

Hedge Explorer

The Hedge Explorer provides a graphical environment in which option spreads and hedges can be evaluated. The Hedge Explorer supports analyzing strategies involving up to three different options and their underlying stock. The quantity of each issue is user-specified, so the Hedge Explorer inherently supports 'ratio spreads,' where the quantities can take on values other than 0 or 1.

Applied Materials (AMAT) has 50 calls and 50 puts. If you downloaded all of them in the OptionChainRetriever, how many spreads can you construct in HedgeExplorer? If you select a different

symbol for O1, O2, and O3, there are $\frac{100!}{(3!)(97!)} =$

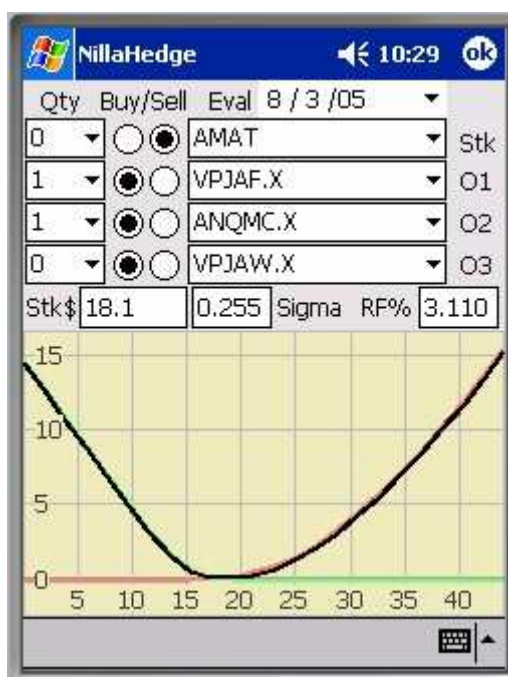
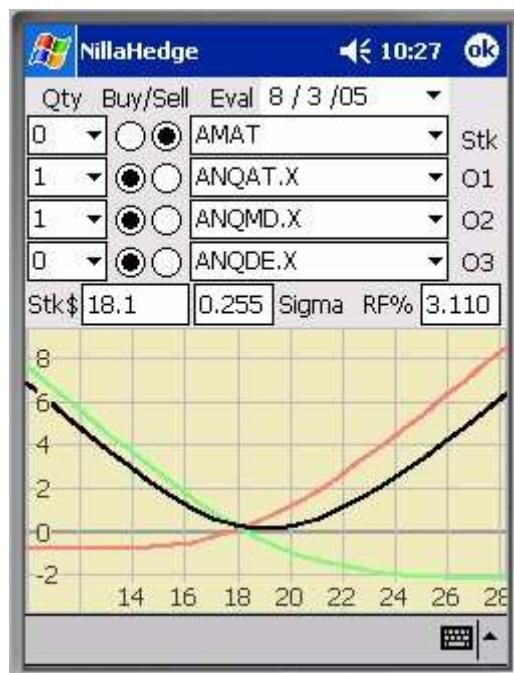
161,700 unique combinations, not including variations you can introduce by adding stock to the mix, modifying your buy/sell strategy, or using quantities other than 1. The point is ... as much fun as it might

be to scan through the profit profiles of possible option spreads, watching plots flash on the screen, it's just not practical to manually review every possibility. However, a little planning will go a long way to reducing the number of alternatives worth considering.

The Plot

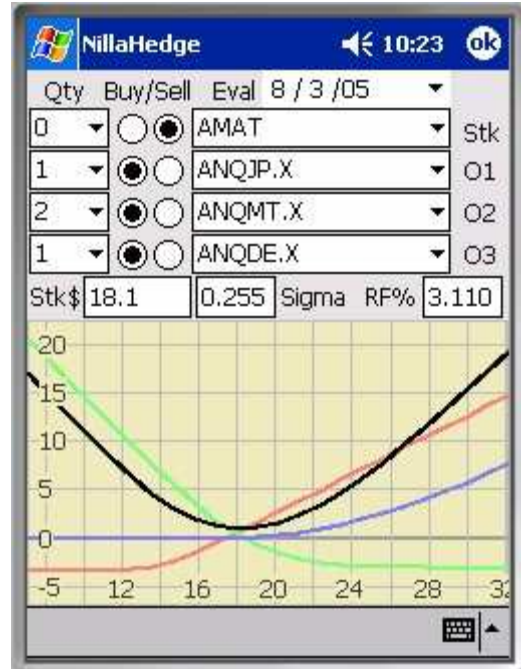
Hedge Explorer plots show stock prices along the X-axis and profit (loss) along the Y-axis. The colors assigned to option symbols are red, green, and blue ordered from topmost symbol to bottom (e.g. VPJAF.X – red, ANQMC.X – green, etc. in the screenshot at right). A stock position will plot in purple. When two or more issues have nonzero quantities, the sum of the positions is displayed in black. The curves are plotted in the following order: red, green, blue, purple, black.

To illustrate, we'll explore a few examples. The two options contributing to the spread above right are (in red) ANQAT.X, an 20-Jan-06 Call struck at \$19; and (in green) ANQMD.X, a 20-Jan-06 Put struck at \$20). ANQAT.X is selling for \$0.80 and ANQMD.X is selling for \$2.20, so it would cost \$300 plus fees to place this bet. This combination of options is known as a vertical (both options expire on the same date) long strangle (nearly a straddle). If AMAT moves up



to \$22 before much time passes, the position produces a \$100 profit, at \$27, it turns into a \$500 profit.

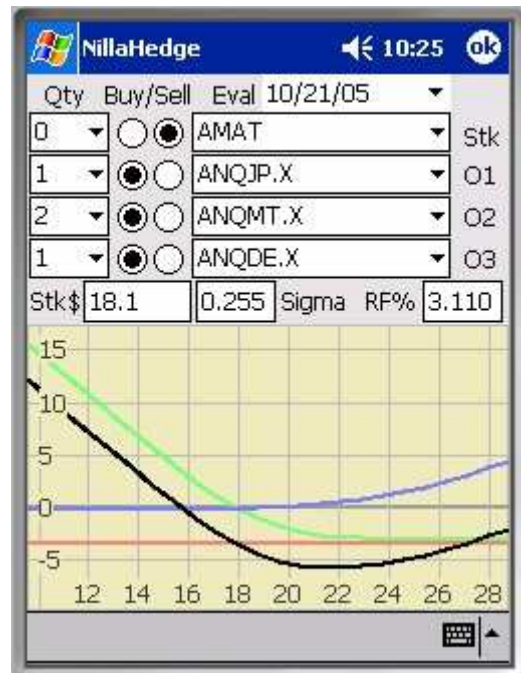
Players on a tight budget might be happier with the spread at right. The two options contributing to this spread are (in red) VPJAF.X, a 19-Jan-07 Call struck at \$30; and (in green) ANQMC.X, a 20-Jan-06 Put struck at \$15). VPJAF.X is selling for \$0.15 and ANQMC.X is selling for \$0.20, so it would cost \$35 plus fees to place this bet. The call expires a year later than the put, so upside profit potential is available for an additional year. This long strangle calendar spread is optimal when you're long term bullish, but have some bearish reservations for the short term. It yields ~\$240 at \$27; AMAT needs to hit \$32 to produce a \$500 profit. As expiry approaches, much of the lift in the options will have eroded away due to time-decay. You can explore this effect in the Time Decay Explorer or by modifying the evaluation date.



If you can flash more cash, you could consider the spread at left. ANQJP.X is a 21-Oct-05 Call struck at \$14, ANQMT.X is a 20-Jan-06 Put struck at \$19, and ANQDE.X is a 21-Apr-06 Call struck at \$25. ANQJP.X is selling for \$3.40, ANQMT.X is selling for \$1.55, and ANQDE.X is selling for \$0.15, i.e. the position would cost \$665 plus fees. In this case, AMAT need only move up to \$24 to produce a \$5+ profit per option.

Since this is a calendar spread, it's useful to consider how the position behaves when the upside heavy lifter (ANQJP.X) expires. In the screenshot at right, the evaluation date has been moved up to 21-Oct-05 ... ANQJP.X has flat-lined so the most likely portion of the upside is now under water.

If you have a taste for arbitrage, you could play the options and stock markets against each other. In the screenshot at left, ANQJM.X is a 21-Oct-05 Call struck at \$11, selling for \$5.5 and ANQDX.X is a 21-Apr-05 Call struck at \$22.5, selling for \$0.25. The short sale of AMAT produces \$1810 (less transaction fees) - more than enough to finance the purchase of ANQJM.X and ANQDX.X for \$575 (plus fees). Presuming that trading costs won't erode the \$1.25 or so in per share profits, you should sell as many blocks of AMAT as you can hedge with purchases of ANQJM.X and ANQDX.X.



Now that you've seen a few ways to find a profitable position in the Hedge Explorer, we can address the operational details.

Stock Symbol (Stk)

The Stock Symbol combo-box (to the left of the label 'Stk') allows you to enter or select a stock symbol from a drop-down list. Upon picking a stock, option symbols for that stock are loaded into the option symbol combo-boxes, so you are always selecting options drawn on that underlying. To plot, the Stock Qty must be nonzero and its Buy or Sell button must be selected.

Option Symbols (O1, O2, O3)

Option Symbol combo-boxes allow you to select an option symbol from the drop-down list or type a few letters and let auto-completion find an option symbol for you. To see a plot of an option's profit (loss) line, the associated Qty must be nonzero and its Buy or Sell button must be selected.

Quantities (Qty)

These edit boxes specify non-negative floating point quantities of the Stock or Option symbol to the right. '1' represents a single share or option, not a block of 100 shares or a contract with 100 options. Don't get too caught up in the magnitudes - for analytical purposes the ratios between the quantities are more important.

Buy/Sell Buttons

Initially in an undefined state, once selected, the Buy/Sell buttons subsequently act as radio buttons, selecting one, deselects its opposite.

Evaluation Date (Eval Date)

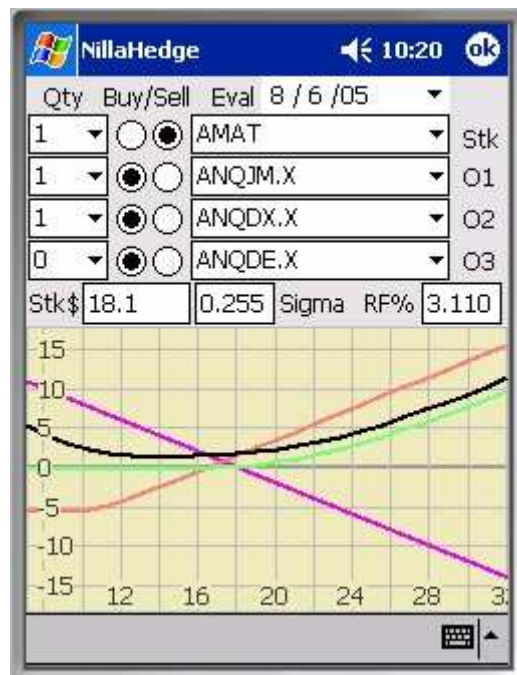
The Eval Date picker drives the time to expiry of the options enabled in the plot. It is initialized to the present date, but you can modify the evaluation date to see how the profit (loss) curves look at other points in time.

Stock Price (Stk\$)

The stock price is loaded from the database when a stock symbol is selected, so you can see and modify it. The Hedge Explorer adopts the Confirm Save Preferences of Analyzer Dialogs, so the Hedge Explorer may ask permission before updating the stock's market price or do so silently, based on the state of 'Analyzer dialogs - close' preference.

Volatility (Sigma)

The stock's volatility is loaded from the database when a stock symbol is selected, so you can see and modify it. The Hedge Explorer adopts the Confirm Save Preferences of Analyzer



Dialogs so it will ask permission before updating the stock's volatility if 'Analyzer dialogs – close' preference is checked.

Risk Free Rate (RF%)

The Hedge Explorer loads the currently stored value and displays it as a percentage. Changing the value in the edit box will force a redraw with the new value, but the global risk free rate won't be updated until the HedgeExplorer closes. At that time, the stored value of the risk free rate is updated silently.