

EXAM MFE QUESTIONS OF THE WEEK

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Week of May 14/07

In a binomial branching model, the stock price at time 0 is 120. At time 1, the stock price will be either 144 or 100. The risk free rate of interest from time 0 to time 1 is $r = .10$ ($R = 1.1$).

A put option on the stock with exercise price 110 expires at time 1. Find the number of units of risk-free bond in the replicating portfolio at time 0.

- A) Less than -50 B) At least -50 but less than -25
C) At least -25 but less than 0 D) At least 0 but less than 25
E) At least

The solution can be found below.

Week of May 14/07 - Solution

$$\alpha = \frac{f(u)-f(d)}{S_0u-S_0d} = \frac{0-10}{144-100} = -.2273 ,$$

$$\beta = \frac{1}{R} [f(u) - (\frac{f(u)-f(d)}{S_0u-S_0d})S_0u] = \frac{1}{1.1} [0 - (\frac{0-10}{144-100})(144)] = 29.75 .$$

Answer: E