Compounding ⇒ necessary to compare returns across different investments

$$r_{annualised} = (1 + r_{period})^{C} - 1$$

HPR (Holding Period Return) C Annualized return

1 week = 0.25%

5 weeks = x

1 month = x

⋮

↓

19 month = 13%

Advantages of annualizing:
- consistent metric for evaluating investment performance
- equates relationship between cash flows occuring at various times and dates.

Limitations of annualizing:
- implicit assumption:

e.g. 1 week return may be extrapolated to full year

⇒ CONSEQUENCE: - annual performance
+ - return variability

CONTINUOUS COMPOUNDING

$P_t \longrightarrow P_{t+1}$

continuously compounded rate of return $\tilde{r}_{t,t+1}$

Price at time = t

Price at time = t+1

Example

Date	Price	HPR $(r_{t,t-1})$	$\tilde{r}_{t,t+1}$
31 Dec 2025	150		
31 Mar 2026	180		
30 Jun 2026	170		
30 Sep 2026	175		
31 Dec 2026	190		

$\tilde{r}_{2026}$ =

or Σ of continuously compounded period returns