

EXAM FM QUESTIONS OF THE WEEK

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Week of October 15/07

Option premiums are being analyzed on a non-dividend paying stock. The options are European and expire in one year. The annual effective risk free rate of interest is 5%.

If the strike price of a put option is increased from K to $K + 1$ it is found that the put option premium rises \$.53. Find the amount by which the call option premium changes when the strike price is increased from K to $K + 1$. Assume no change in the current stock price.

The solution can be found below.

Week of October 15/07 - Solution

From put-call parity, we have $C_0 - P_0 = S_0 - Kv$, where S_0 is the current stock price and C_0 and P_0 are the call and put option prices for strike price K . At strike price $K + 1$, we have

$$C'_0 - P'_0 = S_0 - (K + 1)v.$$

Then, $C'_0 - C_0 - (P'_0 - P_0) = -v$, so that

$$C'_0 - C_0 = P'_0 - P_0 - v = .53 - \frac{1}{1.05} = -.42.$$

Then call option premium decreases by .42.