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OPTION PRICES IMPLY A DIVIDEND YIELD

EXAMINING RECENT TRADING IN JPM

Using the options market, one can infer the marketplace's expectation for the future dividend yield of a company. While examining recent JPM trading activity, we will illustrate how to calculate the implied dividend and give suggestions for how to take advantage of an opinion on a potential change in the stated dividend yield of a stock.

In general, calls and puts have a relationship according to put / call parity which states that:

Call = Put + Parity + Reversal Conversion (R/C)

Where the Reversal Conversion (R/C) = Carry on strike K – Present Value of the Dividend Yield on S

Solving the put / call parity formula for PV (Div) we get:

PV (Div) = -Call + Put + Parity + Carry on strike K

Where parity = spot S - strike K, carry on strike K = [Ke^(r*t)- K], r = interest rate to expiration, and t = time in years to expiration.

Example 1: Recently, participants have been speculating on a potential decrease in the dividend yield for JPM common stock. The indicated gross dividend yield for JPM stock is 3.79%. Using mid market values for the Jan 06 35 calls and puts, one can compute the implied dividend yield. The 35 strike calls and puts were trading for 2.85 and 1.95, respectively. JPM Stock was trading 35.90. Assume an interest rate to January 21, 2006 of 3.6%. Solving for the implied dividend yield we get:

PV (div) = -Call + Put + Parity +[(Ke^(r*t))-K]

PV (div) = 2.85- 1.95 - (35.90-35) + [(35e^(.036* .658))-35]

PV (div) = 0.838

Implied Dividend Yield = .852 / 35.92 / 0.658 = 3.64%

Example 2: JPM implied dividend yield is 3.64%. To gain exposure to an opinion that the dividend yield will be reduced, one should go long one JPM Jan 06 35 call, short one JPM Jan 06 35 put contract, and short 100 shares of JPM common stock. Effectively, the position is long a forward in JPM and short JPM spot where:

Forward = spot e^(r*t) - present value (dividend)

The long forward and short spot trade eliminates all but the dividend and interest rate risk. Since we assume that interest rate risk can be readily hedged, the risk remaining is the dividend.

To gain exposure to an opinion that the dividend yield will be increased, one should go short one JPM Jan 06 35 call, long one JPM Jan 06 35 put, and long 100 shares of JPM common stock. Effectively, the position is short a forward in JPM and long JPM spot.

From the put / call parity formula above, as values for the dividend increase/decrease the value of the call decreases/increases.

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