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Firm owners may have many alternatives to keeping their money tied up in the firm. The economist would say that firm owners and potential firm owners compare what they earn in this firm to the next best alternative use of their money—which we will call the "best return on owned capital" or *BROC*. For the economist, the *BROC* is treated as a cost because, if the firms' owners earn less than the *BROC*, then they will take their money out of the firm as soon as they can and move it to wherever they can earn the *BROC*.

Now define the following terms:

\widehat{BROC} = the opportunity cost on money tied up in the firm

\widehat{TFC} = accountant's fixed cost = interest payments + depreciation + overhead

TFC = economist's fixed cost = $\widehat{TFC} + BROC$

In general, TFC is larger than \widehat{TFC} . The only exception is when none of the owners' money is tied up in the firm—because then $BROC = 0$ and $TFC = \widehat{TFC}$. This is the only situation where they are equal!

COMPUTING FIXED COSTS

To compute TFC and \widehat{TFC} you will normally be given the following information:

- 1) Depreciation and overhead.
- 2) The dollar amount for which the assets in the firm can be sold.
- 3) Percentage of these assets in borrowed money. If the assets are sold, the remaining percent goes to the owners.
- 4) Interest rate paid on borrowed money.
- 5) Percentage per dollar that can be earned if dollars are invested elsewhere.

To simplify problems, we will usually assume 4) and 5) are equal.

Example #1: In a given year, a firm has \$3,500 in overhead and \$19,000 in depreciation. The assets in the firm can be sold for \$400,000. Suppose 70% of the assets are owned by the firm, the rest are borrowed. The interest rate is 8% and 8% can be earned on money invested elsewhere. Compute TFC and \widehat{TFC} .

Answer:

The firm has \$120,000 in debt $[(.30) \times \$400,000]$ so:

$$\widehat{TFC} = \$3,500 + \$19,000 + (.08) \times \$120,000 = \$32,100$$

The firm's owners have \$280,000 tied up in the firm so:

$$BROC = (.08) \times \$280,000 = \$22,400$$

$$TFC = \$32,100 + \$22,400 = \$54,500$$

PROFIT

In order to compute profit you must be given, or compute, TR and TVC .

$$\text{Accountant's Profit} = TR - TVC - \widehat{TFC}$$

$$\text{Economic Profit} = TR - TVC - TFC$$

Or: Economic Profit = Accountant's Profit - $BROC$

In Example #1 above, if $TR = \$140,000$ and $TVC = \$80,000$ then:

$$\text{Accountant's profit} = \$27,900 \quad \text{Economic profit} = \$5,500.$$

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Example #2: Suppose that, using the numbers in example #1, we change only the proportion of the assets owned, so that 10% of the assets are owned by the firm, the rest are borrowed. Compute accountant's profit and economic profit.

Answer:

This firm has \$360,000 in debt $[(.90) \times \$400,000]$ so:

$$\widehat{TFC} = \$3,500 + \$19,000 + (.08) \times \$360,000 = \$51,300$$

The firm's owners have \$40,000 tied up in the firm so:

$$BROC = (.08) \times \$40,000 = \$3,200$$

$$TFC = \$51,300 + \$3,200 = \$54,500$$

Since $TR = \$140,000$ and $TVC = \$80,000$ then:

$$\text{Accountant's profit} = \$8,700 \quad \text{Economic profit} = \$5,500$$

Note that the economic profit has not changed. Why? TFC the same in both cases!

Example #3: Consider two firms, identical to those in Example #1 (Firm 1) and Example #2 (Firm 2), except that the interest rate is 12% and 12% can be earned on money invested elsewhere. Compute accountant's profit and economic profit.

Firm #1 (70% owned assets)	Firm #2 (10% owned assets)
$\widehat{TFC} = [\$3,500 + \$19,000 + (.12) \times \$120,000]$ = \$36,900	$\widehat{TFC} = [\$3,500 + \$19,000 + (.12) \times \$360,000]$ = \$65,700
Accountant's profit = \$23,100	Accountant's profit = -\$5,700
$BROC = (.12) \times \$280,000 = \$33,600$	$BROC = (.12) \times \$40,000 = \$4,800$
$TFC = \$36,900 + \$33,600 = \$70,500$	$TFC = \$65,700 + \$4,800 = \$70,500$
Economic profit = -\$10,500	Economic profit = -\$10,500

In this case, it is easy to see that Firm #2 will eventually leave this industry because both versions of profit indicate a loss. However, it is less clear in Firm #1 because the accountant finds that the firm is making a profit and yet the owners will be moving their resources out of the industry. The economic profit indicates a loss for both firms so we know they will both leave the industry.

Reasons for Using Economic Profit

- ① Puts a "cost" or "price" on "owned capital" which is not otherwise accounted for.
- ② Shows the "cost" which is necessary to keep the capital inputs in this industry.
- ③ Social signal shows when and why companies will leave, enter or remain in an industry— If Economic Profit < 0 firms will be leaving an industry
If Economic Profit > 0 firms will be entering an industry
If Economic Profit = 0 firms will be neither leaving nor entering an industry.

The industry is stable (in long run balance or equilibrium) when there is little or no leaving and/or entering – that is, when Economic Profit = 0.

- ④ Puts firms which are identical except for ownership on an equal "bookkeeping" basis for our analysis. This makes sense because they will make the same decisions and so we can use cost and profit as tools to show why (see In this case above).