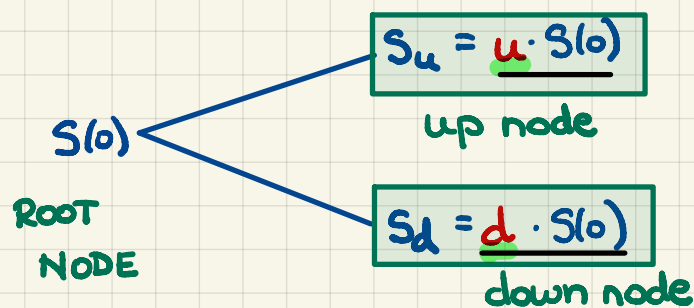
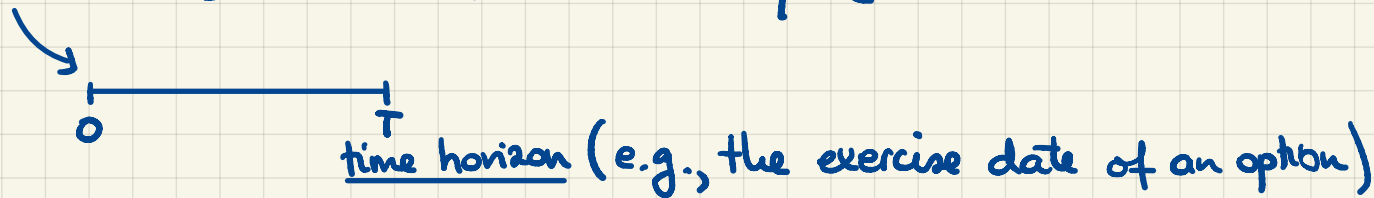


M339D: October 6th, 2023.

The Binomial Asset Pricing Model.

$S(0)$... the observable initial asset price



By convention:

$$u > d$$

u ... up factor
 d ... down factor

h ... length of a single period

one period \Rightarrow

$S(T) = S(h)$... a r.v. denoting the time T stock price w/ two possible values: S_u and S_d

Returns:

As a random variable: simple return =

$$\frac{S(T) - S(0)}{S(0)}$$

- $\frac{S_u - S(0)}{S(0)} = \frac{u \cdot \cancel{S(0)} - \cancel{S(0)}}{\cancel{S(0)}} = u - 1$
- $\frac{S_d - S(0)}{S(0)} = \frac{d \cdot \cancel{S(0)} - \cancel{S(0)}}{\cancel{S(0)}} = d - 1$