University of Texas at Austin

Quiz #6

Log-normal stock prices: Conditional expectation.

Problem 6.1. (5 pts)
A non-dividend-paying stock is currently valued at \$100 per share. Its annual mean rate of return is given to be 12% while its volatility is given to be 30%.

Assuming the lognormal stock-price model, find

$$\mathbb{E}[S(2) \,|\, S(2) > 95].$$

(a) \$86.55

(b) \$101.60

(c) \$152.35

(d) \$159.07

(e) None of the above.

Problem 6.2. (5 pts) A non-dividend-paying stock is currently valued at \$100 per share. Its annual mean rate of return is given to be 8% while its volatility is given to be 20%.

Assuming the lognormal stock-price model, find

$$\mathbb{E}[S(4) \,|\, S(4) > 90].$$

(a) \$96.55

(b) \$101.60

(c) \$153.30

(d) \$159.07

(e) None of the above.

Problem 6.3. (5 points) Let $S(T)$ stand for the lognormally distributed time$-T$ stock price. Then, for every $K > 0$, we have that

$$\mathbb{E}[S(T) \,|\, S(T) > K] + \mathbb{E}[S(T) \,|\, S(T) < K]$$

equals …

(a) $\mathbb{E}[S(T)]$

(b) K

(c) $\mathbb{E}[S(T)] - K$

(d) $\mathbb{E}[S(T)] + K$

(e) None of the above.