# Notation. Assumptions. Conventions.

**Assumptions.**

- There is a single prevailing interest rate:
  - the same for borrowing and lending;
  - the same for everyone;
  - deterministic and constant.
- There is an infinite line of credit.
- Money is continuously valued.

**Example.** Say that the ccrfir equals 0.02.
You invest \$100 @ time 0.
You make no subsequent deposits of withdrawals.
Your balance in three months:

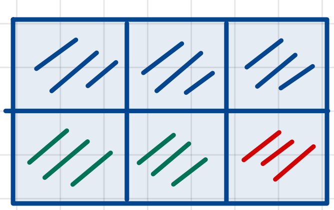
$$\underline{100e^{(0.02)(0.25)}} = 100e^{0.005}$$

$\square$

**Note.** Borrowing & Lending via savings accounts, loans, bonds are all
RISKLESS INVESTMENT.

**Riskless Asset:** $\boxed{\text{governed by a fixed, deterministic continuously compounded, risk-free interest rate; usually denoted by } r}$

**Risky Asset:**



We will allow for continuously valued investment in the shares of stock, e.g., $\frac{11}{23}$ shares or $e^{-0.03}$ shares.

The structure of returns
- dividend pmts
- stock appreciation

Dividends
- NO DIVIDENDS❗ (This class :) )
- YES DIVIDENDS
  - DISCRETE
  - CONTINUOUS