EXAM FM QUESTION OF THE WEEK

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Week of April 14/08

The current exchange rate between Hong Kong dollars and Canadian dollars is $1HK = $0.13 Canadian . The annual effective rate of interest in Canada is 4.00% for a one-year aero-coupon bond and in Hong Kong it is 2.50% .

The price today of a one-year European call option to purchase $1 Hong Kong with a strike price of $0.125 Canadian is $0.01 Canadian. The one-year zero coupon bond rates are also the risk free rates of interest for Canada and Hong Kong. Find the price of a one-year European call option to buy $1 Canadian with a strike price of $8.00 Hong Kong.

The solution can be found below.

Week of April 14/08 - Solution

From put-call parity, the price P for a one year put option on $1 Hong Kong is
$P = C + PV(K) - F_{0,1}^{P} = .01 + \frac{.125}{1.04} - \frac{.13}{1.025} = .003363$ Canadian dollars .
A put option to sell $1 Hong Dollar for $.125 Canadian dollars in one year is the same as a call option to buy $.125 Canadian for $1 Hong Kong in one year. Therefore a call option to buy $1 Canadian for $8 Hong Kong in one year has a price that is 8 time as large, which would be
$8 \times .003363 = .0269$ Canadian dollars. In the current exchange rate, that is .207 Hong Kong dollars.