year period. So the impact on annual operations from the purchase of the machine is considerably different depending on whether you are focusing on liquidity or profitability.

For more information on business development, visit the [Ag Decision Maker website](http://www.extension.iastate.edu/agdm/vdanalysis.html), [www.extension.iastate.edu/agdm/vdanalysis.html](http://www.extension.iastate.edu/agdm/vdanalysis.html).

**Table 2. Machine Purchase - borrowing**

|                   |          |
|-------------------|----------|
| Purchase price    | \$70,000 |
| Down Payment      | \$20,000 |
| Borrowed          | \$50,000 |
| Interest Rate     | 7%       |
| Term              | 5 years  |
| Depreciation (SL) | 7 years  |
| Sale price        | \$15,000 |

| Year  | Cash Outflows         |               |           |          |               |
|-------|-----------------------|---------------|-----------|----------|---------------|
|       | Purchase & Sale Price | Debt Payments |           | Total    | Total Outflow |
|       |                       | Interest      | Principal | Total    |               |
| 0     | \$20,000              | \$0           | \$0       | \$0      | \$20,000      |
| 1     | \$0                   | \$3,500       | \$10,000  | \$13,500 | \$13,500      |
| 2     | \$0                   | \$2,800       | \$10,000  | \$12,800 | \$12,800      |
| 3     | \$0                   | \$2,100       | \$10,000  | \$12,100 | \$12,100      |
| 4     | \$0                   | \$1,400       | \$10,000  | \$11,400 | \$11,400      |
| 5     | \$0                   | \$700         | \$10,000  | \$10,700 | \$10,700      |
| 6     | \$0                   | \$0           | \$0       | \$0      | \$0           |
| 7     | \$0                   | \$0           | \$0       | \$0      | \$0           |
| 8     | \$0                   | \$0           | \$0       | \$0      | \$0           |
| 9     | \$0                   | \$0           | \$0       | \$0      | \$0           |
| 10    | -\$15,000             | \$0           | \$0       | \$0      | -\$15,000     |
| Total | \$5,000               | \$10,500      | \$50,000  | \$60,500 | \$65,500      |

| Year  | Expense      |          |           |
|-------|--------------|----------|-----------|
|       | Depreciation | Interest | Total     |
| 0     | \$0          | \$0      | \$0       |
| 1     | \$10,000     | \$3,500  | \$13,500  |
| 2     | \$10,000     | \$2,800  | \$12,800  |
| 3     | \$10,000     | \$2,100  | \$12,100  |
| 4     | \$10,000     | \$1,400  | \$11,400  |
| 5     | \$10,000     | \$700    | \$10,700  |
| 6     | \$10,000     | \$0      | \$10,000  |
| 7     | \$10,000     | \$0      | \$10,000  |
| 8     | \$0          | \$0      | \$0       |
| 9     | \$0          | \$0      | \$0       |
| 10    | -\$15,000    | \$0      | -\$15,000 |
| Total | \$55,000     | \$10,500 | \$65,500  |

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