BASIC PRINCIPLES OF FINANCIAL VALUATION DISCOUNTING

Compounding and Earning Returns Over Time

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COMPOUNDING

The second year is more because you are earning interest on the interest you earned in the first year – this is Compound Interest.

FUTURE VALUE: MONEY IN THE BANK

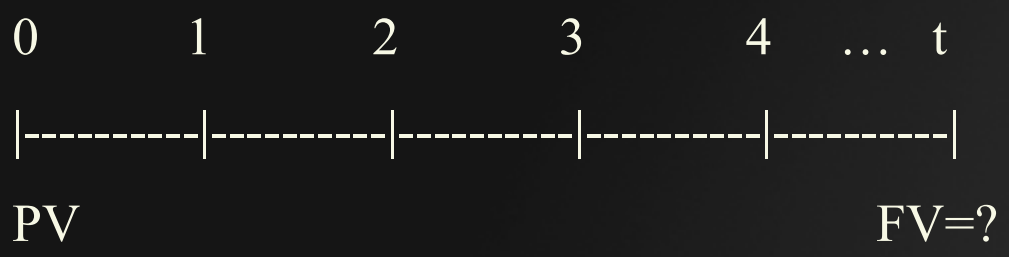
Interest rate = 11%

$1,000 in bank for 5 years

Year	Amount
0	$1,000
1	$1,110 = $1,000 + $1,000 * 11% = $1,000 * (1+11%)
2	$1,232 = $1,110 * (1+11%) = $1,000 * $(1+11\%)^2$
3	$1,368 = $1,232 * (1+11%) = $1,000 * $(1+11\%)^3$
4	$1,518 = $1,368 * (1+11%) = $1,000 * $(1+11\%)^4$
5	$1,685 = $1,518 * (1+11%) = $1,000 * $(1+11\%)^5$

$1,685

FUTURE VALUE



$$FV=PV(1+r)^t$$

FV = Future Value

PV = Present Value

r = interest rate

t = time

FUTURE VALUE EXAMPLE 1 (LIGHTBOARD)

Suppose you put $1,000 into a savings account today that will pay 11% interest for five years. How much will you have at the end of five years?

$$FV = \$1{,}000(1.11)^5 = \$1{,}685.06$$

FUTURE VALUE EXAMPLE 2 (LIGHTBOARD)

- What if I bought a painting for $700 and then 3 years later sold it for $825. How much did I earn on the painting on an annual basis?
- Use the formula to figure it out
- $FV=PV*(1+r)^t$
- Future value is the $825, Present value is the $700
- t=3, Solve for r
- $\$825 = \$700 * (1+r)^3$

$$r = \sqrt[3]{\frac{\$825}{\$700}} - 1 = 5.63\%$$