Revision of AFE

4 big topics

1. Stochastic models for security prices [FoA CM2 4.4

Week 1: Brownian motion, Wiener process

Def. properties, apply calculation

$\text{cov}(W_t, W_s)$ Th, coll. Lemmas, prop

Week 6: Stochastic calculus

Stochastic integrals

$\int_0^t f(s)\, dW_s$, $\int_0^t f(W_s)\, dW_s$

$\sim N$ E, Var

Week 8: Stochastic Process

Ito's formula, Lemma, integral, OUP

Def. calculation

Week 11: Conditional expectations

Exp 1 - 5 6 egs

Martingale

Def check 3 egs

Constant mean

2. Option pricing and valuations CM2 6.1

Week 3-4 Why is GBM good? GBM ↔ Binomial

B-S → notes assumptions of B-S

Th 5.2 $e^{-rT}E(\ )$ Th 5.3 $e^{-rt}E(\tilde{S})$

3 examples on derivative pricing

- Call option
- put option
- $R(T) = \frac{1}{T}\int_0^T S(t)\,dt$ ←

Week 2 Binomial models def NPBM

u, d, r

important conclusions

Week 5 ~~Divend~~ Dividends

Week 6 Call-put parity

Def, proof, apply C → P

3. Term structure of interest rates CM2 4.5

Week 9: Vasicek, CIR, HW

Def.

Properties what is proof OUP

4. Credit risk models CM2 4.6

Week 10: Structural models — Merton

Def. link to derivative pricing models: option

B-S what is S, K, C ?

Slide 15-16 W10 → notes

Reduced form models, intensity-based models

- Two-state models

  Def link survival models

- JLT model credits ratings S&P Moody's

  Def link survival models.

Mock exam 2023

Online

unseen qs

2024

semi - open - booked

100% bookwork