

Multicommodity Analysis

The Multicommodity Analysis Screen allows for simultaneous stress-testing of many various combined commodities. The exposure layout of the Multicommodity Analysis Screen is similar to that of the Main Exposure Screen. However, the Step Increments, instead of the financial instrument prices, are displayed along the top row. This screen can be accessed only from the Analyze Main Exposure screen by clicking the Multicommodity Analysis button.

The Multicommodity Analysis screen appears:

The top left section of the Multicommodity Analysis screen is very similar to the Analyze Portfolio screen. However, because this screen is designed to analyze more than one combined commodity, the top right part of the screen allows for the selection of all desired combined commodities, as well as their respective step sizes.

Main Variable

The 'Main Variable' controls which sensitivity factor (Price, Time to Expiration, Volatility, Interest Rate, Dividend Yield) will be analyzed and displayed as step increments horizontally. Price is the factor that is most often used in these types of analyses, but the other factors can be used as the Main Variable to pinpoint any kind of risk.

Step Size

Use the 'Step Size 1 and 2' (top right section of Multicommodity Analysis Screen) buttons to set the desired incremental amount for each respective step.

Step Size Specified as

Use the 'Step Size Specified as' buttons to set the amount typed in the 'Step Size' box to either a percentage or an absolute value.

Number of Steps

Determines how many steps, up and down from the base Main Variable, will be calculated and displayed. For example, if Step Size is set to 5 and Step Size Specified as is set to '% of value', setting 'Number of Steps' to 4 will calculate and display the exposure up and down at intervals of 5%, 10%, 15%, and 20%. Conversely, if Step Size is set to 5 and Step Size Specified as is set to 'Absolute value', setting 'Number of Steps' to 4 will calculate and display the exposure up and down at intervals of 5 points, 10 points, 15points, and 20 points.

Secondary Variable

The 'Secondary Variable' option allows the user to choose a second variable (Price, Time to Expiration, Volatility, Interest Rate, Dividend Yield) to be included in the Multicommodity analysis exposure. This allows the user to gauge the effects of two variables changing simultaneously. The 'Secondary Variable' is entered in the same fashion as the 'Main Variable'.

Maint/Init Margin

The Maintenance and Initial margins for the portfolio as a whole, originally calculated in the Analyze Portfolio Screen, are displayed at the center left side of the Multicommodity Analysis screen for reference.

Combined Commodities With Positions and Combined Commodity Selection

Before selecting the Combined Commodities to be displayed in the Multicommodity Analysis exposure, check the Combined Commodities with Positions (CCs With Positions) selection. This allows the user to select from the Combined Commodity drop-down box only those Combined Commodities represented in the portfolio. If the 'CCs With Positions' box is not checked, the 'Combined Commodity' drop-down box will show all available Combined Commodities.

- Select each desired Combined Commodity from the drop-down box and click on the Add button to enter them into scenario set up.
- Once a Combined Commodity is added, fill in 'Step Size 1' with the desired Step Size. Unless a Secondary Variable is chosen, Step Size 2 will be grayed out.
- If a Secondary Variable has been chosen, fill in Step Size 2 with the desired Step Size. (Please refer to the instructions for **Multicommodity Analysis with a Secondary Variable** section below if a Secondary Variable is chosen)

For the Multicommodity Analysis example below, we have chosen one Main Variable, Price, and set the Step Size as an absolute value, with 3 steps to be displayed. Once all of the desired Combined Commodities have been added, and their respective variable Step Sizes have been determined, click the 'Calculate Risk' button.

In the example screen below, Combined Commodities ED, JY and SP were added, and their respective Step Sizes of 0.08,0.40 and 25.0 were entered. The resulting risk calculations are as follows:

- The '-1' column shows the gain/loss of ED, JY and SP with the main variable (Price) down the specified 'Step Size 1'; in this case 0.08, 0.40 and 25.0 points respectively.
- The '-2' column shows the gain/loss of ED, JY and SP with the main variable down an additional step, or down 0.16, 0.80 and 50.0 points respectively.
- and so on. The '+1', '+2' and '+3' show the same changes in 3 progressive steps, but on the upside.

The Total Risk row gives the sum of the Combined Commodity risk calculations in each column.

Multicommodity Analysis with a Secondary Variable

A Secondary Variable to the Multicommodity Analysis is added in the same fashion that the Main Variable is entered.

- Choose a Secondary Variable (Price, Time to Expiration, Volatility, Interest Rate, Dividend Yield) and enter the Step Size, Step Size Specified as:, and Number of Steps.
- Continuing from our first example, in the example below we select 'Volatility' as a Secondary Variable, 'Step Size Specified as:' an Absolute Value, and 'Number of Steps' set to 1. In the Combined Commodity Control, the 'Step Size 2' will no longer be grayed out.
- Add the desired Secondary Variable Step Sizes (Step Size 2) for the selected Combined Commodities. In the example below we chose 0.05, 4.00 and 2.50 for ED, JY and SP respectively as the 'Step Size 2'.
- Click 'Calculate Risk'.

The Calculate Risk exposure displays not only the results of the Main Variable scenario, but also the results of Main and Secondary Variable scenarios combined.

- For example, in the far right column, bottom cell, the \$2,293,825.00 represents the resulting risk if the Main Variable (Price) is up by 3 increments of the amounts shown in 'Step Size 1's *in conjunction* with the Secondary Variable (Volatility) being up by 1 increment of the amounts shown in 'Step Size 2'. Therefore the Price is being increased for ED, JY and SP by 0.24, 1.2 and 75 points respectively and the Volatility is increased by 0.05, 4.00 and 2.50 points respectively.
- The \$37,800 in the row where Price is 0 and Volatility is +1 represents no change in the underlying price, but an increase in volatility of 1 increment of the amount shown in 'Step Size 2'. That is an increase in ED, JY and SP by 0.05, 4.00 and 2.50 implied volatilities respectively.
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Saving Scenarios

It is possible to save a Multicommodity Analysis Scenario so that it may be easily recalled and applied to any portfolio. Once the desired scenario has been entered:

To save a Multicommodity Analysis Scenario:

- Click the Save button.
- Choose a file name and directory and Save. The file should be saved as an XML (*.xml) file.
- Exit the Multicommodity Analysis screen.

To load a Multicommodity Analysis Scenario:

- Enter the Multicommodity Analysis screen and click the 'Load' button.
- If the 'File Type' is not in *.xml format, change it to an *.xml file.
- Double-click on the file name.
- The saved scenario loads.
- Click 'Calculate Risk' to display exposure.

Exporting Data

Data can be exported from the Multicommodity Analysis exposure dialogue in Comma-delimited format and imported into other applications such as Excel or Access. To export data:

- Click the 'Export Data' button.
- Choose a directory and file name (it will automatically default to save the file in *.csv format).
- Save the file.
- Open Excel (or another application's) spreadsheet.
- Open the saved .csv file in the spreadsheet.

Risk Graph

Data from the Multicommodity Analysis risk calculation exposure can be viewed in a printable, multi-color, linear graph, by clicking on the Risk Graph button.