

EXAM FM QUESTIONS OF THE WEEK

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Week of April 23/07

A stock index is currently trading at $S_0 = 100$. A one-year forward contract is available for long or short position on the index with forward price \$105. The continuously compounded rate of interest is 6%. Suppose that the index pays continuous dividends at rate δ . Find the range of values of δ for which it is possible to obtain a reverse cash-and-carry arbitrage for delivery of one unit of the index at the end of one year?

The solution can be found below.

Week of April 23/07 - Solution

A reverse cash-and-carry consists of shorting the index and taking a long position on the forward. A short position in $100e^{-\delta}$ units of the index is taken at time 0 along with a long forward contract in one unit for delivery at 105 in one year. The amount of $100e^{-\delta}$ is invested at force of interest 6% for one year. The profit at the end of the year after all positions are closed is $100e^{.06-\delta} - 105$. An arbitrage will result if there is a positive profit at time 1 from the net investment of 0 at time 0. This will occur if $\delta < .0112$.