

M339D: January 23rd, 2026.

Notation. Assumptions. Conventions.

Assumptions. • There is a single prevailing interest rate.

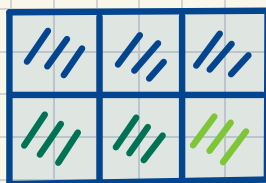
- the same for borrowing & lending
- the same for everyone
- deterministic and constant
- There is an infinite line of credit.
- Money is continuously valued.

e.g., $100e^{0.02 \cdot 2} = 100e^{0.04}$

Note: Borrowing & lending via savings accounts, loans, bonds, ..., are all RISKLESS INVESTMENTS.

RISKLESS ASSET: governed by a fixed, deterministic continuously compounded, risk-free interest rate r

RISKY ASSET:



Return

dividends

stock appreciation

Dividends

YES

DISCRETE

CONTINUOUS

NO DIVIDENDS (This class!)

We assume that shares of stock are continuously valued,
e.g., $\frac{11}{17}$ share

or

$e^{-0.03}$ shares