

## Econ104

### Writing Covered Call Options

#### Finding some options that will yield high PROJECTED EXERCISE YIELDS and UNEXERCISED OPTION YIELDS

This assignment that requires you to use an Excel Workbook labeled *The Aruba Options Model* (or [oycv7.xls](#) if obtained online). Make a copy of the workbook and keep the original as a master copy, using the new copy for this assignment.

The purpose of this homework is to show you how to identify candidates for writing covered calls.

From the lecture, we remember that one potent strategy for strong profits involves writing covered calls using our formula for *Projected Exercise Yield*:

$$PEY = \ln \left[ \frac{(SPO \times N) - SFee}{((PPS - PO) \times N) + BFee} \right] \times \left( \frac{365}{Days} \right)$$

where

*PEY* = Projected Exercise Yield

*SPO* = Strike Price (of Option)

*PPS* = Purchase Price of Stock

*PO* = Price of Option

*N* = Number of Shares

*SFee* = Selling fees, typically of stock only

*BFee* = Buying fees, typically of stock purchase and fee for writing covered option.

*Days* = Number of days in the contract

Remember, *Projected Exercise Yield* is realized only if the price of the stock rises above the strike price of the option. The formula assumes that the stock is sold because the option buyer exercises the option and that this transaction takes place on the date of the option expiration. In the event that the option is not exercised because the stock does not close above the strike price, the cash return to the option writer is only the price of the option, and the appropriate formula is the formula for calculating *Unexercised Option Yield*:

$$UOY = \ln \left( \frac{PPS \times N}{((PPS - PO) \times N) + Bfee} \right) \times \left( \frac{365}{Days} \right)$$

**Note: Try to do this homework during market hours. The actual option bids and asks will be more accurate. Always check volume and open interest to insure that you have fresh quotes.**

Do the following:

1. Download the [Aruba Options Model](#) workbook and bring up the spreadsheet to see what it looks like. You will see a page labeled Yield Calculations. You feed data into this page from the options quotations from <http://finance.yahoo.com> or some other internet or print source into the columns on that page in order to calculate Projected Exercise Yield and Unexercised Option Yield from covered call writing. The second page is labeled Posting Sheet. This sheet, which also calculates PEY and UOY, is designed to be used when you are calculating a large number of options for comparison. A default value for INTC stock is shown on both pages.
2. **Important note: The formulas above will work only with out-of-the-money call options, so do not consider any in-the-money candidates.** Use the spreadsheet to calculate a least 10 of these PEYs and UOYs (formula shown above) for various stocks and call options from [finance.yahoo.com](http://finance.yahoo.com) or another current source. For each entry you will need to obtain values for SPO, PPS, PO, today's date and the date of the expiration of the contract (the third Friday of the contract month, which is usually shown somewhere on the options quotation page). Assume N to equal 100 and BFee and SFee to equal \$14 and \$7 unless you have a reason to change those numbers.
3. Assume that for each transaction you will be buying 100 shares of the stock in question and immediately writing covered out-of-the-money calls for the same 100 shares. "N" therefore equals 100. If you are retrieving live data (say from the internet) Best Ask for the stock price and Best Bid for the call option price. Again, assume your buying and selling fees to be \$7 unless you can come up with a better number.
4. Start plugging in values of various stocks and their call options. Try it for calls that are near the expiration date and some that are distant.
5. Set a threshold for the minimum acceptable PEY and UOY that you would accept before executing this trade. For example, start with a PEY of 40% and a UOY of 25% and see if you can find any combinations that yield that. Pretend that you are actually doing this. Is there any trade that you might be willing to make?
6. **Remember to print at least one dated page of the data source for submission with your final. You do not need to print pages for all of the data – just one.**

Here are some rules of thumb:

The PEY is a calculation of the minimum yield that you would realize if the option was exercised, but not exercised until the expiration date. If the option is exercised prior to the expiration date your yield will be higher! Why? Because the Days component of the denominator is smaller (and therefore the annualized yield is higher). Realize that the odds are less likely that this yield will be for options that are far out of the money. Can you see why?

The UOY (Yield on the option alone) tells you what you will make on writing the option, especially relevant if the stock never closes above the strike price (because you keep the stock and pocket the price at which you wrote the option). When choosing which option to write, this value must also be taken into account, especially if you are writing options that are way out of the money - because this is the yield that you are likely to realize, not the PMY. Finding a very high PMY combined with a very low UOY is meaningless ... it means the expiration is near and your strike price is too far out of the money.

In the case of the UOY, it is assumed that the mean growth rate of the value of the stock is zero over this short interval.

The author strongly favors writing options with (a) high PMY and UOY that are (b) out of the money but not too far out of the money, which have (c) fairly high cash values (\$2 or \$3 at least), and that expire fairly soon (60 days or less), although upon occasion one can identify a choice that falls outside these ranges. Finally, remember, you can lose money if your stock falls sharply in value .. nothing is guaranteed!

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