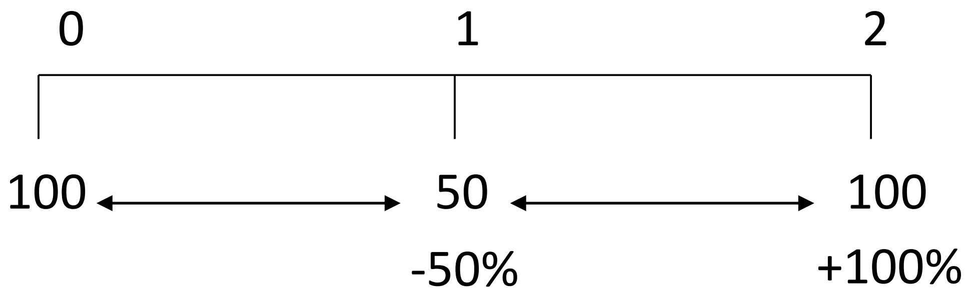
To Average 8% and 12.04% Returns Above?

- Arithmetic Average = (8 + 12.04)/2 = 10%
- Geometric Average = $[(1.08)(1.1204)]^{(1/2)} - 1] = 10\%$

When averaging returns over time, use **Geometric**.



- Arith. Avg = 25%
- Geom Avg = 0% (which is correct).

PV/FV calculations implicitly use the **geometric average**.

Pre-tax & After-tax Returns

Assume a tax rate of 30%.

10%   1   10%   2

100 * (1.10)   = 110   121

- tax = <u>-3</u>

After-tax = 107*(1.10)   = 117.70

- tax = <u>3.21</u>

After-tax = 114.49

<u>Together</u>

100 * (1.07) = 107 * (1.07) = 114.49

or 10 % pre-tax ⇒ 10 * (1-tax rate) ⇒ 7% after tax

NOTE: Assumption implicit in this calculation is that taxes are paid as you go, i.e, that gains are realized and taxed each year. With mutual funds, the amount to be taxed is determined by the fund at distribution time. For individuals, this may not be appropriate if you are holding stocks long-term.

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