



## Return on Investment

When a business wants to expand, it (and any potential investors or lenders) will only risk investing if they believe they will get a certain level of return in profit on their investment. For a business to finance its expansion (new building, equipment, renovations, etc.), it can use money that it already has (called equity capital), it can take out a loan from the bank (borrowed capital), or it can use a combination of its own funds and a loan.

To find out the return on investment (ROI), we use the following equation:

$$\text{Return on investment} = \frac{\text{Change in net income after investment}}{\text{Equity}} \times 100$$

The denominator, “equity”, refers only to money that the business/owners put in. Usually the projected ROI is compared to some required return on investment. The higher the return on the investment, the more desirable it is.

The key steps to this type of problem are:

- 1) identify the funds invested by the business/owner
- 2) identify the changes in revenue and expenses as a result of the investment
- 3) identify the net change in income as a result of the investment.

When identifying the funds invested, look for phrases like “invest”, “new... furnishings, equipment, inventory”, or anything that indicates the amount of money that must be spent on changes to the business. Generally this will represent the purchase of new assets—either current or long term. **IF THE BUSINESS BORROWS MONEY to fund the investment, THE LOAN AMOUNT IS NOT COUNTED AS PART OF EQUITY.**

Any time a business uses debt financing in combination with their own funds, the amount of equity invested will be less, which increases the ROI.

The changes in revenue/expenses are calculated to find the change in net income. Cost of sales should be found as a percentage of revenue from the original income statement, and then that percentage should be multiplied by the change in sales revenue to find the change in cost of sales. Changes in expenses may be given as a fixed amount, a weekly amount, or a percentage amount. If there is a LOAN (borrowing), there will be an interest expense to add to the list of operating expenses.

You should also make sure to note whether the ROI being asked about is before



tax or after tax as this will make a difference in what number is used in the numerator, or top of the equation.

### **Case Study 1**

The owners of a tapas bar are considering redecorating the bar with new furnishings at an estimated cost of \$30,000, using their own savings. Condensed information from last year's income statement is shown below.

|  |           |
|--|-----------|
| Annual sales revenue                   | \$245,000 |
| Cost of sales (32% of sales revenue)   | 78,400    |
| Payroll expense                        | 58,300    |
| Other operating expenses               | 23,600    |
| Fixed expenses (includes depreciation) | 46,200    |

They believe the new furnishings will bring in extra customers, increasing sales revenue by 15%. The new furnishings are estimated to have a 6 year life with a residual value of \$300. The new furnishings will be depreciated using straight-line depreciation.

More staff would be hired to serve the additional customers at an added cost of \$170 per week. Other operating costs will increase by \$5,000 per year. Fixed charges will remain the same, except for the depreciation expense. The income tax rate will remain at 25%. The owners only want to go ahead with the redecoration if the return on their investment is 20% per year or more in the first year. As their financial consultant,

- a) Should they make the \$30,000 investment?
- b) If they can secure a \$10,000 loan at 10% interest, and use only \$20,000 of their own savings, should they make the investment?
- c) If they can secure a \$20,000 loan at 10% interest, and use only \$10,000 of their own savings, should they make the investment?
- d) If question (a) was asked based on 20% return PRETAX investment, what would your advice be?



## Case Study 2

The owners of a cafe are considering expanding their establishment to be able to serve more customers and start serving light lunches. This would involve leasing the storefront adjacent to their cafe. They would have to pay \$60,000 up front for an 8-year lease. They would also have to invest \$26,000 in furnishings.

Furnishings are estimated to have a 10-year lifetime and a residual value of \$1,000. They would also need to spend an additional \$5,000 on inventory. Condensed information from last year's income statement is shown below.

|                          |           |
|--------------------------|-----------|
| Annual sales revenue     | \$420,000 |
| Cost of sales            | 151,200   |
| Payroll expense          | 106,900   |
| Other operating expenses | 82,100    |

Sales revenue is estimated to increase by 18% above the current level. Assume straight-line depreciation.

More staff would be hired to serve the additional customers at an added cost of \$180 per week. Other operating costs will increase by \$155 per week. The income tax rate is 20%. The owners only want to go ahead with the redecoration if the return on their investment is 20% per year or more in the first year after tax.

As their financial consultant,

- e) Should they make the investment?
- f) If they can secure a \$10,000 loan at 10% interest, should they make the investment?
- g) If they can secure a \$30,000 loan at 10% interest, should they make the investment?
- h) If question (a) was asked based on 20% PRETAX investment return, what would your advice be?

## Solution



### Case Study 1

Total funds needed for investment: \$30,000.

| Change in each line item | Option (a)      | Option (b)      | Option (c)      |
|--------------------------|-----------------|-----------------|-----------------|
| Revenue                  | 36,750          | 36,750          | 36,750          |
| Cost of Goods Sold       | <u>(11,760)</u> | <u>(11,760)</u> | <u>(11,760)</u> |
| Gross Profit             | 24,990          | 24,990          | 24,990          |
| Payroll expense          | (8,840)         | (8,840)         | (8,840)         |
| Other operating expenses | (5,000)         | (5,000)         | (5,000)         |
| Fixed expenses           | (4,950)         | (4,950)         | (4,950)         |
| Interest expense         | <u>0</u>        | <u>(1,000)</u>  | <u>(2,000)</u>  |
| Total operating expenses | (18,790)        | (19,790)        | (20,790)        |
| Income before tax        | 6,200           | 5,200           | 4,200           |
| Tax expense              | <u>(1,550)</u>  | <u>(1,300)</u>  | <u>(1,050)</u>  |
| Net Income               | 4,650           | 3,900           | 3,150           |
| Equity investment        | 30,000          | 20,000          | 10,000          |
| Return on investment     | 15.5%           | 19.5%           | 31.5%           |

(a) No (b) No (c) Yes (d) Pre-tax return on investment = 20.7%. Since the desired return was 20% pre-tax, they should make the investment.

### Case Study 2

| Change in each line item            | Option (a)         | Option (b)         | Option (c)         |
|-------------------------------------|--------------------|--------------------|--------------------|
| Revenue                             | 75,600.00          | 75,600.00          | 75,600.00          |
| CGS (36% of Revenue)                | <u>(27,216.00)</u> | <u>(27,216.00)</u> | <u>(27,216.00)</u> |
| Gross Profit                        | 48,384.00          | 48,384.00          | 48,384.00          |
| Rent expense (\$60,000/8)           | 7,500.00           | 7,500.00           | 7,500.00           |
| Payroll expense (\$180*52)          | 9,360.00           | 9,360.00           | 9,360.00           |
| Other operating expenses (\$155*52) | 8,060.00           | 8,060.00           | 8,060.00           |
| Dep-expense furnishings             | 2,500.00           | 2,500.00           | 2,500.00           |
| Interest expense (10% of loan)      | <u>0.00</u>        | <u>1,000.00</u>    | <u>3,000.00</u>    |
| Total operating expenses            | (27,420.00)        | (28,420.00)        | (30,420.00)        |
| Income Before Tax                   | 20,964.00          | 19,964.00          | 17,964.00          |
| Tax (20%)                           | <u>(4,192.80)</u>  | <u>(3,992.80)</u>  | <u>(3,592.80)</u>  |
| Net Income                          | 16,771.20          | 15,971.20          | 14,371.20          |
| Equity investment                   | 91,000.00          | 81,000.00          | 61,000.00          |
| Return on investment                | 18.4%              | 19.7%              | 23.6%              |

(e) No (f) No (g) Yes (h) Yes, they should make the investment. ( $\$20,964/91,000 = 23.0\%$ )

