

① EAC (Equivalent Annual Cash Flow)

$$EAC = \frac{NPV(\text{all costs})}{\text{Annuity Factor}} = \frac{V_0}{\frac{1}{r} \left(1 - \frac{1}{(1+r)^T}\right)}$$

Proof:

$$PV(\text{annuity}) = V_0 = \frac{C_1}{r} \left[1 - \frac{1}{(1+r)^T}\right]$$

$$V_0 = C_1 \times \frac{1}{r} \left(1 - \frac{1}{(1+r)^T}\right)$$

$$V_0 = C_1 \times \text{Annuity Factor}$$

$$\left[V_0 = NPV \text{ of all future costs, } C_1 = EAC \right]$$

↓

$$NPV(\text{all costs}) = EAC \times \text{Annuity Factor}$$

HINT: If $n=1$, we can use single amount formula

$$V_0 = \frac{C_1 (EAC)}{1+r}$$

⑥ Profitability Index

$$PI = \frac{NPV(\text{future CFs excluding the initial investment})}{\text{Initial investment @ time zero}}$$

* $PI > 1$, accept

bigger PI \rightarrow better

* proportional measure, not a \$ dollar value measure

\rightarrow scale effect problem < IRR 也有这个问题

⑦ Fisher equation

$$1+r_{\text{real}} = \frac{1+r_{\text{nominal}}}{1+r_{\text{inflation}}}$$

* Use **effective rates**, not APR's !!

* only work with r_{total} or r_{capital} BUT not r_{income}

For ~~real~~ $r_{\text{real income}}$, must discount CF by $r_{\text{inflation}}$

⑧ r_{APR} = nominal rates (not related to inflation @ all)

However, nominal rate also means a rate that is not adjusted for inflation.

⑨ Book values: $A = L + OE$

Market values: $V = D + E$

$\rightarrow OE = \text{Contributed equity} + \text{retained profits} + \text{reserves} \rightarrow$ 储备金

amount of ~~shares~~ shares
1st bought

accumulation of
net income less div.

