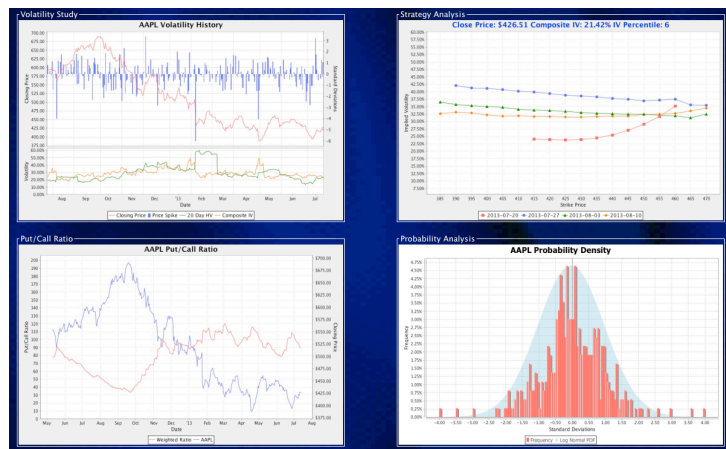


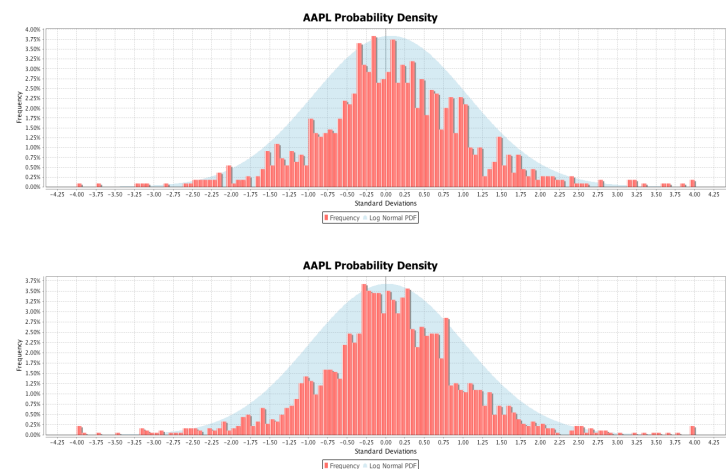
Option Workbench 2.1 Release Notes

Probability Analysis

Although Option Workbench has always incorporated probability calculations, version 2.1 has a new probability module that gives you more control and choices on how those probabilities are computed and used. The Probability Analysis module is available for all assets from the Analysis Dashboard either by clicking the new link or selecting the probability chart icon, the lower right of the image dashboard.

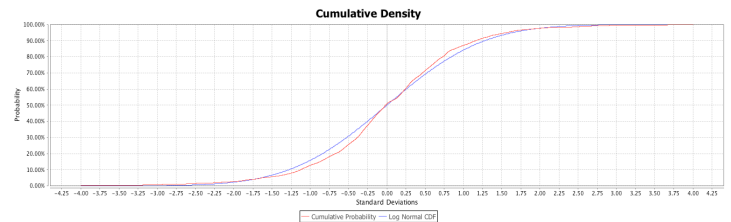


In the Probability Analysis module you will be able to examine and manipulate the empirical PDF that can be used to incorporate fat-tail distributions into the expected return calculations. The charts below show examples of 3-year and 5-year empirical probability distributions.



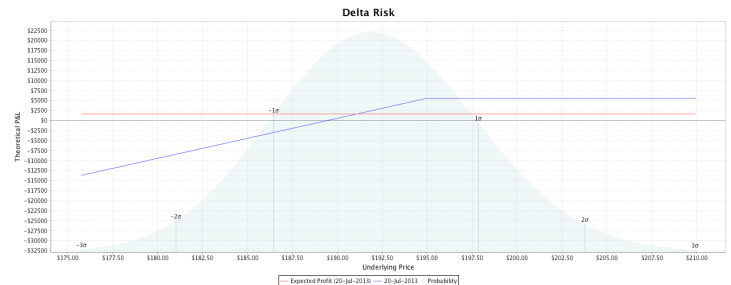
Using an empirical probability histogram Option Workbench can create cumulative density curve, or CDF. The CDF can then be used as the source for the probabilities used to calculate the expected profit and expected return of any

strategy under analysis. The following chart shows the fat tail CDF derived from the 5-year PDF above.



Using Fat Tail Distributions

The Delta Risk chart has had a number of upgrades in Version 2.1. The profit graph is superimposed over the log-normal PDF on which increments of price change in standard deviations are marked.



The chart above shows the range from -3 to +3 standard deviations for a covered call position. The detail table that appears while the mouse is being dragged over the chart has had several new columns added.

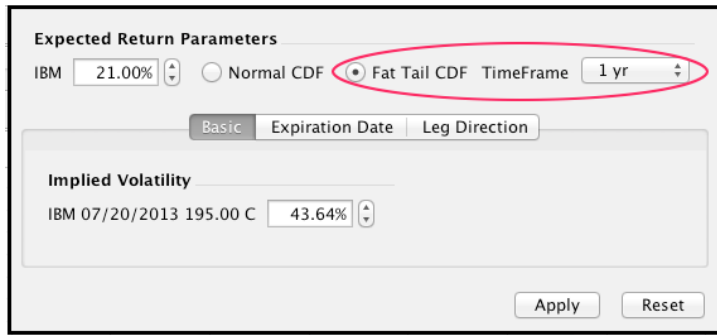
Evaluation Date	Sigmas	Pr Under	Pr Over	Theoretical P&L	Expected Profit	Delta	Gamma	Vega	Theta	Rho
17-Jul-2013	+0.804	78.94%	21.06%	\$2,493	\$570	493	-52	-71	513	-8
20-Jul-2013	+0.509	69.45%	30.55%	\$5,561	\$1,623	1,000	0	0	0	0

- **Sigmas** - The number of standard deviations above or below the selected price on the *Evaluation Date*.
- **Pr Under** - The probability of the underlying price being below the selected price on the *Evaluation Date*.
- **Pr Over** - The probability of the underlying price being over the selected price on the *Evaluation Date*.
- **Expected Profit** - The expected profit of the strategy on the *Evaluation Date*.

Each of this is dependent upon the historical volatility selected in the *Volatility Shifts* dialog.

The red line on *Delta Risk* chart shows the expected profit for the nearest evaluation date selected. The date is noted in the in the legend at the bottom of the chart.

To select a fat tail distribution, open the *Volatility Shifts* dialog and click the *Fat Tail* radio button as shown below.



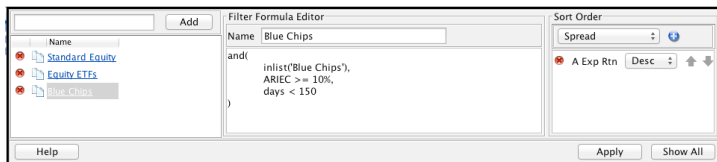
Use the *Time Frame* drop down menu to change the time frame used to generate the CDF. After clicking the *Apply* button the expected profit and return value(s) will reflect the selected fat tail distribution.

The *Risk Report* has been changed to show the underlying price at each change in standard deviations for each selected evaluation date. The calculation of the underlying price has been scaled to the log-normal distribution.

More detailed information on how to use probability and expected value can be found in a white paper written by Craig Hilsenrath. It can be downloaded from <http://www.optionworkbench.com> by filling out the form on the lower right of the home page.

Profile Filtering

The profile filter editor has been modified to include sorting along with the filter. Now your sorting preferences per filter will be saved in the Option Workbench cloud.

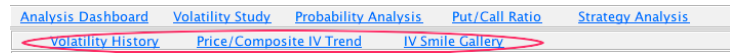


To add a sort column, select the column from the drop down menu and click the button. Columns can be sorted in ascending or descending order. You can also use the up and down arrow buttons to change the sort order.

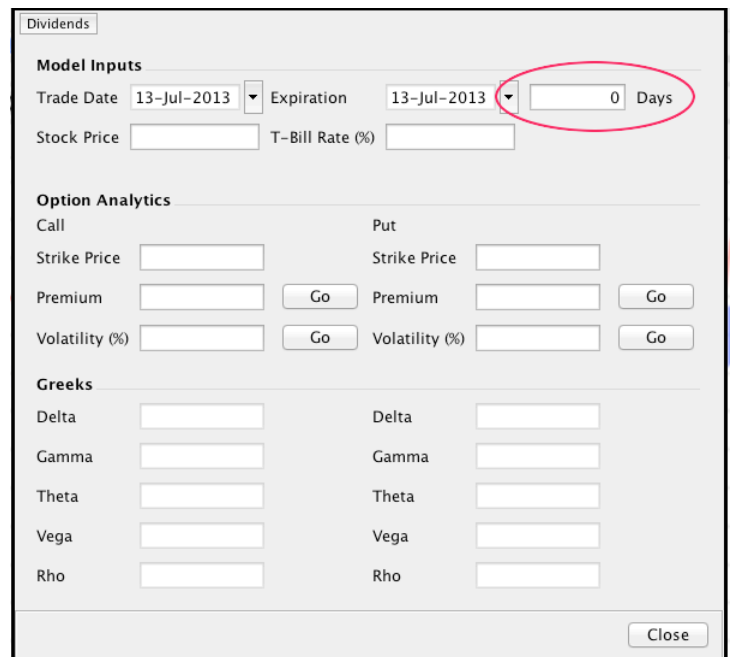
Other Enhancements and Bug Fixes

- All volatility conversion has been normalized to using business days.
- The calculation of the *DVSD* column in the *Naked Put* profile table has been modified to reflect the log-normal distribution. Under the old calculation method negative underlying prices were theoretically possible.
- Various performance enhancements around memory usage and animated transitions were made.
- Some of the date selection drop down menus will only allow the selection of business days.
- The help text in the filter formula editors has been upgraded.
- Added the ability to easily construct diagonal calendar spreads.

- Navigating in the *Volatility Study* has been changed to be more intuitive. There are now three navigation links at the top of the *Volatility Study* page.



- The price spikes on the main *Volatility Study* chart have been scaled to the log-normal distribution.
- Fixed a day counting error for computing the present value of dividends.
- Fixed a bug in the Put/Call ratio chart that could not handle zero call volume.
- Fixed the display of strike prices in the spread editors.
- Fixed a bug in the *Volatility Study* when the price series is missing days.
- Added the ability to specify the number of days to expiration in the *Option Calculator*. Entering a number of days will automatically adjust the expiration date. Likewise, setting the expiration date will automatically adjust the number of days.



Contact Information

As usual, if you have any questions please feel free to contact us at support@hilcosoftware.com. Please also visit <http://www.optionworkbench.com> to see the recordings of our previous webinars and other general interest items regarding Option Workbench.