

HELP PAGE

PORTFOLIO & RISK

ANALYTICS (PORT)

Enter PORT<Go>, then press <Help>

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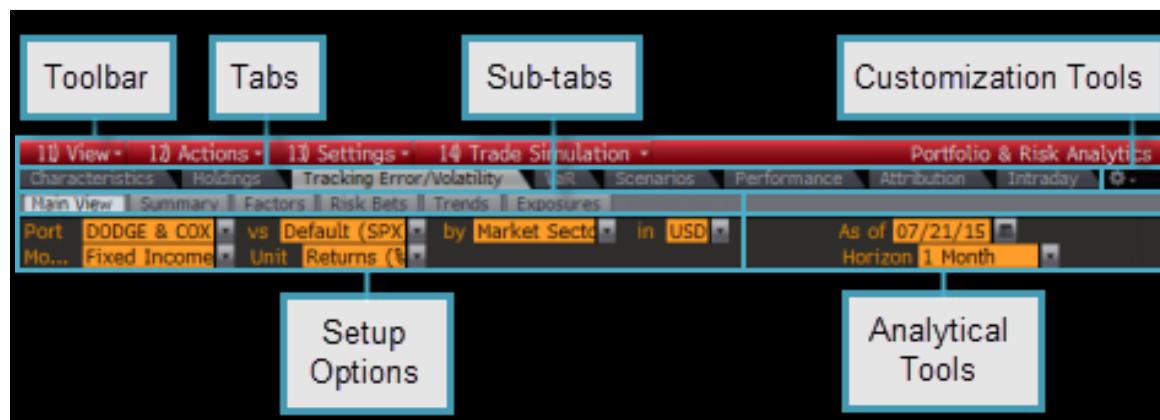
WHAT IS PORTFOLIO & RISK ANALYTICS (PORT)?

PORT <GO> empowers you to gain deeper insight into your portfolios by providing the tools to understand the structure of your portfolios, analyze your positions and active bets, and explain the drivers of historical performance and potential sources of future risk. PORT provides a streamlined workflow that includes intraday performance monitoring, fundamental characteristics, historical performance attribution, ex-ante tracking error, scenario analysis, and portfolio optimization.

Note: For information on PORT's asset coverage, see [Supported Asset Types](#).

CONTROL AREA

PORT is organized into a series of tabs which provide you with expansive portfolio analytical options based on different areas of portfolio analysis and risk management. You can use the control area at the top of the screen to navigate between tabs as well as load portfolio, benchmark, and breakdown attributes that remain constant across all tabs. On each tab you can also deepen your analysis by clicking the available sub-tabs and updating tab-specific analytical tools.



- **Toolbar**: Allows you to perform deep portfolio analysis (e.g., what-if analysis, portfolio optimization) as well as customize your portfolio management workflow (e.g., exporting data, generating reports, customizing your views). For more information, see [Trade Simulation](#) and [Portfolio Optimization](#).
- **Tabs**: Provide access to high-level portfolio analysis and risk management options, such as value-at-risk or performance analysis. For more information, see the topics corresponding to tab names, such as [VaR Tab](#) or [Performance Tab](#).
- **Sub-tabs**: Allow you to conduct deeper portfolio and risk analysis, such as examining top and bottom contributors to your portfolio, summarizing portfolio and benchmark characteristics, viewing historical trend analysis of total active risk and exposures to risk factors, or seeing how a hypothetical scenario may affect your portfolio.

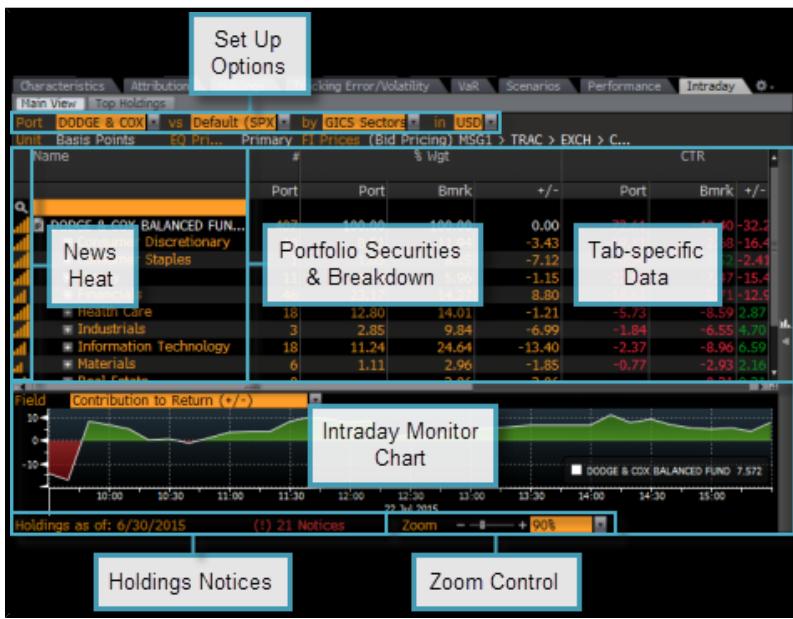
Each tab's default view is the *Main View* sub-tab (explained below), which contains your primary analysis data as well as set up options and analytical tools. All other sub-tabs contain different layouts and analytical options, which vary by main tab. For more information on the sub-tabs, see the topics corresponding to tab names, such as [Intraday Tab](#), [Holdings Tab](#), [Characteristics Tab](#), etc.

- **Customization Tools:** Allow you to quickly add or remove fields to the currently selected *Main View* as well as access more detailed customization options (e.g., choosing portfolio sources and calculation settings). For more information, see [Getting Started](#).
- **Setup Options:** Provide analytical options across all sub-tabs. Once you select your portfolio, benchmark, grouping, and currency options, the settings remain constant no matter to which tab or sub-tab you navigate. For more information on setting up your portfolio analysis, see [Getting Started](#).
- **Analytical Tools:** Allow you to perform tab-specific portfolio and risk analysis, such as choosing a timeframe for analysis or selecting hypothetical scenarios. For more information on the analytical tools, see the topics corresponding to tab names, such as [Intraday Tab](#), [Holdings Tab](#), [Characteristics Tab](#), etc.

MAIN VIEW

Each tab in PORT has a *Main View* and a series of sub-tabs. The *Main View*, which displays your primary analysis data, is the default view for each tab. Setup options allow you to choose portfolio, benchmark, grouping, and currency options, which remain constant across all tabs and sub-tabs. The table displays your portfolio securities and breakdown, updated in real-time, as well as tab-specific data (e.g., total return, option adjusted duration, factor risk, attribution). The search field at the top of the portfolio securities list allows you to quickly find securities in your portfolio. The news heat icons on the far-left allow you to access relevant news stories for securities in your portfolio. At the bottom of the main view, you can access additional holdings data and zoom into or out of the data table.

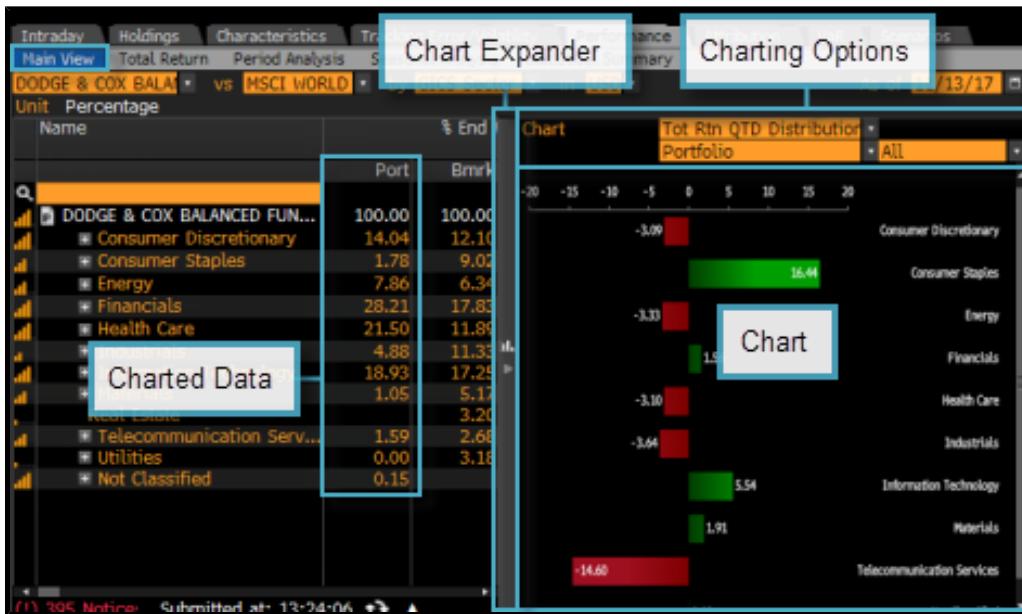
Note: If you are working in *Long/Short Mode*, sub-columns appear for portfolio metrics, so you can gain insight into a long/short portfolio's characteristics, performance, and risk structure, which are unique to the requirements of a long/short equity manager. For information on working in *Long/Short mode*, see [Long/Short Mode](#).



Note: The intraday monitor chart appears only in the *Intraday Main View* sub-tab.

For more information on the sub-tabs, see the topics corresponding to tab names, such as [Intraday Tab](#), [Holdings Tab](#), [Characteristics Tab](#), etc.

Each *Main View* provides charting options that allow you to visualize your portfolio's performance, attribution, and risk measures. The chart options vary, depending on the tab. You can click the chart expander to view/hide the charts.



For more information on using the various charts available in PORT (scatter plots, distribution, and heat maps) as well as basic charting information, see the *Charts Homepage CHAR <GO>* and the *GP Help Page*.

POR TABS

PORT is comprised of a series of tabs that allow you to conduct increasingly sophisticated portfolio management and analysis intraday and over historical timeframes for your portfolio holdings, characteristics, and attributions, as well as conduct risk measurement, scenario analysis, and other sophisticated analysis.

- **Intraday:** Track the intraday performance of your portfolio on an absolute basis or against a benchmark using real-time data. With the *Intraday* tab, you can stay on top of how the markets are impacting your security weights and return contributions throughout the day, so you can react quickly to events as they occur. The intraday monitor chart tracks your portfolio's return in graphical form, so you can easily see your current performance at a glance. Available for equity portfolios only.

For more information on the analytical options available in the *Intraday* tab, see *Intraday Tab*.

- **Holdings:** View your portfolio's positions and sector weights on a standalone basis, or analyze your over/underweights relative to a benchmark. With the *Holdings* tab, you can quickly see your active allocation decisions and confirm whether the sector weights are in line with your expectations. You can also backdate the analysis to see positions and weights as of a historical date or as a time series trend. The trends option allows you to see how your portfolio's weighting structure has changed over time, thus helping you make appropriate allocation decisions going forward.

For more information on the analytical options available in the *Holdings* tab, see *Holdings Tab*.

- **Characteristics:** Analyze the fundamental characteristics of your portfolio as of a specific date or as a time series trend. For equities, you can obtain valuation ratios as well as dividend yield and earnings growth for your portfolio to obtain insight into its fundamental characteristics. You can also compare these measures against those of your benchmark for relative analysis. For fixed income, you can view your portfolio's duration, credit quality, yield, and spread to evaluate the

core investment structure of your portfolio. The *Characteristics* tab also helps you to understand your current interest rate exposures, credit risk exposures, liquidity risk, and projected cash flow payments to help you make informed investment decisions.

For more information on the analytical options available in the *Characteristics* tab, see [Characteristics Tab](#).

- **Tracking Error/Volatility:** Analyze your portfolio's ex-ante (predicted) risk by using Bloomberg's multi-factor risk models. With the *Tracking Error/Volatility* tab, you can understand your portfolio's exposure to fundamental risk factors, such as growth, value, momentum, and volatility, and uncover the potential hidden risks that may be impacting your returns so you can quickly identify the top individual securities which contribute the most to your total active risk. You can also see how your tracking error and exposures to risk factors have changed over time. The *Tracking Error/Volatility* tab provides you with Bloomberg's sophisticated risk analysis as you consider buy and sell decisions for your portfolio.

For more information on the analytical options available in the *Tracking Error/Volatility* tab, see [Tracking Error/Vol Tab](#).

- **VaR:** Use Bloomberg's Value-at-Risk (VaR) calculation to estimate your portfolio's maximum loss as measured at a given confidence interval. A popular measure of risk due to its intuitiveness and ease of interpretation, VaR helps you gauge the maximum extent of risk represented by the assets in your portfolio. Bloomberg VaR starts with the foundation of Bloomberg's multi-factor risk models and supports industry-standard calculation algorithms (algos), including historical simulation, parametric and Monte Carlo methods. Value-at-Risk can be displayed in P&L or percentage terms to ensure it fits exactly into the way you think about risk.

For more information on the analytical options available in the *VaR* tab, see [VaR Tab](#).

- **Scenarios:** Perform stress tests on your portfolio based on various historical and hypothetical market scenarios. Scenario analysis is a valuable component of understanding portfolio risk, in which you can "stress" market variables to see the potential impact of market events on your portfolio's future performance. Use the *Scenarios* tab to test the impact of historical events (such as the 2008 Lehman Default) or custom scenarios (such as a massive change in interest rates). You can evaluate which scenarios would be best or worst for your portfolio and drill down into your portfolio holdings to see which sectors and securities would most be impacted. Scenario analysis can help you prepare for the next big market event.

For more information on the analytical options available in the *Scenarios* tab, see [Scenarios Tab](#).

- **Performance:** View the historical performance of your portfolio on both an absolute basis and relative to a benchmark. You can analyze the ex-post (realized) risk characteristics of your portfolio based on its historical active returns using measures such as standard deviation, beta, and Sharpe ratio. You can use this data to understand your historical risk/return trade-off and determine whether your performance has been achieved at the appropriate level of risk given your investment mandate. The *Performance* tab also helps you identify potential trends with period and seasonal analysis, so you can take greater advantage of bull periods while avoiding bear periods.

For more information on the analytical options available in the *Performance* tab, see [Performance Tab](#).

- **Attribution:** Now that you understand how your portfolio performed historically relative to its benchmark, use the *Attribution* tab to analyze how the structure of your portfolio contributed to your active performance. You can also decompose the sources of your portfolio's active return into sector bets (Allocation Effect), security bets (Selection Effect), and FX rate bets (Currency Effect). For fixed income portfolios, you can further attribute your active performance to changes in interest rates.

For more information on the analytical options available in the *Attribution* tab, see [Attribution Tab](#).

LEGAL DISCLAIMER

The Portfolio Optimizer Function (the "Services") is designed to be used as a research tool by professional portfolio managers. The Services comprise informational and computational tools only and the results presented are based solely on the

application of industry-standard risk management models to inputs provided by the customer. No aspect of the Services is based on the consideration of any customer's individual circumstances. The Services are not an expression of opinion on the merits or suitability of any investment, and the information available via the Services should not be considered as information sufficient upon which to base an investment decision. Accordingly, nothing in the Services shall constitute, or be construed as, investment advice or recommendations by Bloomberg Finance L.P. ("BFLP"), Bloomberg L.P. or their affiliates of an investment strategy or the suitability of an investment. BFLP and its affiliates do not express an opinion on the future or expected value of any security or other interest and do not explicitly or implicitly recommend or suggest an investment or other strategy. Customers should on their own assess the Services and determine whether they agree with the information in the Services.

USING PORT

The following topics explain how to use PORT's analytics and tools to manage and analyze your portfolio and risks.

For a description of the function, see [What Is PORT?](#).

GETTING STARTED

You can start using PORT immediately by updating just a few fields, and then creating a "view" that saves these settings for future use. The following topics explain how to initially set up your portfolio and risk analysis by selecting portfolio and benchmark sources, grouping your instruments, and creating a customizable view.

- [The Portfolio & Risk Analytics Suite](#)
- [Setting Up Analysis](#)
- [Setting Default Portfolio](#)
- [Creating a View](#)
- [Portfolio & Benchmark Sources](#)
- [Selecting Classifications](#)

THE PORTFOLIO & RISK ANALYTICS SUITE

The Portfolio & Risk Analytics solution is an integral component of the Bloomberg Professional® service, giving you the tools to more effectively manage your equity, fixed income, or multi-asset portfolios on an absolute basis or relative to their benchmarks. The suite of functions includes tools to upload your portfolios, the flagship *Portfolio & Risk Analytics* (PORT) function, news and events, and customizable reports.

Before beginning portfolio analysis using PORT, create and upload your portfolios using the following functions:

Portfolio Administration (PRTU): PRTU allows you to create and manage your portfolios, as well as share them with other users, so you can analyze your investments across Bloomberg's portfolio management and risk analysis functions (e.g., PORT). PRTU also allows you to create and share custom benchmarks. For more information, see the [PRTU Help Page](#).

Note: You can assign a ticker to a portfolio to be able to load the portfolio in the command line just like a security to analyze risk, characteristics, and performance analytics throughout the Bloomberg Terminal®. For more information, see the [PRTU Help Page > Tickerized Portfolios](#).

Bloomberg Uploader (BBU): BBU allows you to upload your portfolios to the Bloomberg Professional® service from a spreadsheet or text file on a one-time or regular basis. For more information, see the [BBU Help Page](#).

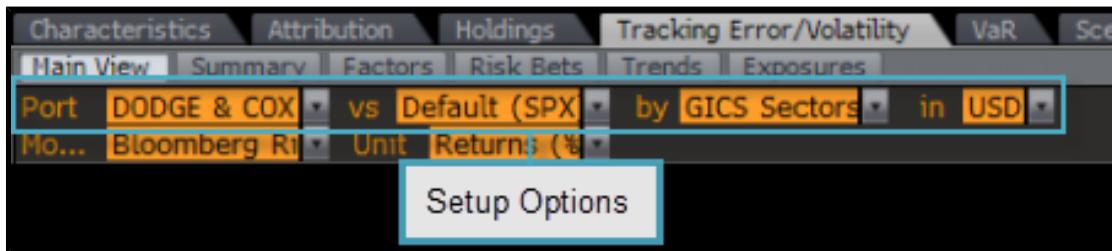
SETTING UP ANALYSIS

You can analyze the portfolios, portfolio groupings, and public funds that you have created or that have been shared with you against a benchmark, which can be an index, another portfolio, a mutual fund, an ETF, or a custom benchmark. You can also choose how the instruments are aggregated and the currency in which they are compared.

For more information on uploading and sharing portfolios, see the help pages for the *Portfolio Administration* (PRTU) or *Bloomberg Uploader* (BBU) functions: the [PRTU Help Page](#) and the [BBU Help Page](#).

To select your portfolio and benchmark:

From any sub-tab, update the *Port*¹, *vs*², *by*³, and *in*⁴ fields, then press <GO>.



Note: The options that appear in the *Port* and *vs* fields depend on your defaults, which you can customize. For more information on customizing these sources, see [Portfolio & Benchmark Sources](#).

The selected portfolio, benchmark, and grouping selections appear and the data updates. The selections remain available for analysis across all tabs in PORT.

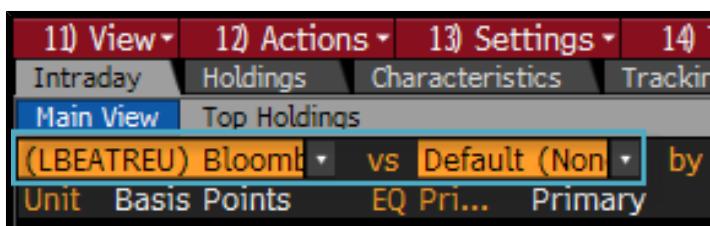
Note: You can also analyze a group of portfolios. For more information on how to set up this analysis, see [Group-Level Analytics](#).

SETTING DEFAULT PORTFOLIO

You can select a default portfolio and benchmark, so your preferred sources appear each time you run PORT.

To designate a default portfolio or benchmark:

1. Select the portfolio or benchmark drop-down menu in the top left corner.



¹ In general, *Port* indicates the portfolio being analyzed. The portfolios are created and maintained in PRTU and BBU. For more information, see the [PRTU Help Page](#) and the [BBU Help Page](#). In the Characteristics - Characteristics Summary sub-tab, however, *Port* indicates the weight value of the portfolio.

² Indicates the benchmark against which you are comparing your portfolio, which can be an index, portfolio, or fund. You can create and maintain custom benchmarks in the Portfolio Administration (PRTU) function. For more information on

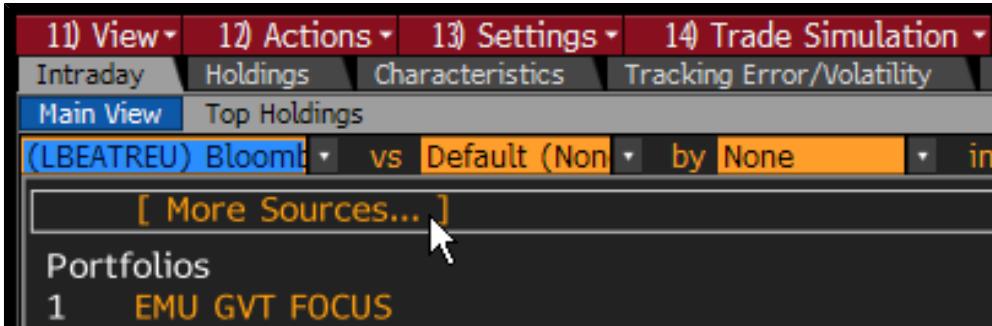
using PRTU to maintain benchmarks, click [here](#)

³ Allows you to analyze your portfolio and benchmark broken down by various classification schemes, such as by country/region, industry sector, long/short, and currency. You can also set a default classification for the view you are customizing. You do not, however, have to choose a classification.

Note: For more information on breaking down your portfolio analysis by classifications, see [Selecting Classifications](#).

⁴ Allows you to choose the currency in which the portfolio and benchmark are compared. By default, the currency under analysis is the portfolio base currency. For a complete list of currencies, see the [CURR Help Page](#).

2. From Page 1 of the drop-down menu, select **More Sources**.



The Select Portfolio window appears.

3. In the *Def* column, click next to the portfolio or benchmark you want to be the default.



A white checkmark appears to indicate the default portfolio or benchmark.

4. Click the **Select** button.

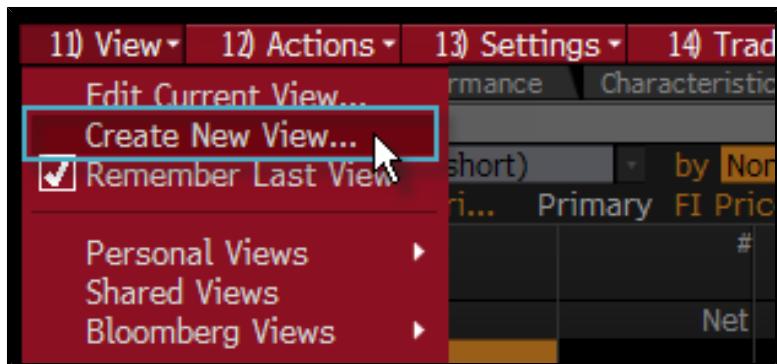
Your default settings are saved.

CREATING A VIEW

Creating a view allows you to customize the data that appears for portfolio and risk analysis, including portfolio and grouping data, calculation defaults (e.g., pricing source), display options (e.g., tab and column orders), and other defaults. You can create a view based on fixed income, equity, balanced, or long/short position requirements.

To create a view:

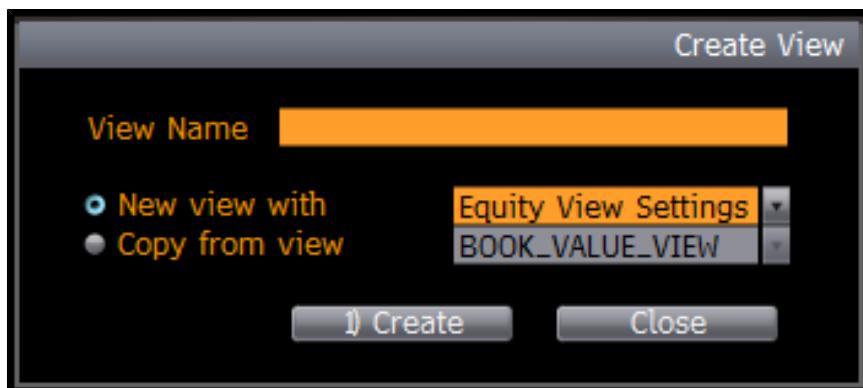
1. From the toolbar, select **View > Create New View**.



The Create View window appears. The New option is selected by default.

- Enter a name in the View Name field.

Note: Only alphanumeric characters, underscore (_), and dash (-) are allowed.



- Choose the type of view:

- If you are creating a new view, click the drop-down menu to the right of the *New View With* field and choose *Equity View Settings*, *FI View Settings*, *Balanced View Settings*, or *Long/Short Default Settings*, based on the assets you are analyzing.
- If you want to copy and edit an existing view, select *Copy From View*, then click the corresponding drop-down and select the view to copy.

Note: Depending on the view you select, certain characteristics fields and options related to the view asset or strategy type appear by default. For example, the default predefined Bloomberg scenarios that appear in the *Scenarios* tab depend on your view selection. For details on the default scenarios, see [Predefined Equity/Balanced Scenarios](#) and [Predefined Fixed Income Scenarios](#).

- Click the **Create** button.

The Portfolio Analytics & Risk screen (and your view) appears. Your view is now available for future use by clicking the View button.

You can now add portfolio and benchmark sources to the view. For more information, see [Portfolio & Benchmark Sources](#).

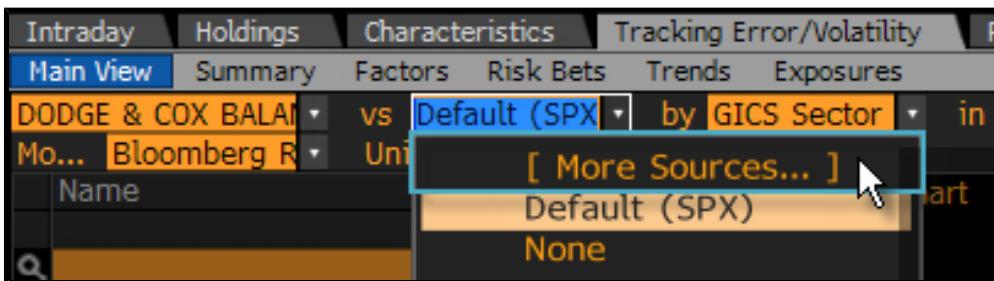
Note: For more information on choosing the order of tabs, calculation defaults, and other custom options, see [Settings](#).

PORTRFOOLIO & BENCHMARK SOURCES

Once you have created a view, you can choose which portfolios, portfolio groups, indices, and funds/ETFs/13Fs to analyze, as well as the benchmarks against which to compare them. You can also make these sources available for quick analysis by marking them as "favorites."

To configure your portfolio, portfolio groups, indices, funds sources, and benchmarks:

1. From the *Port*⁵ or *vs*⁶ drop-down menu, select **[More Sources...]**.



The Select Portfolio or Select Benchmark window appears and displays a list of your available portfolio and benchmark sources.

2. To choose sources, under Source select **Custom Benchmarks, Portfolios, Portfolio Groups, Indices, or Funds/ETFs/13Fs**.

The corresponding options appear on the right side of the window.

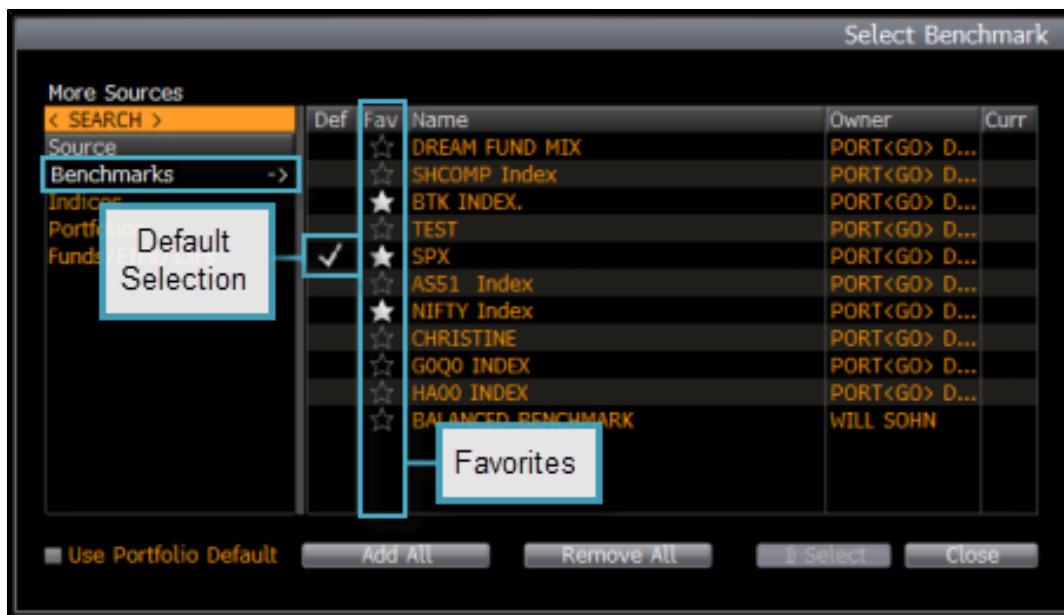
3. Make your source selections:

⁵ In general, Port indicates the portfolio being analyzed. The portfolios are created and maintained in PRTU and BBU. For more information, see the [PRTU Help Page](#) and the [BBU Help Page](#). In the Characteristics - Characteristics Summary sub-tab, however, Port indicates the weight value of the portfolio.

⁶ Indicates the benchmark against which you are comparing your portfolio, which can be an index, portfolio, or fund. You can create and maintain custom benchmarks in the Portfolio Administration (PRTU) function. For more information on

using PRTU to maintain benchmarks, click [here](#)





- To mark any of the sources as favorites, click the star in the *Fav* (favorite) column next to the source. Sources marked as favorite populate the list that appears when you click the *Port* or *vs* drop-down menu. To add all items, click the **Add All** button.
- To search for a portfolio, index, fund, or benchmark, use the <SEARCH> field. The search results from which you can select appear.
- To use a source as the default, so it loads each time you access the view in PORT, click the *Def* column next to the source.
- If you are selecting benchmark sources and want to use the default benchmark you set up in the *Creating/Updating Portfolios (PRTU)* function, select *Use Portfolio Default*. For more information, see the [PRTU Help Page](#).

4. Click the **Select** button.

Your view settings are saved. The source selections can be updated any time in the future.

SELECTING CLASSIFICATIONS

Once you have selected your portfolio and benchmark, you can define how you want to break down your portfolio for analysis by selecting a classification, such as by sector or country. Several standard Bloomberg classifications are available by default. You can also create custom classifications based on the portfolio breakdowns and buckets you want to evaluate.

Custom classifications can be set up in the *Unified Classifications (UNCL)* function. For information, see [UNCL Help Page](#).

To configure the list of portfolio classifications using the default PORT settings:

- From any *Main View* sub-tab, from the *by* field, select **[More Options...]**.

The screenshot shows the PORT interface with the 'Classification' view. The 'by' dropdown menu is open, showing options like 'None', 'Asset Type', 'Bloomberg Composite Rating', etc. The 'GICS Sectors' option is selected and highlighted.

The Select Classification window appears.

2. Configure the list of classifications:

- To search for available classifications, enter a keyword in the *Name* or *Creator* columns, then press <GO>.
- To mark classifications as favorites, click the star in the *Fav* column next to the classification.

Def	Fav	Name
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Country of Domicile > GICS Sectors
	<input type="checkbox"/>	Country of Risk
	<input type="checkbox"/>	Country of Risk > GICS Sectors

- To set a classification as the default so that it is used each time you access the related view in PORT, click the *Def* column next to the classification.

Def	Fav	Name
✓	★	Country of Domicile > GICS Sectors
	★	Country of Risk
	★	Country of Risk > GICS Sectors
		Custom Data

- To see details on the classification, click the *Info* icon to the right of a classification name.

Select Classification		
	Creator	Info
> GICS Sectors	BLOOMBERG	
CS Sectors	BLOOMBERG	

3. After choosing a classification, click the **Select** button.

PORT automatically updates using the selected classification.

Note: You can create a new custom classification if you want to use a field or series of fields not available in the Select Classification window. For more information on creating classifications, see [Creating New Classifications](#).

INTRADAY TAB

The *Intraday Tab* allows you to track the intraday performance (weights, returns, contribution to return, performance attribution, and P&L) of your equity portfolio on an absolute basis or against a benchmark using real-time data. The intraday monitor chart - a unique feature of Bloomberg's Portfolio & Risk Analytics tool - tracks your portfolio's performance throughout the day.

The *Intraday* tab is divided into two sub-tabs:

- Main View:** Allows you to monitor alternative intraday performance data on an absolute basis or against a benchmark using real-time data. Also displays the intraday monitor chart. For more information, see [Intraday Monitor Chart](#).
- Top Holdings:** Allows you to analyze returns for your portfolio at the security level based on "top" and "bottom" performers by contribution to return, absolute performance, or largest position on an intraday basis. For more information, see [Intraday Top Holdings](#).

For information on monitoring a fixed income or balanced portfolio intraday, see [Fixed Income & Balanced Intraday](#).

Note: For information on monitoring % Gross Weight⁷ performance for long/short portfolios, see [Percentage Gross Weight](#). For information on calculation assumptions for attribution effects in the *Intraday* tab, see [Attribution Calculation Assumptions](#).

⁷ The current gross exposure of the instrument or grouping divided by the total current gross exposure of the portfolio, expressed as a percentage.

FIXED INCOME & BALANCED INTRADAY

You can perform intraday analysis on fixed income and balanced fund portfolios. With fixed income portfolio intraday analysis, security coverage is in line with the rest of the tabs in PORT for the following securities: Corps, Govt, Muni, Mortgages, and Preferreds.

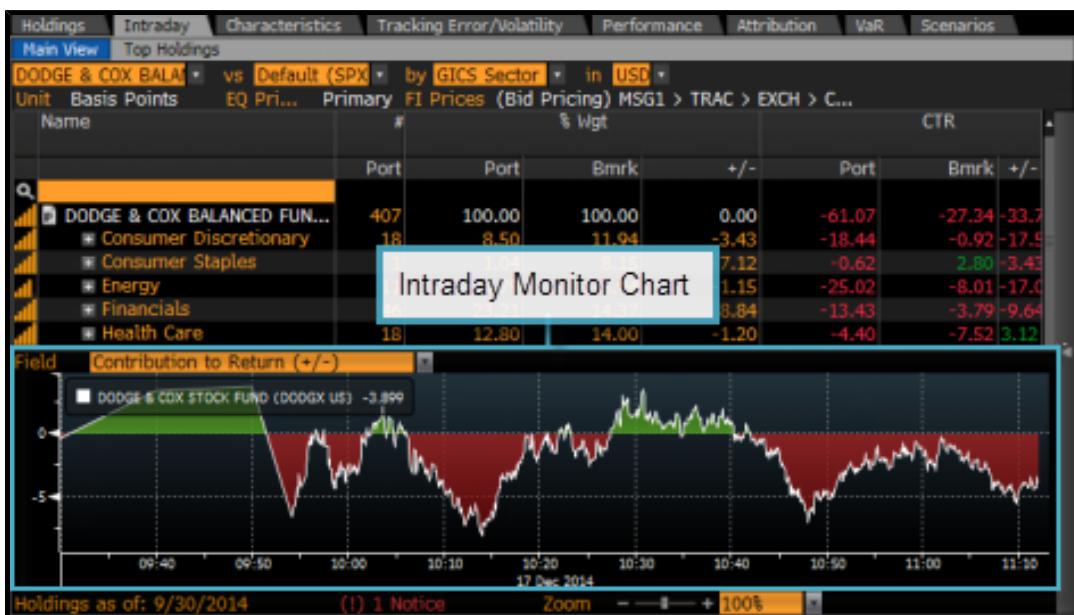
Pricing for fixed income and balanced funds is handled in the following ways:

- **Close FI Pricing:** Determined by your historical pricing waterfall setting, and may include BVAL bid prices, index provider prices, local exchange sources, or custom prices.
- **Intraday FI Pricing:** Determined by your intraday pricing waterfall, and may include MSG1 pricing, TRACE bond prices (TRAC), exchange prices (EXCH), FIT composite prices (CBBT), and Bloomberg Generic prices (BGN).

[Hint] For more information on the historical and intraday fixed income pricing sources available to you, see [Pricing & FX Sources](#). For more information on customizing your pricing waterfalls, see [Pricing Source Defaults](#) and [Customizing Price Waterfall](#).

INTRADAY MONITOR CHART

The intraday monitor chart, which appears only on the *Intraday Main View* sub-tab, is a unique feature of Bloomberg's Portfolio & Risk Analytics tool. The intraday monitor chart tracks your portfolio's performance throughout the day.



By default, the monitor shows your portfolio's return (or active return, if you have a benchmark). You can click the *Field* drop-down menu above the chart to monitor different intraday activity.

Note: For information on monitoring multiple portfolios in the intraday monitor chart, see [Multiple Portfolios in Intraday Chart](#).

Depending on portfolio and benchmark selections, your choices vary. Some of the most common options include:

Option	Displays
Contribution to Return (Port)	The current portfolio P&L divided by the portfolio's market value as of yesterday's close, expressed in basis points.
Contribution to Return (Bmrk)	The current benchmark P&L divided by the benchmark's market value as of yesterday's close, expressed in basis points.
Contribution to Return (+/-)	The difference between your portfolio's current total return and the benchmark current total return.
Total Return (Port)	The current P&L divided by the previous day's closing market value of the instrument or grouping. Expressed in basis points.
P&L (Port)	The difference between the portfolio's current market value and the previous day's closing market value.
Market Value Last (Port)	The current market value of the portfolio.

The chart's start time depends on your *Performance Start Time* setting in the PORT View Manager. Select *Americas*, *Europe*, or *Asia Pacific* to start monitoring from 9:30 EST, 8:00 GMT, or 9:00 JST, respectively. Select *Automatic* to allow PORT to automatically select one of these three regions based on your TZDF setting. Select *Custom* to set a specific performance start time in your local timezone.

Note: Your region is determined by your settings in the *Time Zone Defaults* (TZDF) function. For more information on changing your time zone settings, see the [TZDF Help Page](#).

To show/hide the intraday monitor chart, from the toolbar, select **Settings > Show Intraday Chart**.



INTRADAY TOP HOLDINGS

The *Intraday Top Holdings* sub-tab allows you to analyze returns for your portfolio at the security level based on "top" and "bottom" performers by contribution to return, absolute performance, or largest position on an intraday basis. Data in the *Top Holdings* sub-tab updates in real time.

To update the data that appears on the *Top Holdings* sub-tab, click any of the options in the holdings summary section at the top of the screen.

The screenshot shows the PORT interface with the 'Top Holdings' tab selected. At the top, there are several dropdown menus and filters. Below these, a summary table provides key performance metrics:

Port	STRATEGIC OP	vs	Default (SPX)	by Asset Type	in USD
Unit	Basis Points	EQ Pri...	Primary		
1) Contrib to Return of Top 10 Contributors	62.71	4) Contrib to Return of Bottom 10 Contributors	-5.72		
2) Avg. Return of Top 10 Performers	161.60	5) Avg. Return of Bottom 10 Performers	-31.60		
3) Contrib to Return of Largest 10 Positions	52.90				

Below this is a table titled 'Largest Positions' which lists the top 10 largest positions in the portfolio. The columns include Ticker, Position, Price, %Px Chg, % Port, Rtn, CTR(P), Curr, and Volume.

Ticker	Position	Price	%Px Chg	% Port	Rtn	CTR(P)	Curr	Volume
1. AMAZON.COM INC	10,000	332.34	2.33	12.21	232.77	27.98	USD	641.9M
2. LOCKHEED MARTIN CORP	10,000	161.00	0.17	5.92	16.80	1.00	USD	302.8M
3. VORNADO REALTY TRUST	10,000	106.96	0.22	3.93	21.55	0.85	USD	105.6M
4. JOHNSON & JOHNSON	10,000	105.93	1.25	3.89	125.22	4.85	USD	663.0M
5. AMERICAN EXPRESS CO	10,000	95.48	0.64	3.51	64.30	2.26	USD	319.5M
6. COVIDIEN PLC	10,000	90.99	0.90	3.34	89.82	3.00	USD	336.3M
7. GILEAD SCIENCES INC	10,000	85.33	2.92	3.13	291.88	8.96	USD	3.0MM
8. HOME DEPOT INC	10,000	81.91	1.17	3.01	117.34	3.52	USD	624.1M
9. ENTERGY CORP	10,000	81.45	-0.78	2.99	-77.96	-2.37	USD	186.8M
10. CVS CAREMARK CORP	10,000	76.14	1.02	2.80	102.16	2.85	USD	441.8M

The data in the bottom section updates automatically.

The following analytical options are available in the holdings summary section:

Option	Displays
Contrib to Return of Top 10 Contributors	The top 10 return contributors, from highest contribution to lowest. The percentage to the right of the category name in the holdings summary section sums CTR(P) for the 10 securities.
Avg Return of Top 10 Performers	The top 10 performers, from highest intraday total return to lowest. The percentage to the right of the category name in the holdings summary section averages percentage price changes (%Px Chg) for the 10 securities.
Contrib to Return of Largest 10 Positions	The top 10 largest positions in your portfolio in terms of % weight, from the highest percentage to lowest. The percentage to the right of the category name in the holdings summary section sums CTR(P) for the 10 securities.
Contrib to Return of Bottom 10 Contributors	The bottom 10 return contributors, beginning with the lowest number of basis points. The percentage to the right of the category name in the holdings summary section sums CTR(P) for the 10 securities.
Avg Return of Bottom 10 Performers	The bottom 10 performers, beginning with the lowest intraday total return.

Option	Displays
	The percentage to the right of the category name in the holdings summary section averages %Px Chg for the 10 securities.

HOLDINGS TAB

The *Holdings* tab provides a basic view of the current positions, weights, and allocations across sector, country, or any custom grouping model. You can compare your portfolio's sector weights relative to a benchmark, as well as backdate the analysis to see positions and weights as of a specific date or as a time series trend. You can also analyze your holding allocations by a time or trend series, and by a specific date.

The *Holdings* tab is divided into two sub-tabs, which allow you analyze holdings over given time periods and drill down into your sector allocation data.

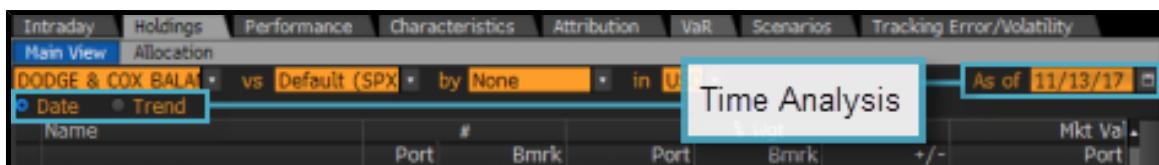
- **Main View:** Allows you to conduct time and trend analysis. For more information, see [Time Analysis](#) and [Trend Analysis](#).
- **Allocation:** Allows you to display your portfolio's allocation (by sector) and view the top ten or bottom ten positions within the portfolio, as well as chart your allocations. For more information, see [Analyzing Holdings](#).

TIME ANALYSIS

In the *Holdings Main View* sub-tab, you can analyze your holdings allocations for a specific date.

To display a time analysis:

From the control area, select **Date**, update *As Of*⁸, then press <GO>.



The portfolio analysis updates.

Note: You can access previous calculations of the *Main View* sub-tab in the *Stored Results* section. For more information on analyzing the results monitor, see [Analytic Results Monitor](#).

TREND ANALYSIS

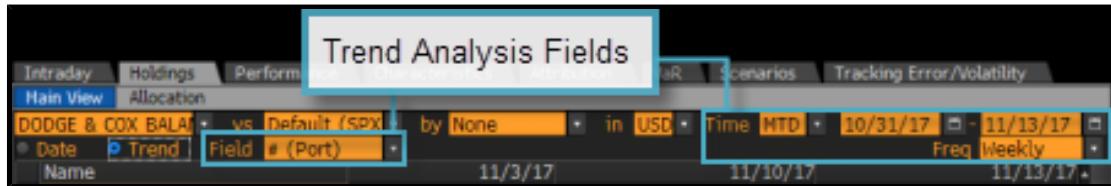
In the *Holdings Main View* sub-tab, you can analyze your holdings allocations by a trend series. Up to 40 time periods may be displayed.

To display trend analysis:

1. From the control area, select **Trend**.
The trend analysis options update.

⁸ The date for analysis. If the date is set to today, the analysis is based on current position's with the previous day's closing prices. Analysis may be backdated up to 90 days.

2. Update your trend options in the *Field*⁹, *Time*¹⁰, and *Freq*¹¹ fields, then press <GO>.



The portfolio analysis updates. If your timeframes exceed 40, the forty most recent periods appear.

Trend analysis is also available in chart form by clicking the chart expander on the right side of the screen. You can select any grouping level in the portfolio securities and breakdown section to see visual representations of the trend analysis.

ANALYZING HOLDINGS

In the *Holdings Allocation* sub-tab, you can display your portfolio's allocation and see the top ten or bottom ten positions within the portfolio, as well as chart your allocations in four different ways.

Note: Data analysis in the *Allocation* sub-tab is not available in trend analysis mode.

Allocation data is divided into three sections:



⁹ In trend analysis mode, the field for trend analysis. For example, # (PORT), % Wgt (+ / -), Mkt Val (+ / -), or Active Share.

¹⁰ In trend analysis mode, the timeframe for the analysis (e.g., month-to-date [MTD] or year-to-date [YTD]).

¹¹ Allows you to choose the frequency for trend and period analyses (Daily, Weekly, Monthly, etc.).

Section	Displays
Portfolio Breakdown	The portfolio currently loaded in PORT, broken down by sector.
Instrument Weights	The market value (in percentage terms) of the top ten or bottom ten positions in the corresponding portfolio.
Allocations Chart	Allocation data in four variations: portfolio, benchmark, relative, or combined.

To analyze top or bottom holdings:

Click the *Holdings in Portfolio* drop-down menu and select whether you want to view data for your Top 10 or Bottom 10 securities.

The portfolio analysis updates automatically.

The following chart variations are available:

Option	Displays
Portfolio	Portfolio sector percentage weights.
Benchmark	Benchmark sector percentage weights.
Combined	Sector percentage weights based on the portfolio and benchmark.
Relative	Portfolio sector percentage weights relative to the benchmark (portfolio weight – benchmark weight).

CHARACTERISTICS TAB

The *Characteristics* tab allows you to analyze the fundamental characteristics of your portfolio as of a specific date or as a time series trend. For equity portfolios, you can obtain measures such as valuation ratios, dividend yield, and earnings growth. For fixed income portfolios, you can see your portfolio's duration, credit quality, yield, and spread to evaluate the core structure of your investments. You can also analyze your portfolio's tenors on the yield curve, observe projected cash flows for your portfolio, break down the liquidity of your positions, and display key rates in absolute value or relative to a selected benchmark.

The *Characteristics* tab is divided into four or five sub-tabs, depending on the instruments you are analyzing:

- **Main View:** Allows you to select from a library of hundreds of equity and fixed income measures and display them for your portfolio, both at the instrument level as well as aggregated to the portfolio level. For more information on the *Main View*, see [Time Analysis](#) and [Trend Analysis](#). For more information on portfolio aggregation methods, see [Aggregation Methodology](#).
- **Summary:** Displays a summary of your portfolio's characteristics and allows you to view the top ten or bottom ten instruments within that portfolio, based on each characteristic, as well as chart the characteristics by sector. For more information, see [Summary](#).
- **Cash Flows:** Displays income generated by the portfolio over a specified time horizon in chart and table format. For more information, see [Cash Flows](#).
- **Liquidity Risk:** Allows you to break down your portfolio's liquidity by security based on average or total days to liquidate, so you can determine the time horizon and cost needed to liquidate your positions. For more information, see [Liquidity Risk](#).

- **Key Rates:** Allows you to see graphic depictions of your portfolio's key rate exposures to quickly identify which tenors contribute the most interest rate risk. For more information, see [Key Rates](#).

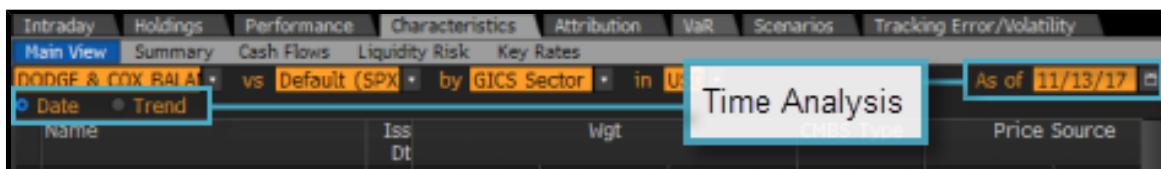
The *Characteristics* tab provides multiple options for handling missing values and outliers. You can also add multiple version of a field for side-by-side comparison of aggregation calculations. For more information on these options, see [Adding Field Variations](#) and [Calculations and Outlier Handling](#).

TIME ANALYSIS

In the *Characteristics Main View* sub-tab, you can analyze your portfolio characteristics for a specific date.

To display a time analysis:

From the control area, select **Date**, update *As Of*¹², then press <GO>.



Your portfolio characteristics update.

Note: You can access previous calculations of the *Main View* sub-tab in the *Stored Results* section. For more information on analyzing the results monitor, see [Analytic Results Monitor](#).

TREND ANALYSIS

In the *Characteristics Main View* sub-tab, you can analyze your portfolio characteristics by a trend series. Up to 40 time periods may be displayed.

To display trend analysis:

1. From the control area, select **Trend**.
The trend analysis options update.
2. Update your trend options in the *Field*¹³, *Time*¹⁴, and *Freq*¹⁵ fields, then press <GO>.

¹² The date for analysis. If the date is set to today, the analysis is based on current position's with the previous day's closing prices. Analysis may be backdated up to 90 days.

¹³ In trend analysis mode, the field for trend analysis. For example, # (PORT), % Wgt (+ / -), Mkt Val (+ / -), or Active Share.

¹⁴ In trend analysis mode, the timeframe for the analysis (e.g., month-to-date [MTD] or year-to-date [YTD]).

¹⁵ Allows you to choose the frequency for trend and period analyses (Daily, Weekly, Monthly, etc.).



The portfolio analysis updates. If your timeframes exceed 40, the forty most recent periods appear.

Trend analysis is also available in chart form by clicking the chart expand on the right side of the screen. You can select any grouping level in the portfolio securities and breakdown section to see visual representations of the trend analysis.

SUMMARY

The *Characteristics Summary* sub-tab displays a summary of your portfolio's characteristics and allows you view top ten or bottom ten instruments within that portfolio, based on each characteristic, as well as chart the characteristics by sector.

Note: Data analysis in the *Summary* sub-tab is not available in trend analysis mode.

Data is divided into three sections:



- Characteristics:** Displays the portfolio currently loaded in PORT, broken down by characteristic (e.g., modified duration, yield to maturity). You can click any row to display a breakdown of that characteristic in the chart.
- Instrument Values:** Displays the top ten or bottom ten securities based on your selection from the *Wgt* drop-down menu at the top of the section.
- Characteristics Breakdown:** Illustrates characteristics data in four variations: portfolio, benchmark, relative, or combined.

To analyze top or bottom holdings, click the *Wgt* drop-down menu and select whether you want to view data for your Top 10 or Bottom 10 securities. The portfolio analysis updates automatically.

The following chart variations are available:

Option	Displays
Portfolio	Portfolio sector percentage weights.
Benchmark	Benchmark sector percentage weights.
Combined	Sector percentage weights based on the portfolio and benchmark.
Relative	Portfolio sector percentage weights relative to the benchmark (portfolio weight – benchmark weight).

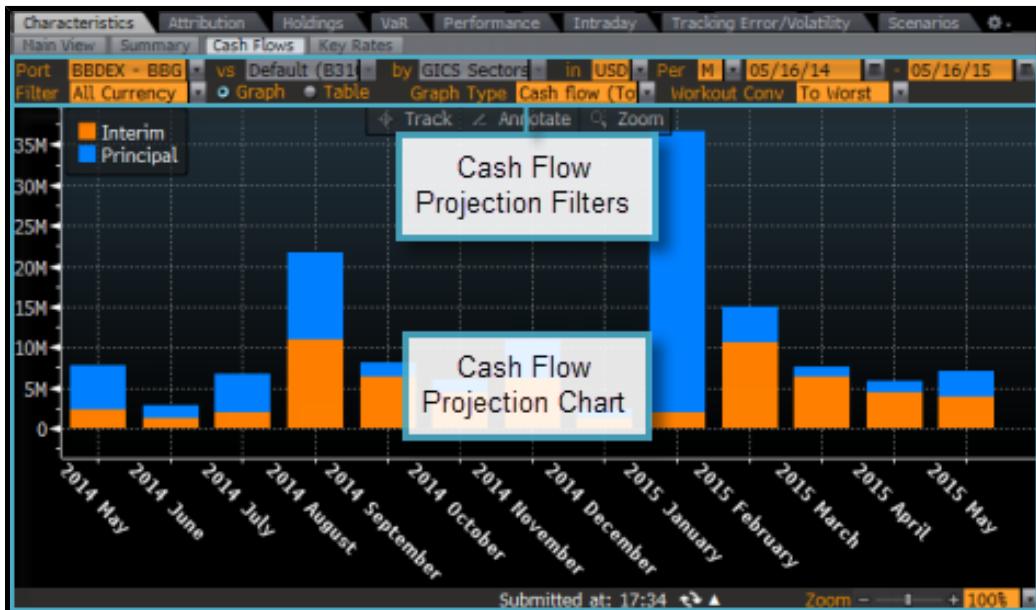
CASH FLOWS

The *Characteristics Cash Flows* sub-tab displays a projection of interim and principal payments over a specified time horizon in chart or table format.

For equity instruments, interim payments are dividends projected using the *Bloomberg Dividend Forecast* (BDVD) function. For fixed income instruments, interim payments include the periodic coupons that are received. For information on BDVD, see the [BDVD Help Page](#).

The *Cash Flows* sub-tab displays three months of cash flows by default. However, you can analyze up to sixty cash flow periods, which can be defined as daily, monthly, quarterly, semi-annually, or yearly. You can see more cash flow periods when you generate a PDF or Microsoft® Excel report. For information on creating a report, see [Creating Report Templates](#).

|Hint| You can edit your default cash flow projection settings in the *View Manager*. For more information, see [Cash Flow Calculation Defaults](#).



- **Cash Flow Projection Filters:** Provides the filters and fields available to modify your cash flow projection analysis, such as *Graph Type*¹⁶ and *Workout Conv*¹⁷.
- **Cash Flow Projection Chart:** Displays a bar chart of the cash flow projections, based on your filters. If you select the *Table* field, the cash flow projection table appears.

You can adjust your analysis using the following cash flow projection filters:

Field	Allows you to
Per	Change the frequency of the projection data and the time horizon.
Filter	Limit the projections displayed to only the cash flows paid in a specific currency.
Graph Type	Confine the cash flow summary to interim payments only, principal payments only, total cash flow, or cumulative cash flow.
Workout Conv	Select the timeframe in which you assume you are going to recover your principal: <ul style="list-style-type: none"> • <i>To Worst:</i> Selects a workout date that produces the worst yield based on the price of the bond (the date may be a maturity or call date). • <i>To Maturity:</i> Assumes the bond is called on its maturity. • <i>To Next Call:</i> Assumes the bond is called at its next call date.

Note: You can also drill into cash flow projection data for a specific period by clicking the corresponding bar in the chart.

Cash flow data is also available in table format. You can see cash flows for each period by selecting *Table*. You can select a period in the table to expose the instruments that pay an interim or principal cash flow during that period.

¹⁶ In the Cash Flow Summary sub-tab, allows you to choose the cash flow payments that appear on the chart or table. The options are:

- **Interim Only:** Displays only the periodic payments produced by the instrument, i.e., projected dividends for equities and coupons for fixed income.
- **Principal Only:** Displays only the principal payments produced by the instrument.
- **Cash flow (Total):** Displays the sum of the interim and principal cash flows for each period.
- **Cash flow (Cumulative):** Displays the running total of the interim and principal cash flows received over each period.

¹⁷ In the Cash Flow Summary sub-tab, allows you to choose the cash flow projection methodology, which provides an assumption as to when you are going to recover your principal. The options are:

- **To Worst:** Selects a workout date that produces the worst yield based on the price of the bond. The date may be a maturity or call date.
- **To Next Call:** Assumes the bond is called at its next call date.
- **To Maturity:** Assumes the bond is called on its maturity.

Intraday Holdings Characteristics Tracking Error

Main View Characteristics Summary Cash Flow Summary

Port BBDEX - BBG vs Default (B31) by Market

Filter All Currency Graph Table

Year	Months	Interim
2013	Total	66,551,29
	October	1,954,14
	November	6,696,08

LIQUIDITY RISK

The *Liquidity Risk* sub-tab allows you to measure your portfolio's liquidity risk using four analytical views, including a summary of the expected transaction costs using the BLOOMBERG PROFESSIONAL® service's proprietary transaction cost model. You can customize your analysis of liquidity risk based on median or average volume, access all available volume history for your portfolio positions, calculate the average or median based on daily price volume or VWAP volume, and backdate your liquidity risk view.

For details on setting up your liquidity risk defaults in PORT, see [Liquidity Risk Defaults](#). For information on Bloomberg's proprietary transaction cost model, see the [TCA Help Page](#).

Analytic Selection Holdings VaR Performance Intraday Tracking Error/Volatility Scenarios

Port SMALL CAP V2 vs Default (Non) by None in USD As Of 06/23/14

Liquidity Risk

Liquidity Summary Position Breakdown

Transaction Cost Summary

% Part	5 D	10 D	20 D	30 D	3 M	6 M
5	7.31	7.69	7.77	7.54	7.42	7.03
10	3.45	3.64	3.88	3.77	3.71	3.51
15	2.15	2.31	2.47	2.34		
20	1.41	1.48	1.86	1.76		
25	1.11	1.18	1.48	1.41		
30	1.22	1.28	1.29	1.26	1.24	1.17

% Part	5 D	10 D	20 D	30 D	3 M	6 M
5	17.8	17.8	20.0	18.0		
10	21.8	21.8	24.3	21.9		
15	25.4	25.4	28.1	25.6		
20	28.9	28.9	31.8	29.0		
25	32.1	32.1	35.3	32.3		
30	35.3	39.6	38.9	38.7	38.7	35.5

Note: The units in the *Liquidity Summary* and *Transaction Cost Summary* sections are displayed in the upper righthand corner of each section.

Your selection in the *Analytic* field determines the type of data that appears in the other sections of the *Liquidity Risk* sub-tab. The following views are available:

- **Average Days to Liquidate:** Displays the average number of days needed to liquidate each position in your portfolio based on the specified *participation rate*¹⁸ and average *volume history*¹⁹.
- Note:** For an individual position, average days and total days to liquidate (see description below) are identical. For an aggregation of positions, including a portfolio, the average number of days to liquidate reflects the average liquidity of all portfolio positions, while the total number of days to fully liquidate matches the number of days required for the most illiquid position.
- **Total Days to Liquidate:** Displays the total number of days needed to liquidate 100% of the position or the portfolio using the specified *participation rate*²⁰ and average *volume history*²¹.
- **Liquidity Profile:** Allocates your positions into six user-defined liquidity buckets for a simplified analysis of your portfolio liquidity. You can use this view to easily identify the concentration of the portfolio's market value in more versus less liquid securities. You can define the liquidity buckets in the *Liquidity Risk* settings in the portfolio *View Manager*. For more information, see [Liquidity Risk Defaults](#).
- **Liquidity Horizon:** Displays your portfolio liquidity based on the length of time it will take to liquidate a preset percentage of the portfolio's total market value. You can use this analysis to compare against anticipated fund redemptions to ensure that fund can meet them. You can define the liquidity horizon as a percentage of your portfolio's market value in the *Liquidity Risk* settings in the portfolio *View Manager*. For more information, see [Liquidity Risk Defaults](#).

The position *Breakdown* section updates based on the selected *analytic*²² and your selection in the *Liquidity Summary* or *Transaction Cost Summary* tables. The breakdown table automatically sorts each data column in descending order, based on the number of days to liquidate. In the following example, you can see that Tootsie Roll is the least liquid stock in the portfolio using a 10% participation rate and 30 day average volume. PORT calculates that Tootsie Roll will take 28.33 days to liquidate and cost 111.7 basis points.

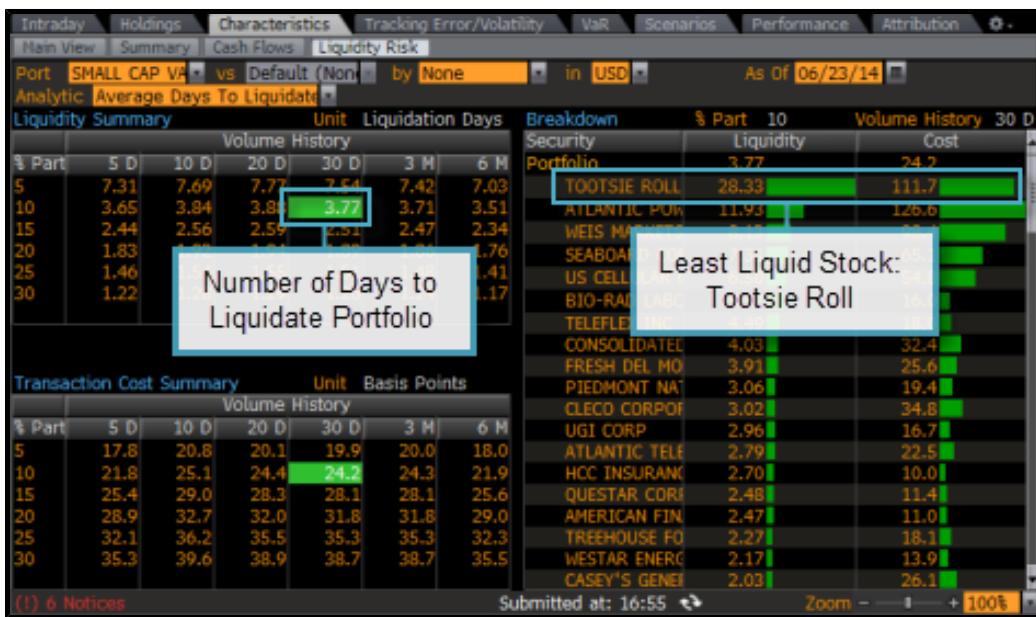
¹⁸ The percentage of the average or median daily volume of your position that you are willing or intending to sell on a given day.

¹⁹ The length of trade history used to calculate the median or average volume.

²⁰ The percentage of the average or median daily volume of your position that you are willing or intending to sell on a given day.

²¹ The length of trade history used to calculate the median or average volume.

²² The liquidity risk calculation selected for your portfolio analysis within the *Characteristics-Liquidity Risk* sub-tab. For descriptions of each available view, see [Liquidity Risk](#).



KEY RATES

In the *Characteristics Key Rates* sub-tab, you can see graphic depictions of your portfolio's key rate exposures to quickly identify which tenors contribute the most interest rate risk. You can display portfolio key rates in absolute value or relative to a selected benchmark, as well as drill-down to the security-level key rate risk of your portfolio holdings.

The Key Rates sub-tab is divided into two main sections:



- Key Rate Exposures:** Displays key rate exposures by option adjusted duration (OAD) and across numerous timeframes.

- **Key Rate Chart:** Illustrates the interest rate exposure for your portfolio at each tenor on the curve.

You can click any aggregate level (e.g., Corporate Debt) to analyze the instruments within that grouping. The key rate chart updates to reflect corresponding interest rate exposures.

Name	Source	OAD	6M	1
Totals	Portfolio	5.36	0.04	0.2
	Benchmark	8.05	0.01	0.0
	Difference	-2.70	0.04	0.1
Cash	Portfolio			
	Benchmark	0.00	0.00	0.0
	Difference			
Corporate Debt	Portfolio	5.97	0.04	0.3
	Benchmark	8.11	0.01	0.0
	Difference	-2.14	0.03	0.2
Government Debt	Portfolio	6.13	0.01	0.1

Note: You can right-click any instrument to conduct further analysis in related functions, such as *Company News (CN)*, *Description (DES)*, *Yield and Spread Analysis (YAS)*, *Fixed Income Price Discovery (FIPX)*, and more.

TRACKING ERROR/VOL TAB

The *Tracking Error/Volatility* tab allows you to analyze your portfolio's ex-ante (predicted) risk by using one of Bloomberg's multi-factor risk models. Tracking errors are annualized volatilities of active returns, expressed in percentages. You can display portfolio risk statistics in absolute terms or relative to a selected benchmark, either for a specific date or as a time series trend.

The *Tracking Error/Volatility* tab is divided into seven sub-tabs, which allow you to perform more specific risk analysis:

- **Main View:** Displays risk data that is absolute or relative to a benchmark. Risk models help you analyze your portfolio's ex-ante (predicted) risk. For more information, see [Choosing Risk Models](#).
- **Summary:** Displays the portfolio risk/active risk summary, as well as basic risk decomposition statistics. For more information, see [Active Risk & Factor Risk Exposures](#).
- **Factors:** Displays the factor table, broken down by factor, exposure, and risk. For more information, see [Analyzing Factor Groups](#).
- **Risk Bets:** Displays the largest/smallest portfolio risk bets. For more information, see [Analyzing Risk Bets](#).
- **Trends:** Allows you to visualize ex-ante risk options and trends for data series variations, such as Risk, Factor Groups, Style Groups, and more. For more information, see [Analyzing Trends Chart](#).
- **Exposures:** Displays a table of risk model exposures in your portfolio. For more information, see [Analyzing Exposures](#).

Note: For information on comparing portfolio and benchmark returns, see [Benchmark Scaling](#).

CHOOSING RISK MODELS

The *Tracking Error Main View* sub-tab displays risk data that is absolute or relative to a benchmark. Risk models help you analyze your portfolio's ex-ante (predicted) risk. Typically, risk models apply to the smallest geographical region that covers your portfolio holdings.

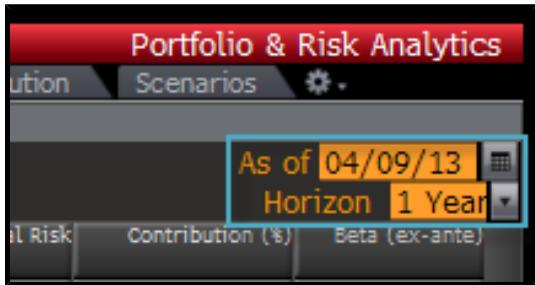
To choose a risk model, from the control area, click the *Model* drop-down menu and select from the available options, then press <GO>.



Note: If you want to update the display unit for the risk values, update the *Unit*²³ field.

The portfolio analytics update and the risk model applies across all *Tracking Error/Volatility* sub-tabs.

You can also update the *As of*²⁴ and *Horizon*²⁵ fields to analyze your data for a different date and timeframe. If you enter today's date, the analysis is based on current positions using the previous day's closing prices.



²³ In the VaR and Tracking Error/Volatility tabs, the units to display potential portfolio loss, which may be displayed as either a market value (P&L) or percentage return (Return %).

²⁴ The date for analysis. If the date is set to today, the analysis is based on current position's with the previous day's closing prices. Analysis may be backdated up to 90 days.

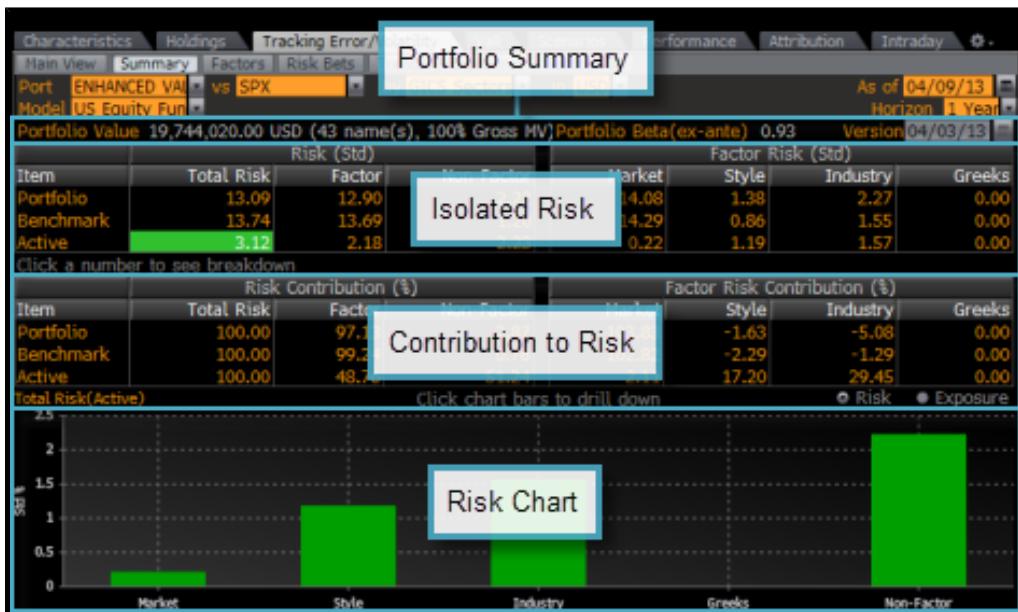
²⁵ • In the Tracking Error/Volatility Summary sub-tab, refers to how the risk numbers are scaled. For example, if Time Horizon is set to one year, the risk statistics are annualized.
• In the VaR Main View, the risk forecast in number of business days. Bloomberg calculates a one-day VaR and scales that number by multiplying it by the square root of the number of business days to include additional timeframes.
• In the Scenarios tab, allows you to analyze full valuation scenarios over several timeframes: one day, one week, one month, or one year.

For more information on Bloomberg's risk factor models, see [White Papers](#).

ACTIVE RISK & FACTOR RISK EXPOSURES

The *Tracking Error/Volatility Summary* sub-tab displays the portfolio risk/active risk summary, as well as basic risk decomposition statistics. Risk is displayed in terms of both isolated volatility (standard deviation of return) and percentage of contribution. Data appears in both table and chart form.

The *Summary* sub-tab is divided into the following sections:



- **Portfolio Summary:** Provides the value of the portfolio, the *Portfolio Beta (ex-ante)*²⁶ value, and the *Version*²⁷ under analysis.
- **Isolated Risk:** Displays risk expressed as isolated volatility.
- **Contribution to Risk:** Displays the percentage contributions that make up *Total Risk*²⁸. It is possible for the *Factor Risk Contribution (%)* value for a particular factor group to be greater than 100%. *Total Risk Contribution (%)* always sums up to 100%. *Factor Risk Contribution* can be both positive and negative. If *Factor Risk Contribution* for a given factor group is negative, then to get all risk contributions to sum up to 100%, some other factor group risk contribution can be greater than 100%.
- **Risk Chart:** Displays the risk decomposition of the selected risk value. If a risk factor group is selected, the risk chart displays individual risk factors that make up a particular factor group.

²⁶ A number describing the relation of returns of portfolio and benchmark.

²⁷ The dated version of the portfolio under analysis.

²⁸ Total risk is broken down into the Factor and non-factor groups. Factor groups are model-specific.

Risk factors can be seen as *Isolated Risk (Std)*²⁹, *Contribution (Std)*³⁰, or *Factor Exposure*³¹ (factor betas). To analyze the risk data in chart form, select the value.



Note: You can click the bars in the chart to drill down into more data.

It is possible to have an absolute value of your style exposure for a given security be greater than 3. Even though most values should be between +3.5 and -3.5, a value greater than 3 is a direct result of the normalization technique that Bloomberg uses to calculate style exposures.

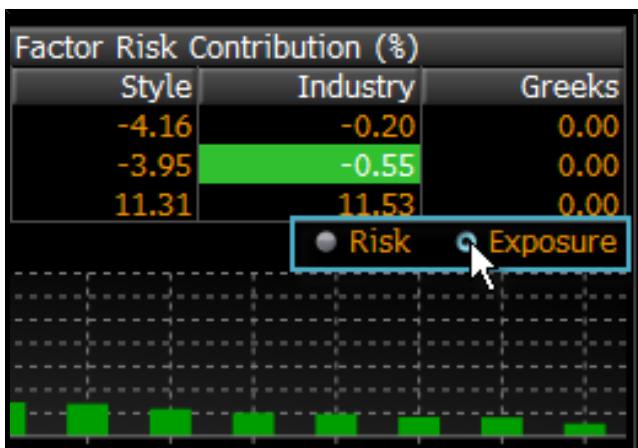
If you want to expose factor exposures (available for factor groups when a particular value is selected in the Isolated Risk table), click *Exposure*³² above the risk chart.

²⁹ The standard deviation of the distribution of returns, expressed as either a percentage return or portfolio profit and loss (P&L). This measure represents portfolio risk (expressed as the standard deviation of portfolio returns) or active risk (expressed as the standard deviation of portfolio active returns).

³⁰ Used to determine a fraction of risk that a particular group contributes to total risk. Risk Contribution (Std) is expressed as the standard deviation of % Return or P&L.

³¹ The sensitivity of your portfolio to the market. Factor exposure is also known as factor beta.

³² A portfolio's, security's, or benchmark's sensitivity to a given risk factor.



ANALYZING FACTOR GROUPS

The *Tracking Error/Volatility Factors* sub-tab displays the factor table, which is divided into three sections that allow you to analyze risk factors at a glance:

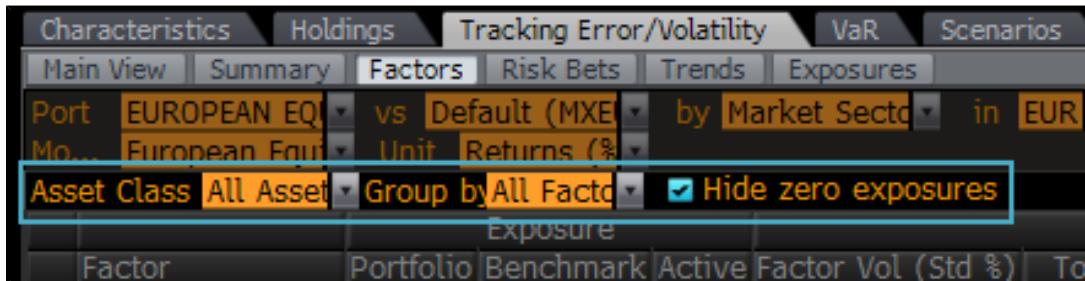


- **Factor:** Provides the risk factor broken down across the row.
 - **Exposure:** Lists the risk factor exposures (factor betas) for your portfolio, benchmark, and active return (portfolio exposure – benchmark exposure).
 - **Risk:** Displays factor risk and active factor risk expressions and exposure data.

Note: To display more information on the data, including calculations, position your cursor over any column header.

You can analyze factors for further analysis into the risk impacting your portfolio:

- To filter factor data, update the *Asset Class*³³, *Group by*³⁴, or *Hide zero exposures*³⁵ filters, then press <GO>.



- To gain transparency into the factors impacting your portfolio, click any factor name or data value to access the correlation or variance/co-variance matrix. For more information on factor transparency, see [Factor Transparency](#).
 - To see total active risk and active exposure in chart form, click the expander bar on the right side of the screen.
 - To choose how the data appears in the chart, update the *Wedge Size* and *Coloring function* settings.



³³ In the Tracking Error/Volatility sub-tabs, allows you to filter factors by asset class.

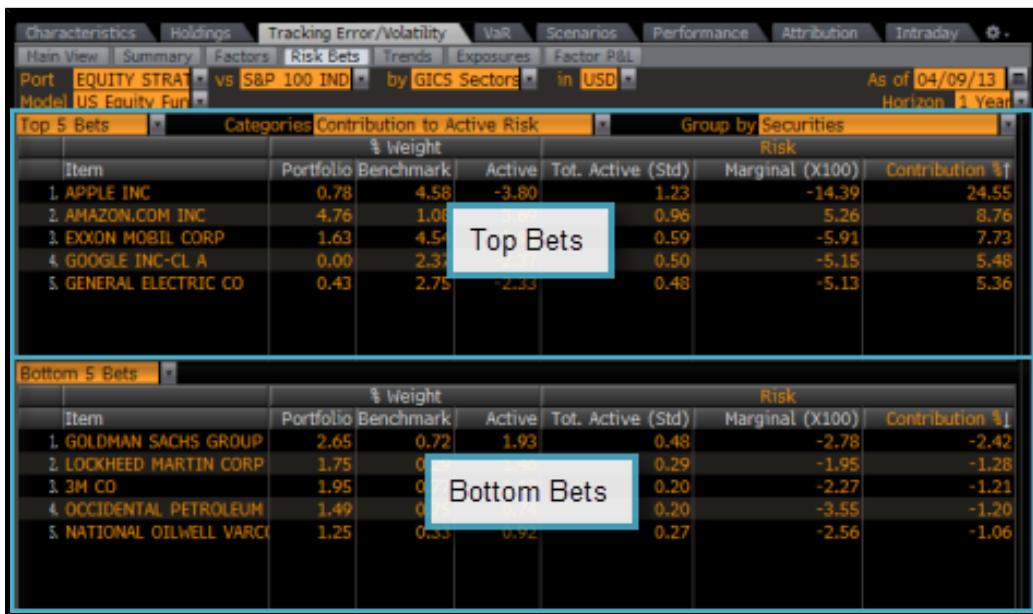
³⁴ In the Tracking Error/Volatility Factors sub-tab, allows you to filter factors by the factor groups that appear in the Summary sub-tab: All Factors, Market, Style, Industry, or Greeks.

Note: For multi-country equity models, style factor exposures for multi-country risk models are neutralized within a given country. For more information on factor models, see [White Papers](#).

35 In the Tracking Error/Volatility tab, allows you to show or hide factors with zero exposure values.

ANALYZING RISK BETS

The *Tracking Error/Volatility Risk Bets* sub-tab displays the largest/smallest portfolio risk bets (performers) divided into two sections:



- Top Bets:** Displays the five or ten riskiest bets in your portfolio.
- Bottom Bets:** Displays the five or ten least risky bets in your portfolio.

Note: You can position your cursor over any column header to view more details about that particular column.

To update the data that appears in the either table, update any of the following:



Option	Displays
Top/Bottom 5/10 Bets	The top or bottom five or ten risk bets in your portfolio by contribution to risk and exposures.
Categories	The sorting criteria (e.g., <i>Active Risk</i> ³⁶ or <i>Portfolio Exposure</i> ³⁷) used in ranking the risk bets in the portfolio.
Group by	The grouping by which the risk bets are aggregated, either by Factors, Securities, or Groupings.

³⁶ Expressed as the standard deviation of portfolio active returns. Active risk is also known as tracking error.

³⁷ The portfolio's sensitivity to a given factor.

Note: While the *Categories* and *Group by* fields are embedded in the top bets table, the selections you make are reflected in both the top bets and bottom bets tables.

ANALYZING TRENDS CHART

The *Tracking Error/Volatility Trends* sub-tab allows you to visualize ex-ante risk options and trends for data series variations, such as Risk, Factor Groups, Style Groups, and more.

The *Trends* sub-tab is divided into the following sections:



- **Charting Options:** Allows you to specify a date range for analysis in the *Time*³⁸ fields and the analysis *Horizon*³⁹.
- **Methodology:** Allows you to choose the ex-ante risk options for the trend analysis.
 - *Current Portfolio:* Reflects the current security weights in the portfolio, the current security exposures to each factor, and the current security non-factor risk.
 - **Note:** The historical factor return volatility and the factor return covariances come from historical calibration.
 - *Historical Risk:* Reflects the historical security weights in the portfolio, which are calculated using historical holdings, historical prices, and FX rates; the historical security exposures to each factor; and the historical security non-factor risk.

³⁸ In trend analysis mode, the timeframe for the analysis (e.g., month-to-date [MTD] or year-to-date [YTD]).

³⁹ — In the *Tracking Error/Volatility Summary* sub-tab, refers to how the risk numbers are scaled. For example, if Time Horizon is set to one year, the risk statistics are annualized.

— In the VaR Main View, the risk forecast in number of business days. Bloomberg calculates a one-day VaR and scales that number by multiplying it by the square root of the number of business days to include additional timeframes.
 — In the Scenarios tab, allows you to analyze full valuation scenarios over several timeframes: one day, one week, one month, or one year.

Note: Similar to the *Current Portfolio* methodology, the factor return volatility and the factor return covariances are derived from historical calibration.

- **Historical Exposure (X100):** Reflects how risk factor exposures changed over time, using historical portfolio/benchmark holdings and historical risk model factor exposures. Risk exposure for a given risk factor is defined as portfolio risk exposure minus benchmark risk exposure (if applicable) multiplied by 100.
- **Indicators:** Allows you to choose which data series appear in the chart, such as variations of Risk, Factor Groups, Style Groups, and more.
- **Trends Chart:** Allows you to visualize analyze ex-ante risk trends. The chart updates automatically to reflect your choices in the other sections. If your changes do not appear immediately, press <GO>.

Note: To determine how portfolio risk changed over time, historical portfolio holdings must be uploaded in your portfolio. The *Bloomberg Uploader* (BBU) and *Portfolio Administration* (PRTU) functions are used to load historical portfolio holdings. For more information on uploading and maintaining your portfolios, see the *BBU Help Page* and the *PRTU Help Page*.

ANALYZING EXPOSURES

The *Tracking Error/Volatility Exposures* sub-tab displays a table of risk model exposures in your portfolio. Risk model security exposures are security-level factor exposures that are generated as part of the model estimation process and are used to estimate security/portfolio risk.

For equities issued by the same company, including ADRs, multiple share classes, etc., PORT first determines the "parent" security (which is based on the *EQY_FUND_TICKER*⁴⁰ value). Next, PORT calculates all factor exposures for the parent and copies these exposures to all "children," i.e., other securities issued by the same company.

To analyze exposures:

- To change the data that appears in the table, you can update the *Asset Class*⁴¹, *Display*⁴², *Hide Zero Exposures*⁴³, *As of*⁴⁴, and *Horizon*⁴⁵ fields.

⁴⁰ Specifies the ticker to access equity fundamental data for a company. The price data of the fundamental ticker is used to compute most financial ratios which combine market data and equity fundamental data. If a company has several listings/tickers, Bloomberg selects the fundamental ticker based on listing dates, country of domicile, and liquidity.

⁴¹ In the *Tracking Error/Volatility* sub-tabs, allows you to filter factors by asset class.

⁴² In the *Tracking Error/Volatility Exposures* sub-tab, allows you to filter the factor exposures that appear, such as market or industry.

⁴³ In the *Tracking Error/Volatility* tab, allows you to show or hide factors with zero *exposure* values.

⁴⁴ The date for analysis. If the date is set to today, the analysis is based on current position's with the previous day's closing prices. Analysis may be backdated up to 90 days.

⁴⁵ — In the *Tracking Error/Volatility Summary* sub-tab, refers to how the risk numbers are scaled. For example, if Time Horizon is set to one year, the risk statistics are annualized.

— In the *VaR Main View*, the risk forecast in number of business days. Bloomberg calculates a one-day VaR and scales that number by multiplying it by the square root of the number of business days to include additional timeframes.

— In the *Scenarios* tab, allows you to analyze full valuation scenarios over several timeframes: one day, one week, one month, or one year.

The screenshot shows a software interface for portfolio management. At the top, there's a navigation bar with tabs like 'Characteristics', 'Holdings', 'Tracking Error/Volatility', 'VaR', 'Scenarios', 'Performance', 'Attribution', and 'Intraday'. Below the navigation bar, there are dropdown menus for 'Port' (set to 'BBGEX - BBG'), 'vs' (set to 'Default (DJG)'), 'by' (set to 'GICS Sectors'), 'in' (set to 'USD'), and time settings ('As of 05/15/14', 'Horizon 1 Year'). The main area contains a table titled 'Asset Class Equity' with columns for 'Securities' and various currency exposures (AS Div, AU Div, EU Div, JP Div, LA Div, US Div). A tooltip labeled 'Analysis Options' is overlaid on the right side of the table.

The data updates automatically. The data in the table differs, depending on your selection. To learn more about the exposure data, position your mouse over any column header.

- To view risk transparency details for a security, click any cell.

This screenshot shows a table titled 'Click a number for transparency details'. It has columns for 'Page', 'US Momentum', 'US Profit', 'US Size', and 'US'. The data rows show values such as 0.56, 0.10, 0.48, 0.28, -0.51, etc. A cursor is hovering over the value '-1.15' in the third row, which is highlighted with a yellow background.

The information appears in another screen. For more information on risk transparency, see [Risk Transparency Screen](#).

- To further analyze a security in a related function, right-click the name of the security and choose from the available options in the menu.

This screenshot shows a context menu for a security entry. The menu items listed are: NEWS (News), DES (Description), HP (Historical Table), CN (News), GP (Price Graph), EE (Earnings Estimates), FA (Financial Analysis). The menu is triggered by a right-click on the entry '5. ALTRIA GROUP, INC'.

For more information on each related function, see the related Help Page (e.g., the [EE Help Page](#), the [GP Help Page](#)).

VAR TAB

The VaR tab lets risk managers and portfolio managers analyze the risk of loss for their portfolios. Three types of VaR are available:

- Parametric VaR
- Historical VaR
- Monte Carlo VaR

The VaR methodology utilizes the factor structure provided by the Bloomberg factor models in a way that makes the VaR consistent with portfolio tracking error and volatility, which are computed using the same factor models. For historical and Monte Carlo VaR, an array of valuation choices are offered, ranging from linear pricing using the Bloomberg factor models to Stress Matrix Pricing (SMP) and full valuation.

The VaR tab is divided into five sub-tabs, which allow you to perform more specific value-at-risk analysis:

- **Main View:** Allows you to break down your portfolio VaR by securities or groups. Data is absolute or relative to a benchmark. For more information, see [VaR Breakdown](#).
- **VaR Comparison:** Allows you to compare Monte Carlo, Historical, and Parametric VaR methodologies at different confidence levels. For more information, see [VaR Comparison](#).
- **Distribution:** Allows you to see the probability distribution of your portfolio's P&L in graphic and table form, based on the VaR computation (relevant for Monte Carlo and Historical VaR simulations). For more information, see [Analyzing Distribution](#).
- **VaR Simulations:** Allows you to sort all Historical or Monte Carlo simulations by scenario ID, percentile, or P&L. All simulations appear in table and chart form. For more information, see [VaR Simulations](#).
- **Factor Breakdown:** Allows you to see all exposures and VaR contribution of individual risk model factors and factor groups. For more information, see [VaR Factor Breakdown](#).

Note: For information on comparing portfolio and benchmark returns, see [Benchmark Scaling](#).

VAR BREAKDOWN

The VaR Main View sub-tab allows you to break down your portfolio VaR by securities or groups. Data is absolute or relative to a benchmark.

You can update the underlying assumptions by which **VaR**⁴⁶ analysis is run, such as choosing one of Bloomberg's multi-risk factor models to analyze your portfolio's ex-ante (predicted) risk. You can also choose a specific time horizon by which to analyze the data. Data can be measured as **P&L**⁴⁷ or % return.

To breakdown your portfolio VaR, update the **Model**⁴⁸, **Unit**⁴⁹, **CLv**⁵⁰, **As Of**⁵¹, and **Horizon**⁵² fields, then press <GO>.

⁴⁶ Measured in currency units or as a % of market value, VaR measures the maximum loss projected given inputs for the time horizon and confidence level. VaR can be measured on the portfolio, benchmark, or active/difference portfolio.

⁴⁷ The portfolio's current profit or loss position. P&L is calculated as the portfolio's current value – the portfolio's value at the prior market close.

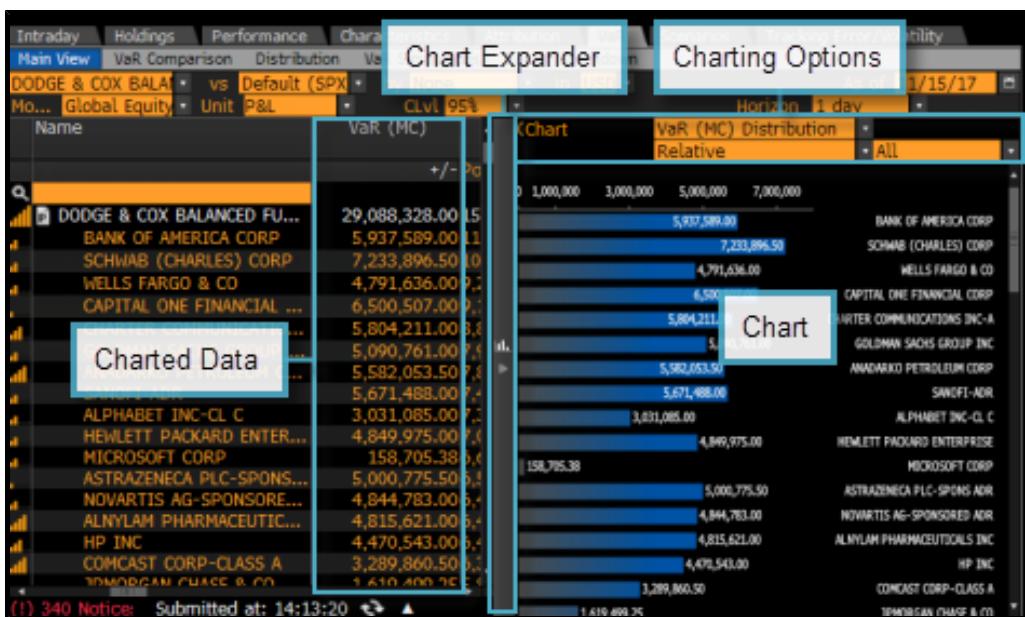
⁴⁸ • In the Tracking Error/Volatility Summary and Trends sub-tabs, refers to multi-factor risk model that is used to estimate the portfolio, benchmark, and active risk values. The model version is the date on which the model was generated.
• In the VaR and Scenarios tabs, the risk model you want to apply to your portfolio, typically the smallest geographical region that covers the holdings in your portfolio.

For more information on Bloomberg's risk factor models, see [White Papers](#).



The data updates and applies across all VaR sub-tabs.

VaR analysis is also available in chart form, accessed by clicking the expander bar on the right side of the screen. You can alter data and graphic depictions by updating the *Chart* field.



49 In the VaR and Tracking Error/Volatility tabs, the units to display potential portfolio loss, which may be displayed as either a market value (P&L) or percentage return (Return %).

50 See [Confidence Level](#).

51 The date for analysis. If the date is set to today, the analysis is based on current position's with the previous day's closing prices. Analysis may be backdated up to 90 days.

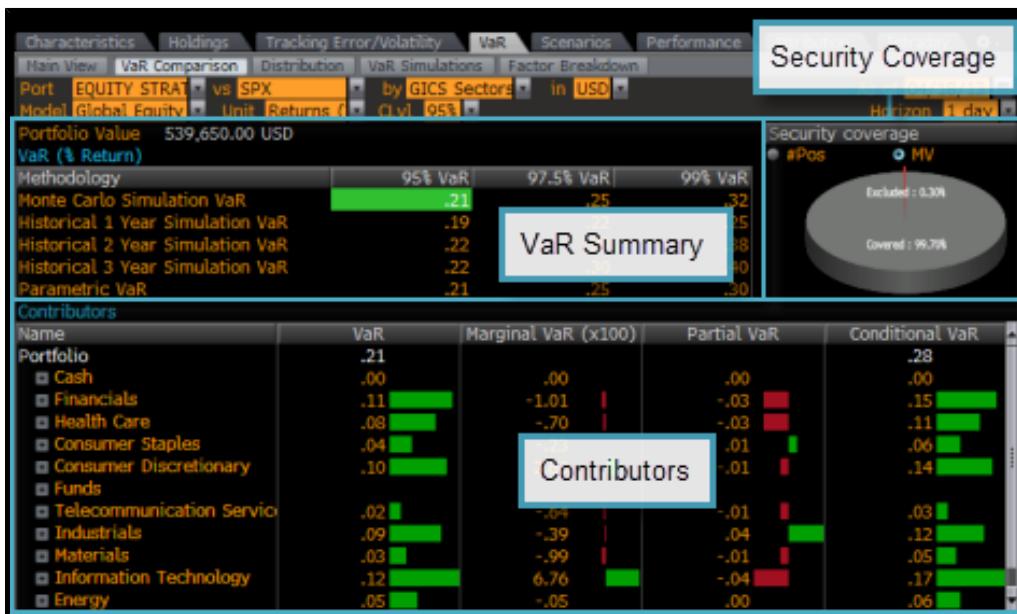
- 52 • In the Tracking Error/Volatility Summary sub-tab, refers to how the risk numbers are scaled. For example, if Time Horizon is set to one year, the risk statistics are annualized.
- In the VaR Main View, the risk forecast in number of business days. Bloomberg calculates a one-day VaR and scales that number by multiplying it by the square root of the number of business days to include additional timeframes.
- In the Scenarios tab, allows you to analyze full valuation scenarios over several timeframes: one day, one week, one month, or one year.

Note: When analyzing value-at-risk, there may be occasions when VaR%⁵³ is greater than 100%. For leveraged portfolios, such as long-short or portfolios with derivative instruments, portfolio VaR can be greater than the portfolio market value. Thus, VaR% is greater than 100%. Currently, the factor model (and thus scenarios used in Monte Carlo and Historical) are generated daily.

VAR COMPARISON

In the *VaR Comparison* sub-tab, you can compare Monte Carlo, Historical, and Parametric VaR methodologies at different confidence levels.

The *VaR Comparison* sub-tab is divided into three VaR analysis sections:



- **VaR Summary:** Displays the portfolio (or active portfolio if a benchmark is selected) level VaR for each methodology (Monte Carlo, Historical and Parametric Stressed) at the selected *Confidence Level*⁵⁴ (95, 97.5, and 99%). You can update the *Unit* field in the control area to display potential portfolio loss in P&L, % return, or basis point values. The *Portfolio Value* field displays the total portfolio market value in the reporting currency. You can click any cell to display a portfolio or active breakdown in the *Contributors* table. For information on setting the default decay factor used in this calculation, see [Risk Factor Calculation Defaults](#).
- **Security Coverage:** Provides a pie chart of the portfolio data captured by VaR analysis by number of securities (#Pos) or market value (MV).

⁵³ VaR divided by portfolio market value. For leveraged portfolios, such as long-short or portfolios with derivative instruments, portfolio VaR can be greater than the portfolio market value, and thus greater than 100%.

⁵⁴ A measure of the degree of confidence for a random variable of interest. A confidence interval of X is defined as the probability that, given the underlying distribution of the random variable, the set of possible outcomes lies in a range greater than or equal to a pre-determined value. For example, a confidence level of 95% means that you are 95% confident that the portfolio will be subject to no more than the maximum loss indicated by the VaR computation.

- **Contributors:** Displays a breakdown of the value selected in the VaR Summary section as well as the values for *Marginal VaR*⁵⁵, *Partial VaR*⁵⁶, and *Conditional VaR*⁵⁷. You can click the [+] to display portfolio components.

To analyze VaR values, select a methodology and confidence value in the VaR Summary section. The *Contributors* table updates.

Methodology	95%VaR	97.5%VaR	99%VaR
Monte Carlo Simulation VaR (Stressed)	2.21	2.66	3.29
Historical 1 Year Simulation VaR	2.63	3.27	4.01
Historical 2 Year Simulation VaR	2.18	2.87	3.77
Historical 3 Year Simulation VaR	2.07	2.71	3.76
Parametric VaR (Cheapest)	2.22	2.44	2.14

Name	VaR	Marginal VaR (x100)	Partial VaR	Conditional VaR
Portfolio	2.80			3.55
Utilities	.38	1.53	-.01	.49
Information Technology	2.80	12.34	-.68	3.58
Financials	.54	-12.14	-.12	.80
Health Care	.31	-17.87	-.09	.39
Consumer Staples	.44	-3.23	-.03	.56
Telecommunication Services	.30	1.44	.07	.39
Consumer Discretionary	.65	-59.96	-.12	.84
Industrials	1.49	-1.32	.49	1.74
Materials	.30	1.76	.05	.36
Energy	.61	29.21	-.17	.82

ANALYZING DISTRIBUTION

In the *VaR Distribution* sub-tab, you can see the probability distribution of your portfolio's P&L in graphic and table form, based on the VaR computation (relevant for Monte Carlo and Historical VaR simulations). Options at the bottom of the screen allow you to choose which probability distribution information appears in the P&L distribution charts (Portfolio, Benchmark, and Active data) as well as the data for corresponding levels in the confidence level table.

The *Distribution* sub-tab is divided into two main sections that allow you to quickly update distribution graphics:

⁵⁵ Measures the impact of a one hundred currency unit change in the position within the portfolio. For example, if the portfolio is denominated in U.S. dollars, Marginal VaR is based on a one hundred dollar change.

⁵⁶ Measures the impact of removing an entire position or aggregation (e.g., the entire financial sector) on the overall portfolio VaR. This can be measured in P&L units or in %. If viewed in percent, the partial VaR expressed in P&L is divided by the active/difference portfolio's market value at that particular node.

⁵⁷ Abbreviated as CVaR in the VaR tab. Measures the expected loss in the underlying currency of the portfolio when the confidence level is surpassed. This measure of tail risk is also called Expected Shortfall. For VaR methodologies Monte Carlo and Historical, the average of the P&L generated for each scenario located in the tail of the distribution is used. This can be expressed in P&L and % terms. If expressed in percentage, the conditional VaR in P&L is divided by the active/difference portfolio market value at that node.



- **P&L Distribution Charts:** Displays data for three probability distribution options, including the currently loaded portfolio and benchmark and, depending on your *Unit*⁵⁸ selection, active *P&L*⁵⁹ or return.
- **Confidence Level Table:** Provides a spectrum of VaR scenarios proximal to the selected confidence level, as well as related portfolio, benchmark, and active statistics (e.g., mean, standard deviation). The *Pick Percentile* drop-down menu allows you display different scenarios for a selected percentile (e.g., 2.5%), which appears shaded white.

VAR SIMULATIONS

The *VaR Simulations* sub-tab allows you to sort all Historical or Monte Carlo simulations by scenario ID, percentile, or P&L. All simulations appear in table and chart form.

If Historical VaR is selected and the sort is set-up to rank by scenario ID, you can see the P&L generated going back 1, 2, or 3 years, depending on the VaR method selected in the calculation defaults. For more information on setting your VaR calculation defaults, see *Risk Factor Calculation Defaults*.

You can use the chart's zoom features to narrow your scenario analysis.

⁵⁸ In the VaR and Tracking Error/Volatility tabs, the units to display potential portfolio loss, which may be displayed as either a market value (P&L) or percentage return (Return %).

⁵⁹ The portfolio's current profit or loss position. P&L is calculated as the portfolio's current value – the portfolio's value at the prior market close.



If you sort by the *P&L* column, you can see all scenario level P&L numbers sorted from worst to best performing. With this view, you can get a better sense of the symmetry - or lack of symmetry - in the distribution. P&L is the percentage return or P&L generated on the portfolio for the corresponding scenario ID.

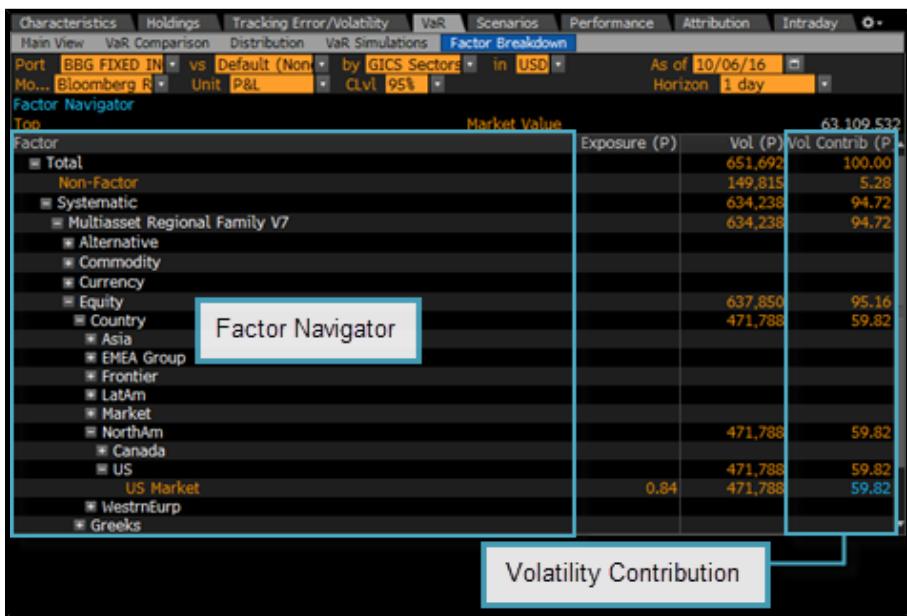
To sort by percentile or P&L, click the P&L column header.



VAR FACTOR BREAKDOWN

The *VaR Factor Breakdown* sub-tab allows you to see all exposures and VaR contribution of individual risk model factors and factor groups.

The *Factor Breakdown* sub-tab is divided into two factor analysis sections:



- **Factor Navigator:** Provides the factor breakdown at the portfolio level. Once you expand the factor categories, you can click a factor name to access the correlation and variance/co-variance matrix providing transparency. For more information on factor transparency, see [Factor Transparency](#). To see a definition of the factor column, position your mouse over column header.
- **Volatility Contribution:** Indicates the percentage of volatility that is coming from the corresponding factor, so you know which factors are worth looking into.

In both sections, you can click the [+] to display more choices.

SCENARIOS TAB

The *Scenarios* tab allows you to stress-test your portfolio to determine impact and which scenarios are best or worst for your portfolio, then drill down into your holdings to see depictions of how holdings perform within a given scenario. When you are analyzing an equity or balanced portfolio, the *Scenarios* tab defaults to displaying predefined equity factor model scenarios, and when you are analyzing a fixed income portfolio, the tab defaults to predefined fixed income full valuation scenarios.

The *Scenarios* tab displays scenarios and analytics relevant to the type of view (fixed income, equity, balanced, and long/short) selected for analyzing your portfolio. The tab is divided into four sub-tabs, which allow you to perform increasingly deeper analysis of your portfolio's performance under different stress scenarios:

- **Main View:** Allows you to see an overview of the relevant factor model or full valuation scenarios for your portfolio. You can customize the list of Bloomberg scenarios that appears, or create new scenarios to further stress and investigate your portfolio. For information on scenario types, see [Stress Scenario Types](#). For information on customizing the list of scenarios, see [Adding Scenarios](#).
- **Scenario Summary:** Allows you to see your portfolio's summary values across the default set of factor model or full valuation scenarios. Depending on the scenario type, you can analyze summary values for P&L, P&L%, stressed market value, duration, and convexity. For example, only full valuation scenario methodology for fixed income portfolios generates duration and convexity. For more information, see [Scenario Summary](#).

- **Best & Worst:** Displays the best/worst scenarios as well as the best/worst securities and groups in your portfolio across all scenarios. For more information, see [Best & Worst](#).
- **Scenario Navigator:** Displays a matrix of all scenarios and their impact on your portfolio's P&L. For more information, see [Scenario Navigator](#).

STRESS SCENARIO TYPES

The *Scenarios Main View* sub-tab displays a specific set of Bloomberg scenarios based on the type of portfolio view you are using (equity, fixed income, balanced, or long/short). For example, when you are analyzing an equity, balanced, or equity long/short portfolio, you can analyze the impact on your portfolio of default factor model scenarios such as the Greek financial crisis of 2015, the Japan earthquake in March 2011, and the Libya Oil shock of February 2011. Alternatively, when you're analyzing a fixed income portfolio, the full valuation scenarios that appear on the *Main View* sub-tab include 100 bps and 50 bps shifts curve shifts, for example.

Equity or Balanced Portfolios

By default, twelve pre-selected *factor model*⁶⁰ scenarios appear on the Scenarios tab for equity and balanced portfolios. Factor model scenarios allow you to evaluate a scenario by applying changes to market variables based on a specific historical period. From the *Scen* field, you can select a specific scenario to drill into the details of that scenario, or select **[Edit / Create New...]** to add scenarios to your view. For details on those scenarios, see [Predefined Equity/Balanced Scenarios](#).

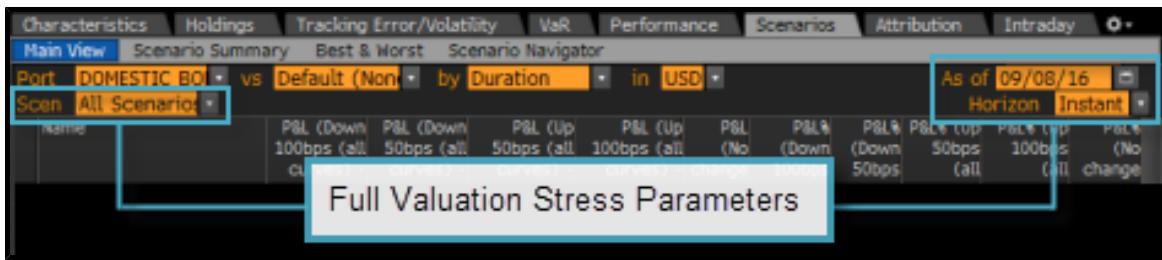
|Hint| For information on creating factor model scenarios in the *Scenario Manager*, see [Equity/Balanced Portfolio Scenarios](#).

Fixed Income Portfolios

By default, seven pre-selected *full valuation*⁶¹ scenarios appear on the Scenarios tab for fixed income portfolios. The pre-selected scenarios use instantaneous shocks relevant to your portfolio, but you can update the *Horizon* and *As Of* fields to customize your stress parameters. From the *Scen* field, you can select a specific scenario to drill into the details of that scenario, or select **[Edit / Create New...]** to add scenarios to your view. For descriptions of the pre-selected full valuation scenarios, see [Predefined Fixed Income Scenarios](#).

⁶⁰ Allows you to shock your portfolio by shifting macroeconomic factors, interest rates, foreign exchange rates, and model factors in a scenario analysis.

⁶¹ Allows you to evaluate your portfolio on a forward horizon date by shifting interest rates, option adjusted spreads, credit curves, and many more variables in a scenario analysis.



Full valuation scenarios allow you to evaluate a scenario on a forward horizon date, which simulates moving the valuation date to a future date and revaluing the portfolio as if that future date is today. By default, the horizon is 0 days, i.e., instantaneous. This excludes any corporate actions occurring between now and any future selected horizon timeframe.

[Hint] For information on creating full valuation scenarios in the *Scenario Manager*, see [Fixed Income Portfolio Scenarios](#).

Custom Scenarios

If you want to use your own hypothetical or historical scenario, you must first create the scenario using the *Scenario Manager*, which can be accessed from the *Scen* field. The following table describes the four types of **factor model** scenarios you can create.

Factor model scenario	Allows you to
Use Historical Factor Returns From	Replay a historical event by applying changes in market variables from an explicit historical period that you specify. Historical data is available from June 2001. For information on supported date ranges, see Historical Returns & Scenario Date Ranges .
No Propagation	Define explicit shocks to all the changes in market variables that you want to see. For more information, see Equity/Balanced Portfolio Scenarios .
Use Correlations Defined with Bloomberg Factor Models	Specify some changes in market variables, then propagate these changes to other market variables based on the correlations among the historical returns of the variables.
Use Correlations Defined by Date Range	Specify some change in market variables, then propagate these changes to other market variables based on the correlations among the historical returns of the variables. Historical returns are based on a custom date range you can define when setting up your scenario. In general, historical data is available from June 2001. For details on supported date ranges, see Historical Returns & Scenario Date Ranges . For details specific to scenarios with correlations defined by date range, see Factor Model Propagation .

If you choose to create a custom full valuation scenario, you can do this in the *Cross-Asset Scenario Manager* (SHOC) function. For information, see the the [SHOC Help Page](#).

SCENARIO SUMMARY

The *Scenario Summary* sub-tab displays the relevant summary values for your portfolio using the factor model or full valuation methodology scenarios. Depending on the type of portfolio you are analyzing (e.g., equity, fixed income, balanced, or

long/short), the sub-tab calculates the portfolio's profit and loss, P&L percentage, stressed market value, cash flow, option adjusted spread, duration, or convexity across each scenario.

The *Scenario Summary* sub-tab is divided into two scenario analysis sections:



- Scenario Summary:** Displays the list of scenarios selected in the Set field and their associated summary values. If the scenario uses the factor model methodology, the summary values include *P&L*, *P&L %*, and *Stress MV*. If the scenario uses the full valuation methodology, the summary values include *P&L*, *P&L %*, *Stress MV*, *Cashflow*, *Option Adjusted Spread (OAS)*, *Duration*, and *Convexity*. For descriptions of each field, see *Definitions*.
- Scenario Chart:** Displays the given scenarios' *P&L %* in a chart. You can annotate the chart for further analysis. The chart is not affected if you sort the data in the Scenarios Summary section.

BEST & WORST

The *Scenarios Best & Worst* sub-tab displays the best/worst scenarios as well as the best/worst securities and groups in your portfolio across all scenarios. The filters allow you to conduct deeper stress analysis in the Best & Worst table:

The screenshot shows the 'Best/Worst Filters' sub-tab of the Portfolio & Risk Analytics interface. The top navigation bar includes tabs for Error/Volatility, VaR, Scenarios, Performance, Attribution, Intraday, and a gear icon. Below the tabs, filters are set to Port: EUROPEAN EQ, vs: Default (MIXE), by: Market Cap, in: EUR, and As of: 07/29/15. The main table displays scenarios grouped by 'Position Worst' or 'Level Market Cap'. The table columns include Scenario, Position, P&L (+/-), P&L % (+/-), Stress MV (+/-), and P&L % Chart (+/-). Two specific sections are highlighted with boxes: 'Scenarios / Positions' covers the first few rows, and 'Positions Details' covers the last few rows.

Scenario	Worst Position	P&L (+/-)	P&L % (+/-)	Stress MV (+/-)	P&L % Chart (+/-)
Greece Financial Crisis - 2015	Large Cap	-7,515,613	1.39	184,430,496	
Equity Markets Rebound in 2009	Small Cap	1,411,350	36.17	5,313,583	
Debt Ceiling Crisis & Downgrade in 2011	Large Cap	-26,167,788	1.11	165,778,320	
Oil Prices Drop - May 2010	Large Cap	-7,044,202	.78	184,901,904	
EUR down 10% vs. USD	Small Cap	69,770	1.79	3,972,004	
Russian Financial Crisis - 2008	Large Cap	-20,051,806	1.93	171,894,304	
Lehman Default - 2008	Large Cap	-17,921,564	1.13	174,024,544	
EUR up 10% vs. USD	Large Cap	-8,351,614			
Japan Earthquake - 2011	Large Cap	-7,919,403			
Libya Oil Shock - 2011	Large Cap	-5,526,177			
Equities down 10%	Large Cap	-13,342,825	1.47	178,003,280	
Equities up 10%	Small Cap	368,557	9.44	4,270,791	

- Best/Worst Filters:** Allows you to choose the filter in the *Position* field and compare the best or worst performing sectors or securities against the applied *Set*, which you select in the *Level* field.
- Scenarios / Positions:** Displays the list of scenarios selected in the *Set* field and the associated best or worst positions.
- Positions Details:** Provides an in-depth view into the best or worst performing aggregation or security across each of the scenarios in your set. This allows you to quickly identify trends and spot securities that may consistently underperform, given the variety of scenarios in your set.

SCENARIO NAVIGATOR

The *Scenario Navigator* sub-tab displays a matrix of all scenarios and their impact on your portfolio's P&L. The sub-tab is divided into two main sections that provide the portfolio impact at a quick glance:

The screenshot shows the 'Scenario Navigator' sub-tab of the Portfolio & Risk Analytics interface. The top navigation bar includes tabs for Holdings, Intraday, VaR, Characteristics, Attribution, Performance, Tracking Error/Volatility, Scenarios, and a gear icon. Below the tabs, filters are set to Port: EUROPEAN EQ, vs: Default (MIXE), by: GICS Sectors, in: EUR, and As of: 07/30/15. The interface is divided into two main sections: 'Portfolio Navigator' on the left and 'Scenario Set Navigator' on the right. The 'Portfolio Navigator' section shows a tree view of security categories like Top, Consumer Discretionary, Consumer Staples, Industrials, Information Technology, Materials, Telecommunication Service, and Utilities. The 'Scenario Set Navigator' section shows a table of scenarios with columns for Scenario, P&L (+/-), P&L % (+/-), and Stress MV (+/-). Specific scenarios highlighted with boxes include 'Equity Markets Rebound in 2009' and 'EUR down 10% vs. USD'.

Scenario	P&L (+/-)	P&L % (+/-)	Stress MV (+/-)
Equity Markets Rebound in 2009	48,766,352	-8.44	48,766,352
Equities up 10%	18,904,042	-1.03	18,904,042
EUR up 10% vs. USD	-9,497,809	-.73	-9,497,809
Japan Earthquake - 2011			-7,321,100
Libya Oil Shock - 2011			-5,054,174
EUR down 10% vs. USD			9,497,809
Oil Prices Drop - May 2010	-8,109,580	.78	-8,109,580
Equities down 10%	-18,904,042	1.03	-18,904,042
Lehman Default - 2008	-20,915,948	1.06	-20,915,948
Debt Ceiling Crisis & Downgrade in 2011	-30,984,086	1.17	-30,984,086
Greece Financial Crisis - 2015	-6,389,048	1.26	-6,389,048
Russian Financial Crisis - 2008	-25,093,000	1.99	-25,093,000

- **Portfolio Navigator:** Provides a sector breakdown of your portfolio, reflecting the impact of the selected scenario. When you choose a scenario from the Scenario Set Navigator, the Portfolio Navigator section calculates the impact of the scenario on the P&L attributed to each sector represented in your portfolio.
- **Scenario Set Navigator:** Displays the scenario breakdown at the portfolio level (displayed immediately below the Scenario Set Navigator text; e.g., Top). You can select a value in the table to see its portfolio breakdown. The *Market Value* displays the market value of the portfolio at the selected level.

Example: In the image above, we can see that, stressed against the Greek Financial Crisis of 2010, the *P&L*⁶² for the portfolio on the whole increased by 1,780 points, thanks mostly to financial holdings. On the whole, however, the industrial holdings in the portfolio declined by over 3,500 points in the face of a Greek economic calamity.

ADDING SCENARIOS

You can customize the list of scenarios that appear by default for equity/balanced portfolios or fixed income portfolios.

[Hint] For descriptions of PORT's default equity/balanced scenarios, see *Predefined Equity/Balanced Scenarios*. For descriptions of PORT's default fixed income scenarios, see *Predefined Fixed Income Scenarios*.

To customize the scenarios list:

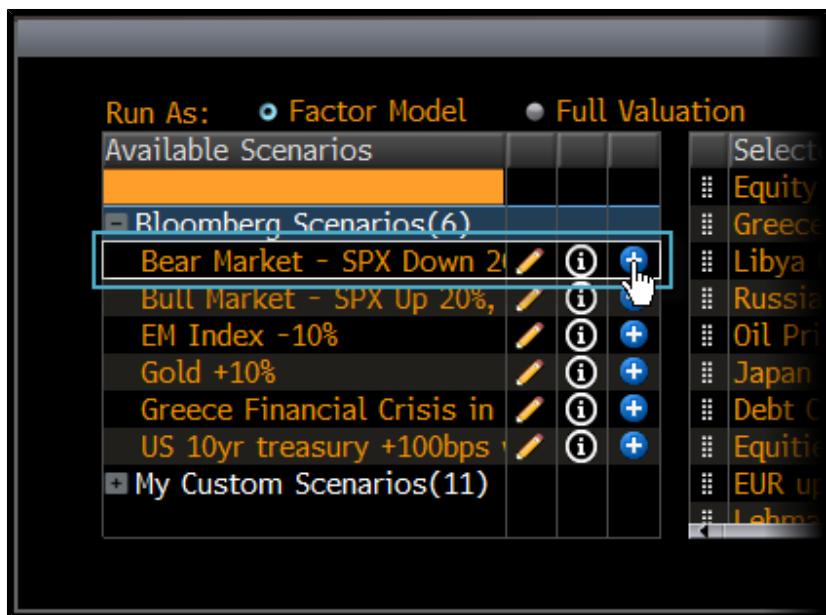
1. From the *Scen* drop-down menu on the *Scenarios* tab, select [**Edit / Create New...**].



The *Select Scenario* window appears. Note that the *Run As:* field is set to *Factor Model* or *Full Valuation*, depending on the type of portfolio you are analyzing.

2. Browse for the scenarios you want to add to the *Selected Scenarios*, then click the add icon next to the scenario.

⁶² The portfolio's current profit or loss position. *P&L* is calculated as the portfolio's current value – the portfolio's value at the prior market close.



The scenario is added to the Selected Scenarios section on the right.

3. If you want to rearrange the order of the scenarios, drag and drop the icon to the left of the scenario to the rearranged order.



4. Click the **Save & Run** button.

The updated scenarios run on your loaded portfolio and the scenario columns appear in the rearranged order.

EQUITY/BALANCED PORTFOLIO SCENARIOS

When you are analyzing an equity or balanced portfolio in PORT, the default scenarios on the *Scenarios* tab are factor model scenarios, which are the most relevant scenario use case for equity portfolios. You can create a new factor model scenario or edit existing scenarios on the *Scenario Manager* screen.

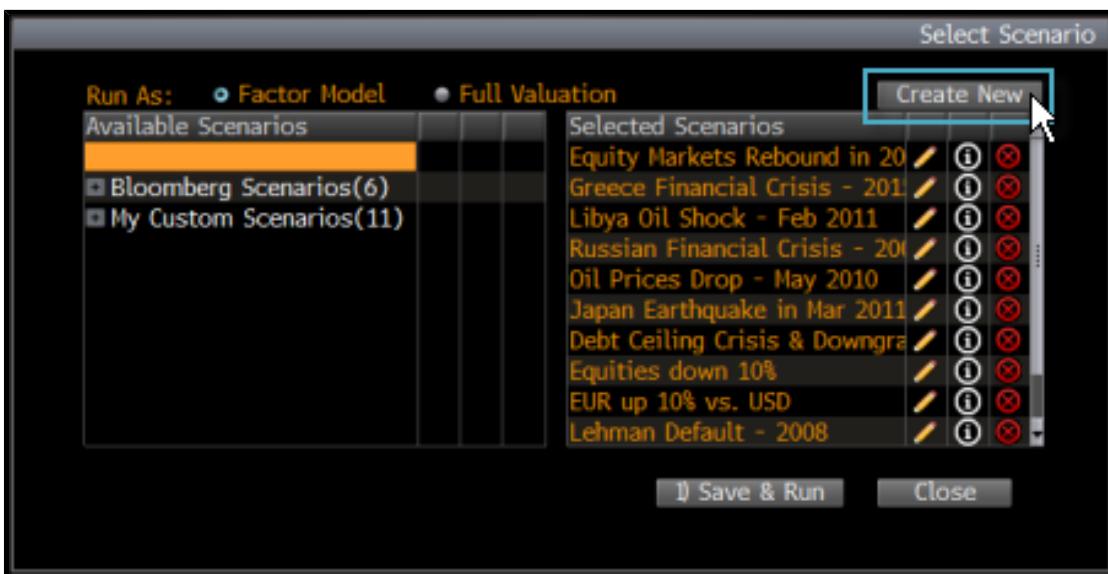
To create or edit an equity factor model scenario:

- With an equity or balanced portfolio loaded in PORT, from the *Scen* drop-down menu on the *Scenarios* tab, select [**Edit / Create New...**].



The Select Scenario window appears. Note that the Run As: field is set to **Factor Model** by default. If you want to run a full valuation scenario on the equity or balanced portfolio, update the Run As field.

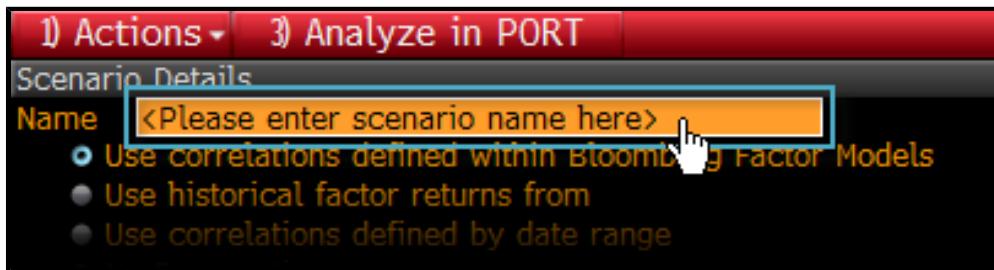
- Click the **Create New** button.



Note: If you want to customize an existing scenario, click the pencil icon to the right of the scenario name in the Available Scenarios or Selected Scenarios section.

The Scenario Manager(Factor Model) screen appears.

- In the Name field, enter a name for your scenario.



Note: If you want to add notes or a description of the scenario, select the *Properties* button and complete the *Notes* field, then click the **Save** button.

- Choose a *propagation*⁶³ option for your equity scenario:



- Use correlations defined within Bloomberg Factor Models:** Specify a propagation technique based on the same covariance matrix that is used to calculate current risk statistics, like tracking error and VaR. This covariance matrix changes over time, so the shocks applied to particular factors change as well.
- Use historical factor returns from:** Apply changes in market variables from an explicit historical period. Historical data is available from 2000.
- Use correlations defined by date range:** Keep the shocks applied to particular factors fixed over time and/or model correlations from a particular historical period (e.g., a market crisis).
- No Propagation:** Indicate that only the variables you explicitly stress will move. If you select this propagation option, the stresses you define to auxiliary (macro) variables will have no impact.

- If you want to stress interest rates, select the **IR** tab, then customize the swap, treasury, or muni curve shifts:

⁶³ Allows you to create explicit factor model scenarios (typically intended for equity portfolios) based on other variables, which may not be directly used in re-pricing the securities in your portfolio. For example, you may want to know how your portfolio might move if inflation goes up, based on the relationship between inflation and the factors that drive your portfolio.

Note: Propagation is not available with historical or full valuation scenarios.

11 Summary	12 FactorReturn	13 IR	14 FX	15 ModelFactor	16 MacroFactor
21 Swap Curve	22 Treasury Curve	23 Muni Curve			
Swap Curves	Shift Entity	Mode	Type	Shift	Description
CAD	EUR	Absolute	Propagate 5Y	0	Increases b...
EUR	GBP	Absolute	Propagate 5Y	0	Increases b...
GBP	USD	Absolute	Propagate 5Y	0	Increases b...
JPY	AUD	Absolute	Propagate 5Y	0	Increases b...
SEK					
USD					
AUD					
BRL					
CNY					
TTD					

|Hint| For complete details on using the **IR** tab in SHOC, click [here](#).

6. If you want to stress exchange rates relative to the base currency, select the **FX** tab, then update the currency shift options:

11 Summary	12 FactorReturn	13 IR	14 FX	15 ModelFactor	16 MacroFactor
21 Fx Rate					
Ccy1	EUR	Ccy1	Ccy2	Mode	Shift Description
Ccy2	USD	CAD	USD	Percent	5 CAD strengthens 5% t...
		EUR	USD	Percent	-5 EUR weakens -5% to ...

|Hint| For complete details on setting up FX rate shifts in SHOC, click [here](#).

7. If you want to stress model factors, select the **ModelFactor** tab, then update the factors you want to override:

11 Summary	12 FactorReturn	13 IR	14 FX	15 ModelFactor	16 MacroFactor
All Factors	Risk Factors	% Change			
Commodity	Commodity				
Agri	Crude				
Coal	Ref				
Crude	Crude				
Ref	Base Crude Bend	10			
Crude	Base Crude Lvl	-10			
Base Crude Bend	Base Crude Near	10			
Base Crude Lvl	Base Crude Slp	-10			
Base Crude Near					
Base Crude Slp					
Crude Gamma					
Crude Mass					

- a) In the *All Factors* column, select the individual market factor(s) for which you want to override historically observed returns, then click the **>>** button.

Note: You can filter the model factors by keyword by entering the term(s) in the field below the *All Factors* column heading and pressing <GO>.

The factors are added to the *Risk Factors* column, and the corresponding % Change fields activate.

- b) In the % Change field, enter the percentage change by which the risk factor should move.

Note: Shifts should be entered in percentage terms. For example, enter -10 to shift a factor down by 10%. Equivalently, this sets the instantaneous arithmetic return on the factor to -10%. Changes made to higher aggregate levels apply to all factors within that category. For example, a percentage change applied to "Commodity" also applies to each factor (commodity) under that category.

Note: If you want to remove a factor from your scenario, click the item in the *Risk Factors* column (your selection is shaded in blue), then click the << button.

8. If you want to stress macro factors, select the **MacroFactor** tab, then update the factor fields:

11) Summary	12) FactorReturn	13) IR	14) FX	15) ModelFactor	16) MacroFactor
All Factors				Risk Factors	% Change
Commodity				Commodity	
Crude				Crude	
Ref				Ref	
Crude				Crude	
Oil				Oil	10
Metal				Metal	
Mtl Base				Mtl Prec	
Mtl Prec				Gold	10
Gold				Nat Gas	
Nat Gas				Natural Gas	10
Natural Gas					
Indices					
Rates					

- a) In the *All Factors* column, browse for the individual macro factor(s) you want to stress, then click the >> button. You can select individual factors (e.g., **Gold**) or all factors within an aggregate category (e.g., **Commodity**).

Note: You can filter the macro factors by keyword by entering the term(s) in the field below the *All Factors* column heading and pressing <GO>.

The factors are added to the *Risk Factors* column, and the corresponding % Change fields activate.

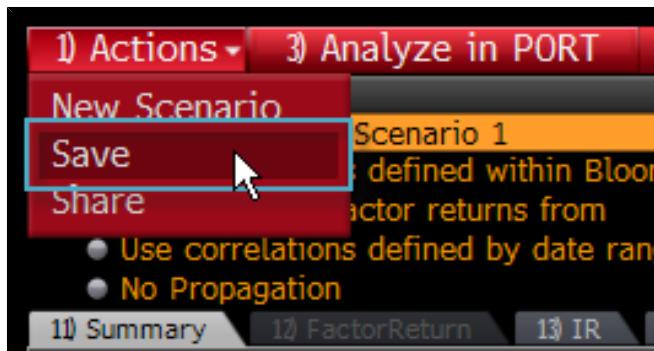
- b) In the % Change field, enter the percentage change by which the risk factor should move.

Note: Entries in the % Change field at higher aggregate levels apply to all factors within that category. For example, a percentage change applied to "Commodity" also applies to each factor (commodity) under that category.

Note: If you want to remove a factor from your scenario, click the item in the *Risk Factors* column (your selection is shaded in blue), then click the << button.

9. To review the parameters of your factor model scenario, return to the *Summary* tab.

10. To save the scenario, from the toolbar, select **Actions > Save**.



The Scenario Details window appears.

11. Set up your scenario details:

- If you want to share the scenario with another user or SPDL group, enter the user or group name in the *SPDL Sharing* field.
- If you want to add notes to the scenario, enter the text in the *Notes* field.

12. Click the **Save** button.



The scenario is saved, and you can now access it from the Select Scenario window in PORT.

For information on editing, copying, and deleting scenarios, see [Editing Scenarios](#), [Copying Scenarios](#), and [Deleting Scenarios](#).

Note: Unlike full valuation scenarios, you can only create factor model scenarios when launching the Scenario Manager screen from PORT. If you want to create a full valuation scenario, you can launch the Scenario Manager screen from PORT or by entering SHOC <GO>.

FIXED INCOME PORTFOLIO SCENARIOS

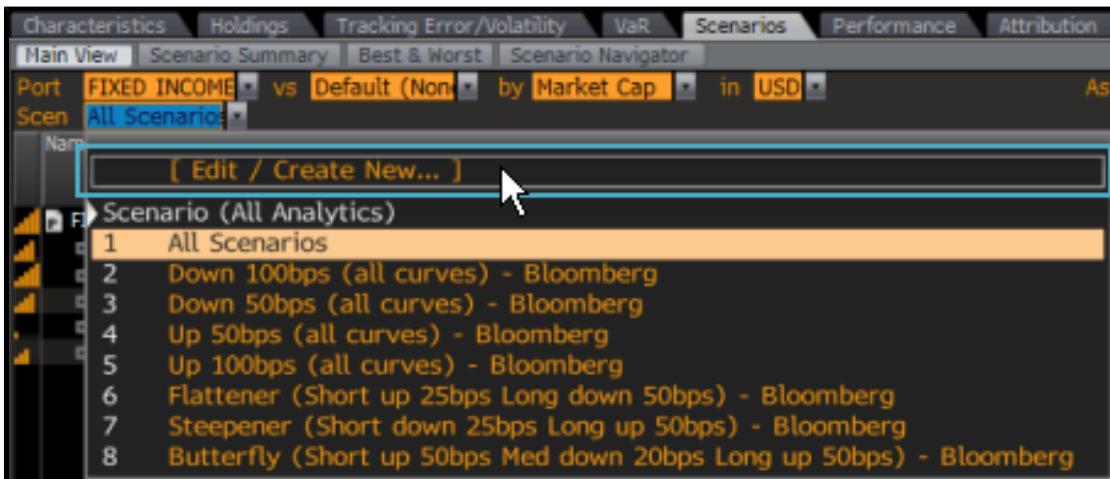
When you are analyzing a fixed income portfolio in PORT, the default scenarios on the *Scenarios* tab are full valuation scenarios, which are the most relevant scenario use case for fixed income portfolios. A full valuation scenario evaluates a portfolio on a forward horizon date, so you can assess potential performance over a given future timeframe. In essence, horizon analysis (i.e., time shift) simulates moving the valuation date to a future date, and then revalues the portfolio on that future date.

In a full valuation scenario, spreads are calculated for instruments in the portfolio, then the underlying curve is shifted and the instrument is re-priced. The shifts within a full valuation scenario are considered independent from each other. If one parameter is shifted, the rest of the market data remains constant unless specified otherwise within the full valuation global settings.

Note: Full valuation only works for instruments that can be priced using a model.

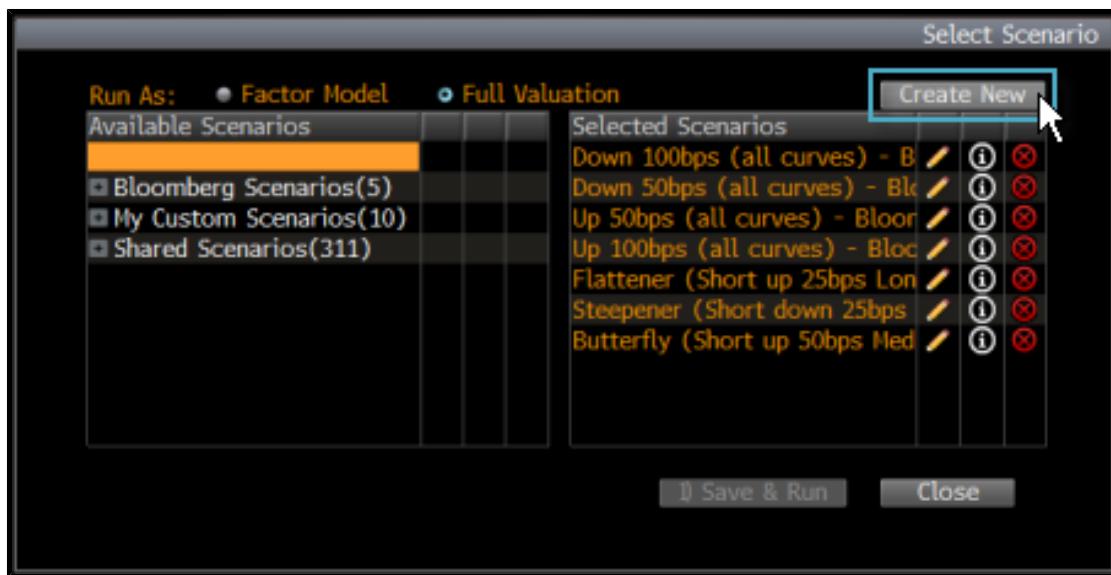
To create or edit a fixed income full valuation scenario:

- With a fixed income portfolio loaded in PORT, from the *Scen* drop-down menu on the *Scenarios* tab, select **[Edit / Create New...]**.



The *Select Scenario* window appears. Note that the *Run As:* field is set to **Full Valuation** by default. If you want to run a factor model scenario on the fixed income portfolio, update the *Run As* field.

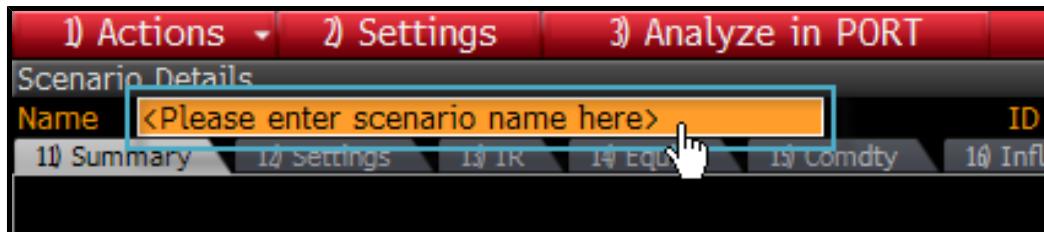
- Click the **Create New** button.



Note: If you want to customize an existing scenario, click the pencil icon to the right of the scenario name in the *Available Scenarios* or *Selected Scenarios* section.

The Cross-Asset Scenario Manager (SHOC) function appears.

3. In the *Name* field, enter a name for your scenario.



Note: If you want to add notes or a description of the scenario, select the *Properties* button and complete the *Notes* field, then click the **Save** button.

4. On the *Settings* tab, customize the default full valuation settings. For information on managing your SHOC settings, click

[here](#)

11) Summary 12) Settings 13) IR 14) Equity 15) Comdty 16) Inflation

Interest Rate Settings

- Swap Curve Path Progression
- Swap Curve Evolution to Forward
- Floor Interest Rates to Zero
- Shift Cube Underlying Curves
- Apply Default Curve Template
- Default Curve Template

Equity Settings

- Apply Index Beta Propagation
- Override Default Beta Index
- Equity Beta Type

Credit Settings

- Credit Rating Agency

Equity, FX and Commodity Vol Shift Settings

- Vol Stickiness

Shift Today
No
Yes
No
No
Edit

Yes
Raw Beta

Fitch

Stick to Strike

5. Specify the shifts you want to apply from the available tabs:

1) Actions 2) Settings 3) Analyze in PORT Cross-Asset !

Scenario Details

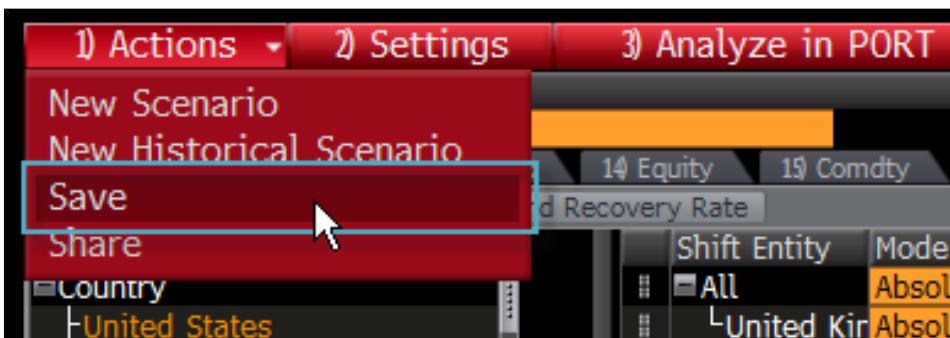
Name: Fixed Income Scenario 1

11) Summary 12) Settings 13) IR 14) Equity 15) Comdty 16) Inflation 17) Credit 18) FX

- **IR:** Explore the impact of recovery rate changes on credit default swap and convertible bond valuation. For information on the *IR* tab, click [here](#) .
- **Equity:** Shift underlying price, volatility, and dividend yield for equity instruments. For information on the *Equity* tab, click [here](#) .
- **Comdty:** Shift the underlying future price and implied volatility for commodities. For information on the *Comdty* tab, click [here](#) .
- **Inflation:** Shift the inflation swap curve rates available in the *Inflation Bond/Swap Settings* (SWIL) function. For information on the *Inflation* tab, click [here](#) .
- **Credit:** Apply credit shifts to your scenario by country, sector, issuer, rating, or individual CDS curve. For information on the *Credit* tab, click [here](#) .
- **FX:** Shift foreign exchange spot rates and volatilities. For information on the *FX* tab, click [here](#) .

6. To review the parameters of your full valuation scenario, return to the *Summary* tab.

7. To save the scenario, from the toolbar, select **Actions > Save**.

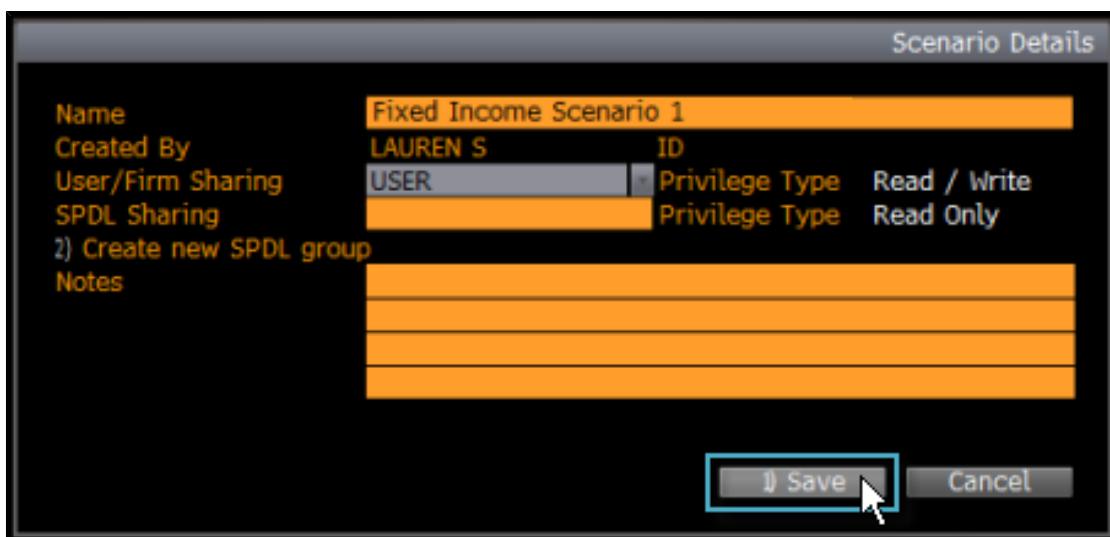


The Scenario Details window appears.

8. Set up your scenario details:

- If you want to share the scenario with another user or SPDL group, enter the user or group name in the *SPDL Sharing* field.
- If you want to add notes to the scenario, enter the text in the *Notes* field.

9. Click the **Save** button.



The scenario saves, and you can now access it from the Select Scenario window in PORT.

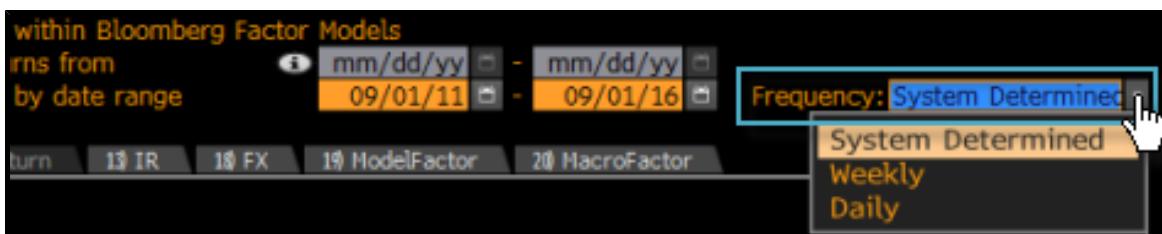
For information on editing, copying, and deleting scenarios, see [Editing Scenarios](#), [Copying Scenarios](#), and [Deleting Scenarios](#).

FACTOR MODEL PROPAGATION

When creating a factor model scenario with propagation, you can choose whether the correlations used are defined within the Bloomberg Factor Model or from factor returns within a user-specified date range.



When you create a scenario using correlations defined by a date range, you can choose a specific frequency for the data or permit Bloomberg to determine the best frequency for the specified date range (i.e., *System Determined*).



In order for correlations to be statistically meaningful, a minimum of 12 time periods -- weeks or weekdays -- is required within the date range.

For example, if the start date is April 1, 2016 and the end date is April 13, 2016, and frequency is daily, the scenario will be unusable because, while there are 12 calendar days in this range, there are only 9 weekdays. If frequency is set to "System Determined," and there are fewer than 12 weeks in the user-specified range, Bloomberg will try using daily returns instead, as long as the start date is after the daily returns availability date.

HISTORICAL RETURNS & SCENARIO DATE RANGES

Historical returns are available in two calculation frequencies: daily and weekly. Weekly data is recommended in general, due to their lower noise. However, using weekly data constrains the start and end dates to be Wednesdays; using daily data allows start and end dates to fall on any weekday, as long as it is within the availability range.

If you specify a start or end date that falls within weekly-only data availability, and those dates do not fall on a Wednesday, the system will shrink the date range so the timeframe starts and ends on a Wednesday. For example, if the specified start and end dates are Thursdays, Bloomberg moves the official start date forward to the next Wednesday and the official end date to the previous Wednesday. When this occurs, you will be notified with a warning message.

Historical data for most models is available starting January 12, 2000, as weekly returns. Daily returns are available for all models starting June 30, 2008. Some sub-models, notably CDS, CHF Fixed Income, and Commodities, have the earliest availability date later than January 12, 2000, which would make scenarios that have exposure to those asset/instrument classes potentially less useful prior to July 2008. Please click the info button in the Scenario Manager for details.

PERFORMANCE TAB

The *Performance* tab allows you to view the historical performance of your portfolio with multiple total return periods as of a specific date, such as 1-day return, 1-month return, and YTD return. You can also analyze historical risk/return behavior with measures, including standard deviation, beta, and tracking error.

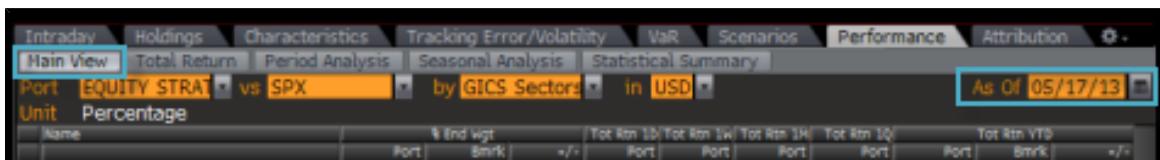
The *Performance* tab is divided into five sub-tabs, which allow you to perform more specific performance analysis:

- **Main View:** Displays a breakdown of your portfolio's historical performance and realized risk by securities and groups. For more information, see [Performance Analysis by Date](#).
- **Total Return:** Displays charts of cumulative, absolute, and relative performance data of your portfolio over an historical timeframe. For more information, see [Total Return](#).
- **Period Analysis:** Displays the frequency and persistence of the positive/negative return behavior of the fund over a selected timeframe. For more information, see [Period Analysis](#).
- **Seasonal Analysis:** Displays the monthly absolute or relative performance return of the portfolio over an historical timeframe. For more information, see [Seasonal Analysis](#).
- **Statistical Summary:** Displays compilations of return, risk, and risk/return calculations for your portfolio and benchmark (if applicable) across various time periods. For more information, see [Statistical Summary](#).

You can analyze historical returns using the holdings-based or transactions-based method. For more information on historical returns methodologies, see [Historical Returns](#).

PERFORMANCE ANALYSIS BY DATE

The *Main View* sub-tab displays a breakdown of your portfolio historical performance and realized risk by securities and groups. You can choose a date for which you want to see data by updating the *As Of* field.



To display definitions of the performance valuation, position your mouse over column headers.

You can add P&L indicators to your *Main View* sub-tab analysis, so you can analyze your portfolio's *profit & loss*⁶⁴ during the analysis period. For information on adding field indicators to the portfolio display, see [Adding/Removing Fields](#).

Note: You can access previous calculations of the *Main View* sub-tab in the *Stored Results* section. For more information on analyzing the results monitor, see [Analytic Results Monitor](#).

TOTAL RETURN

In the *Performance Total Return* sub-tab, you can see two charts of cumulative, absolute, and relative performance data of your portfolio over an historical timeframe.

If you have a benchmark loaded, two charts appear. To analyze performance total return data, update the timeframe options (*Time*⁶⁵, *Freq*⁶⁶, and the date range) and the *Total Return %*⁶⁷ and *Value*⁶⁸ fields. The top chart displays both portfolio and benchmark performance data, while the bottom chart displays portfolio and benchmark relative performance data.

⁶⁴ The estimated amount earned or lost on positions held in the portfolio over the stated timeframe, as of the date of analysis. P&L is calculated using end of day prices and is expressed in the portfolio currency.

⁶⁵ In trend analysis mode, the timeframe for the analysis (e.g., month-to-date [MTD] or year-to-date [YTD]).



Note: If you do not have a benchmark loaded, a single chart of your portfolio's performance appears.

PERIOD ANALYSIS

The *Performance Period Analysis* sub-tab displays the frequency and persistence of the positive/negative return behavior of the fund over a selected timeframe. You can analyze either absolute or relative total return data.

The *Period Analysis* sub-tab is divided into the following analytic sections:

⁶⁶ Allows you to choose the frequency for trend and period analyses (Daily, Weekly, Monthly, etc.).

⁶⁷ The total return over the stated timeframe as of the date of analysis, expressed as a percentage.

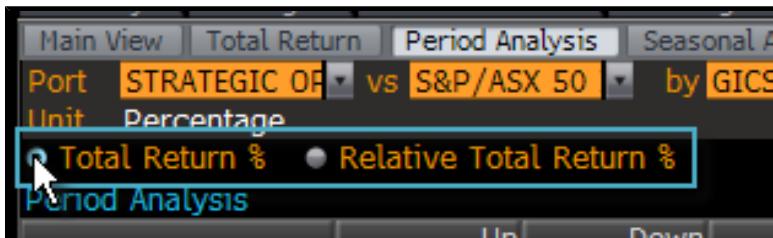
⁶⁸ The value of specific components. In various tables, this is the percentage weight of the security in the portfolio.

In the *Tracking Error/Volatility Exposures* sub-tab, a composite value metric that differentiates between "rich" and "cheap" stocks. Bloomberg combines fundamental and analyst consensus data for this factor.



- **Period Analysis:** Displays the frequency and persistence of the positive/negative return behavior of the fund over the selected timeframe.
- **Best-Worst:** Displays the three best/worst performance return(s) and corresponding date(s) of occurrence for the fund over the selected timeframe.
- **Period Chart:** Displays your total return or relative total return data in graphical form.

To analyze period analysis data, update the *Time*⁶⁹ field and select whether you want to evaluate the *Total Return %*⁷⁰ or the *Relative Total Return %*⁷¹.

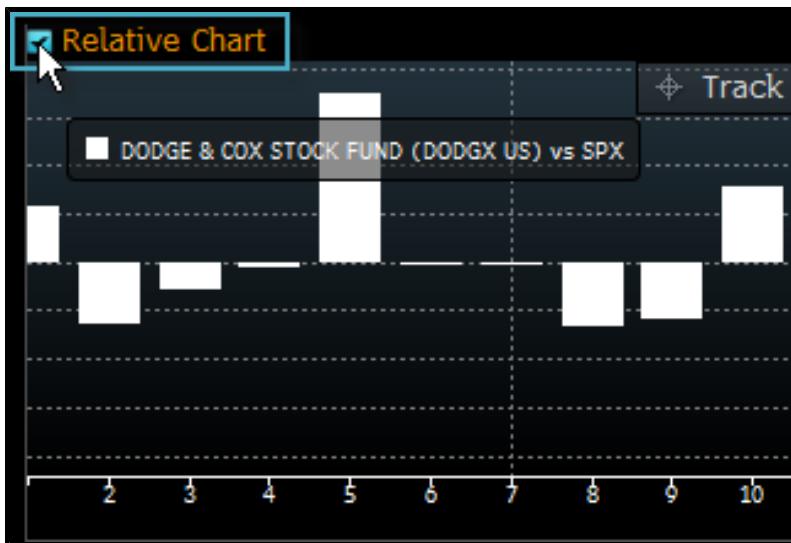


Note: If you select *Relative Total Return*, you can select the *Relative Chart* option above the total return chart to enhance the relative total return data.

⁶⁹ In trend analysis mode, the timeframe for the analysis (e.g., month-to-date [MTD] or year-to-date [YTD]).

⁷⁰ The total return over the stated timeframe as of the date of analysis, expressed as a percentage.

⁷¹ Portfolio Total Return - Benchmark Total Return over the stated timeframe, expressed as a percentage.



Depending on whether you are analyzing total return or relative total return, the columns that appear in the *Period Analysis* and *Best-Worst* tables vary. The tables below list the fields and their corresponding definitions.

Period Analysis: If you select *Total Return*, the following columns may appear:

Field	Definition
Up	Represents the periods where the fund experienced positive returns.
Down	Represents the periods where the fund experienced negative returns.
Total	Displays the total for each analytic during the fund's up and down periods.

If you select *Relative Total Return*, the following columns may appear:

Field	Definition
Winning	The positive returns of the fund against the index benchmark.
Losing	The negative returns of the fund against the index benchmark.
Coherent	The instances when the fund and the index benchmark both return positive or negative.
Incoherent	The instances when the fund returns negative and the index benchmark returns positive and vice versa.

Best-Worst: If you select *Total Return*, the following columns appear:

Field	Definition
Performance	The best and worst three total return values for the fund.

Field	Definition
Date	The date of the best and worst three total return values for the fund.

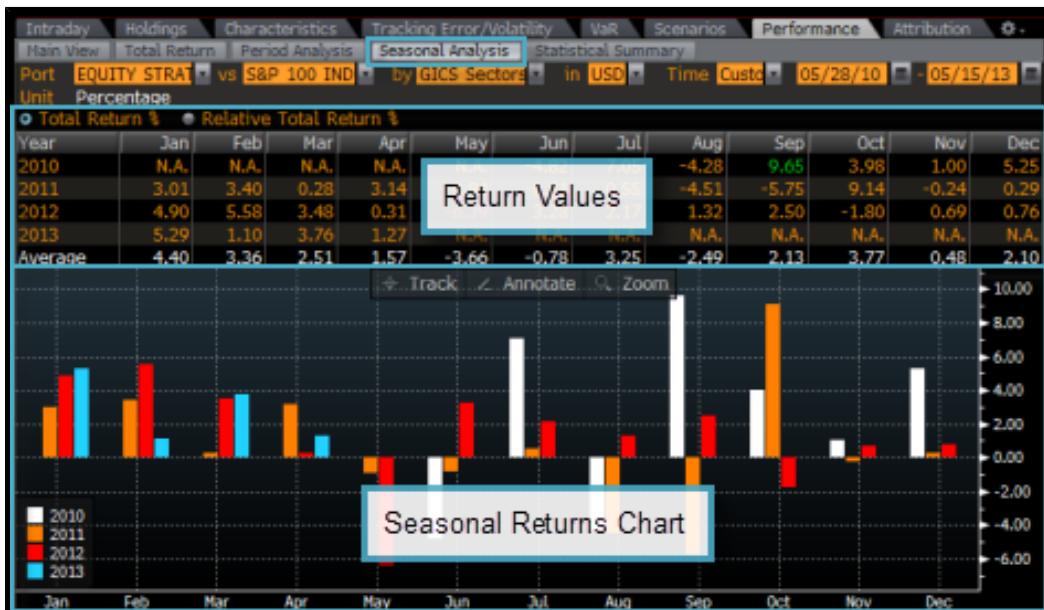
If you select *Relative Total Return*, the following columns appear:

Field	Definition
Difference	Represents the top three dates on which the portfolio's return outperformed the benchmark's return and the bottom three dates on which the portfolio's return underperformed the benchmark's return.
Portfolio Perf	The total return of the portfolio on the three top and bottom dates for portfolio versus benchmark analysis.
Bench Perf	The total return of the benchmark on the three top and bottom dates for portfolio versus benchmark analysis.
Date	The date of the top and bottom three comparisons between the portfolio and benchmark values.

SEASONAL ANALYSIS

The *Performance Seasonal Analysis* sub-tab displays the monthly absolute or relative performance return of the portfolio over a selected timeframe.

The *Seasonal Analysis* sub-tab is divided into two main sections that display seasonal returns at a glance:



- Return Values:** Provides return values, broken down by years and months. Three colors appear in the data table:

- Red: The minimum (lowest) number for the period under analysis.
- Green: The maximum (highest) number for the period under analysis.
- White: Averages of all values in that month.

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2009	N.A.	-7.38	6.05	7.94	1.30	-0.54	7.92	2.79	1.13	0.01	0.98	1.91
2010	-3.76	1.93	6.10	1.47	-8.04	-4.79	7.00	-4.25	9.59	1.96	0.99	5.22
2011	2.99	3.38	0.49	3.57	-0.76	-0.89	-0.33	-4.42	-5.88	9.80	0.01	N.A.
Average	-0.38	-0.69	4.21	4.33	-1.17	-2.07	4.86	-1.96	2.74	4.52	2.33	3.56

- **Seasonal Returns Chart:** Provides a graphical depiction of the return values. An upward bar in the chart indicates a positive return while a downward bar indicates a negative return.



To analyze seasonal analysis data, update the *Time*⁷², *Total Return %*⁷³, and *Relative Total Return %*⁷⁴ fields.

STATISTICAL SUMMARY

The *Performance Statistical Summary* sub-tab displays compilations of return, risk, and risk/return calculations for your portfolio and benchmark (if applicable) across various time periods.

Note: For historical equity portfolios, return attribution is enabled.

⁷² In trend analysis mode, the timeframe for the analysis (e.g., month-to-date [MTD] or year-to-date [YTD]).

⁷³ The total return over the stated timeframe as of the date of analysis, expressed as a percentage.

⁷⁴ Portfolio Total Return - Benchmark Total Return over the stated timeframe, expressed as a percentage.

The *Statistical Summary* sub-tab is divided into the following statistical sections:

	3 Months		6 Months		Year To Date		1 Year	
	Port	Bench	Port	Bench	Port	Bench	Port	Bench
2. Return								
Total Return	-4.20	-5.13	5.00	2.10	3.51	2.40	16.01	11.96
Maximum Return	1.72	1.78	1.72	1.78	1.72	1.78	2.05	1.78
Minimum Return	-1.88	-2.06	-1.88	-2.06	-2.28	-2.28	-2.28	-2.28
Mean Return (Annualized)	-20.25	-24.47	15.51	6.70	7.31	5.18	24.22	18.06
Mean Excess Return (Annualized)	5.58		8.25		2.02		5.22	
1. Risk								
Portfolio Statistics	12.51	12.21	Time Periods		11.05	11.51	10.69	
9.37	9.35				8.55	8.70	8.15	
-0.34	-0.53				-0.73	-0.55	-0.66	
-1.50	-1.59				-1.23	-1.24	-1.16	
Tracking Error (Annualized)	3.40		3.41		3.67		3.76	
4. Risk/Return								
Sharpe Ratio	-1.20	-1.49	1.00	0.47	0.44	0.33	1.46	1.18
Jensen Alpha	3.00		6.03		1.50		3.95	
Information Ratio	1.17		1.71		0.39		0.99	
Treynor Measure	-0.15		0.11		0.05		0.16	
Beta (ex-post)	0.99		1.02		1.00		1.02	
Correlation	0.9625		0.9490		0.9490		0.9452	
Capture Ratio	0.92		0.87		0.92		0.99	

- **Portfolio Statistics:** Allows you to analyze risk and return statistics.

- *Return:* *Total Return*⁷⁵, *Relative Total Return*⁷⁶, *Maximum Drawdown*⁷⁷, *Maximum Increase*⁷⁸, among others.
- *Risk:* *Standard Deviation (Annualized)*⁷⁹, *Kurtosis*⁸⁰, *Skewness*⁸¹, *Bear Tracking Error (Annualized)*⁸², among others.
- *Risk/Return:* *Sharpe Ratio*⁸³, *Jensen Alpha*⁸⁴, *Treynor Measure*⁸⁵, *R-Squared*⁸⁶, *Capture Ratio*⁸⁷, among others.

⁷⁵ The total return over the stated timeframe as of the date of analysis, expressed as a percentage.

⁷⁶ Portfolio Total Return - Benchmark Total Return over the stated timeframe, expressed as a percentage.

⁷⁷ The largest drop from a peak to a bottom in a sub-period over the stated timeframe. It measures the magnitude of the worst loss an investor could have incurred by investing in the portfolio or benchmark.

⁷⁸ The largest gain from a bottom to a peak in a sub-period over the stated timeframe. It measures the magnitude of the best gain an investor could have incurred by investing in the portfolio or benchmark.

⁷⁹ A measure of the volatility of the daily total returns over the stated timeframe, expressed as an annualized percentage. It measures how widely spread the daily returns are within the period. Larger values suggest greater risk.

⁸⁰ Kurtosis measures the peakedness or flatness of the daily return distribution over the stated timeframe. In a flat distribution, the average value is more likely to occur.

⁸¹ Skewness measures the degree of asymmetry of the daily return distribution over the stated timeframe. If the left tail (tail at small end of the distribution) is more pronounced than the right tail (tail at the large end of the distribution), the return is said to have negative skewness. If the reverse is true, it has positive skewness. If the two are equal, it has zero skewness.

⁸² The standard deviation of the daily excess returns relative to the benchmark over the stated timeframe, only on days when the benchmark return was negative, expressed as an annualized percentage.

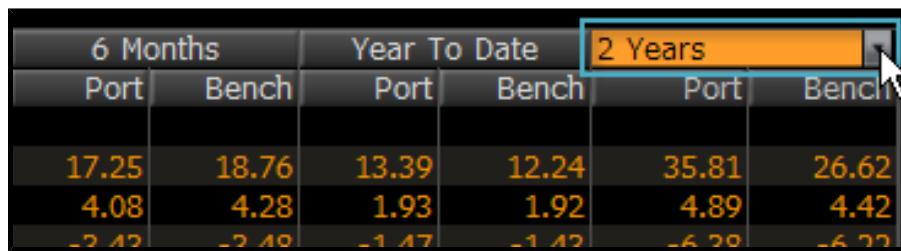
⁸³ A risk-adjusted measure that calculates the excess return over the risk free rate (3-month yield linked to the currency), per unit of volatility. [(Annualized Mean Return - Risk Free Rate) / Annualized Standard Deviation of Returns]. The higher

For more information on the data points in the *Portfolio Statistics* column, see [Definitions](#).

- **Time Periods:** Displays portfolio and benchmark (if applicable) data for set time periods: 3 Months, 6 Months, Year to Date, and a custom option. If no benchmark is selected, no *Bench* column appears.

You can analyze statistical summary data:

- To change the time period in the last column, click the timeframe drop-down menu and select from the available options (e.g., 2 Years).



6 Months		Year To Date		2 Years	
Port	Bench	Port	Bench	Port	Bench
17.25	18.76	13.39	12.24	35.81	26.62
4.08	4.28	1.93	1.92	4.89	4.42
-2.42	-2.40	-1.47	-1.42	-6.20	-6.22

If you select *Custom*, the *Edit Timeframe* window appears where you can specify the number of days, weeks, months, quarters, or years (e.g., 9 months, 5 years).

The last column in the table updates to reflect your changes.

- To see expanded lists of corresponding performance data, click the **Return**, **Risk**, or **Risk/Return** category in the *Portfolio Statistics* column.

In the *Statistical Summary* sub-tab, the following indicators are annualized by default:

Annualized Indicators	Annualized Indicators
Mean Return	Bull Mean Excess Return
Mean Excess Return	Bear Mean Excess Return

the Sharpe ratio, the better the portfolio's historical risk-adjusted performance. Calculated using daily returns over the stated timeframe.

⁸⁴ A risk-adjusted measure that calculates the actual return of the portfolio over and above the return predicted by the Capital Asset Pricing Model (CAPM), given the portfolio's beta and the benchmark return. [Portfolio Return - (Risk Free Rate + Beta x (Benchmark Return - Risk Free Rate))]. Calculated using the annualized mean of daily returns of the portfolio and benchmark over the stated timeframe.

⁸⁵ A risk-adjusted measure that calculates the excess return over the risk free rate (3-month yield linked to the currency), per unit of Beta relative to the benchmark. [(Annualized Mean Return - Risk Free Rate) / Beta]. The higher the Treynor ratio, the better the portfolio's historical risk-adjusted performance. This is useful for assessing the excess return from each unit of systematic risk. Calculated using daily returns over the stated timeframe.

⁸⁶ A measure of how well the portfolio's performance correlates with the performance of the benchmark, and thus a measure of what portion of its performance may be explained by the performance of the benchmark. Values for R-Squared range from 0 to 1, where 0 indicates no correlation and 1 indicates perfect correlation. Calculated using daily returns over the stated timeframe.

⁸⁷ A measure of how well the portfolio is performing relative to the benchmark. Defined as the ratio of the portfolio return to the benchmark return, calculated on a daily basis and averaged over the selected timeframe.

Annualized Indicators	Annualized Indicators
Semivariance	Bull Tracking Error
Standard Deviation	Bear Tracking Error
Tracking Error	Downside Risk

ATTRIBUTION TAB

The *Attribution* tab allows you to deconstruct the sources of your portfolio's historical return on an absolute or relative basis.

Depending on whether you are analyzing an equity or fixed income portfolio, the *Attribution* tab is divided into two or three sub-tabs, which allow you to perform more specific attribution analysis:

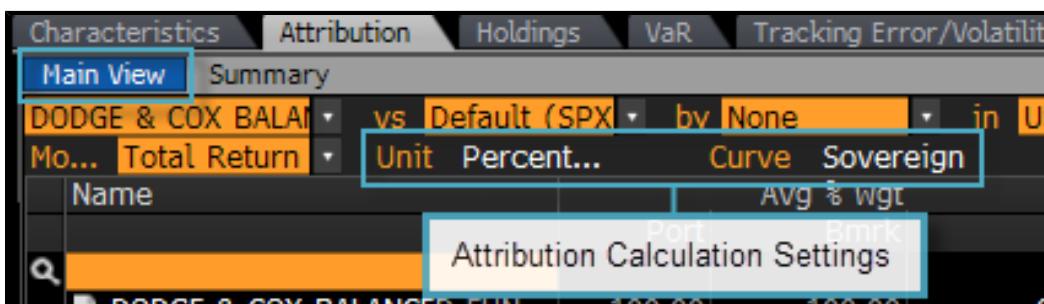
- **Main View:** Allows you analyze attribution data over a given timeframe. You can also monitor the statuses of analysis reports, as well as retrieve previously run reports. For more information, see [Attribution Analysis](#).
- **Summary:** Displays a summary of the attribution of your portfolio's active returns (for both equities and fixed income). You can deconstruct the sources of your portfolio's historical return on an absolute or relative basis. For more information, see [Attribution Summary](#).
- **Curve Return:** Allows you to analyze return contributions due to yield curve bets for fixed income portfolios. For more information, see [Curve Return](#).
- **Trends:** Provides a visualization of the factor-based attribution of the portfolio return for the selected timeframe. For more information, see [Trends Analysis](#).

You can analyze historical returns using the holdings-based or transactions-based method. For more information on historical returns methodologies, see [Historical Returns](#).

ATTRIBUTION ANALYSIS

In the *Attribution Main View* sub-tab, you can analyze attribution data over a given timeframe.

Attribution analysis is partly determined by the attribution methodology (*Model*) and unit expression (*Unit*) selections, which you can choose when customizing your attribution calculation defaults.



Note: For more information on customizing your attribution methodology and return unit expressions, see [Attribution Calculation Defaults](#).

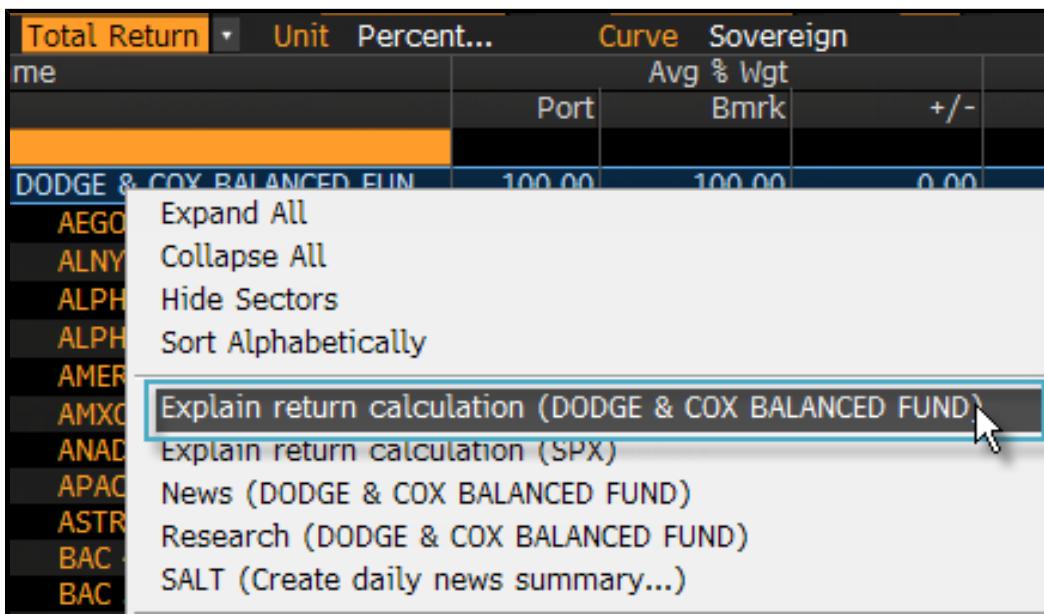
To analyze attribution data:

From the control area, click the *Time* drop-down menu and select an option (e.g., quarter to date - QTD), then press <GO>.

The data updates.

|Hint| If you select *Custom*, you can enter a start and end date for your analysis in the calendar fields.

PORT provides full transparency into exactly how total return is calculated for any time period. To display data transparency, right-click the portfolio or benchmark and select **Explain Return Calculation**.



A complete day-by-day breakdown of total return calculations appears in another window.

Note: You can access previous calculations of the *Main View* sub-tab in the *Stored Results* section. For more information on analyzing the results monitor, see [Analytic Results Monitor](#).

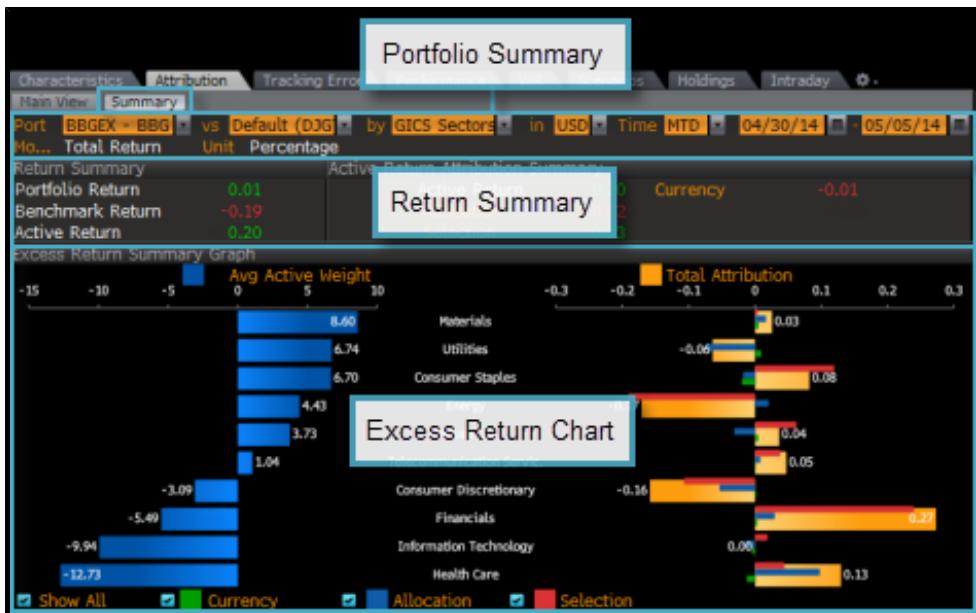
ATTRIBUTION SUMMARY

The *Attribution Summary* sub-tab displays a summary of the attribution of your portfolio's active returns. You can deconstruct the sources of your portfolio's historical return on an absolute or relative basis.

By default, the *Attribution* tab uses the Brinson-Fachler Total Return Attribution model. Depending on the type of portfolio (e.g., equity or fixed income) and the selected attribution model (e.g., Brinson, Excess Return, Factor Based), the *Summary* sub-tab displays different data. This topic describes the possible screen elements that may appear.

Note: For more information on setting up your attribution calculation method, see [Attribution Calculation Defaults](#).

Attribution Summary for Equity Portfolios: For equity portfolio analysis using most models, the *Summary* sub-tab is divided into the following sections.



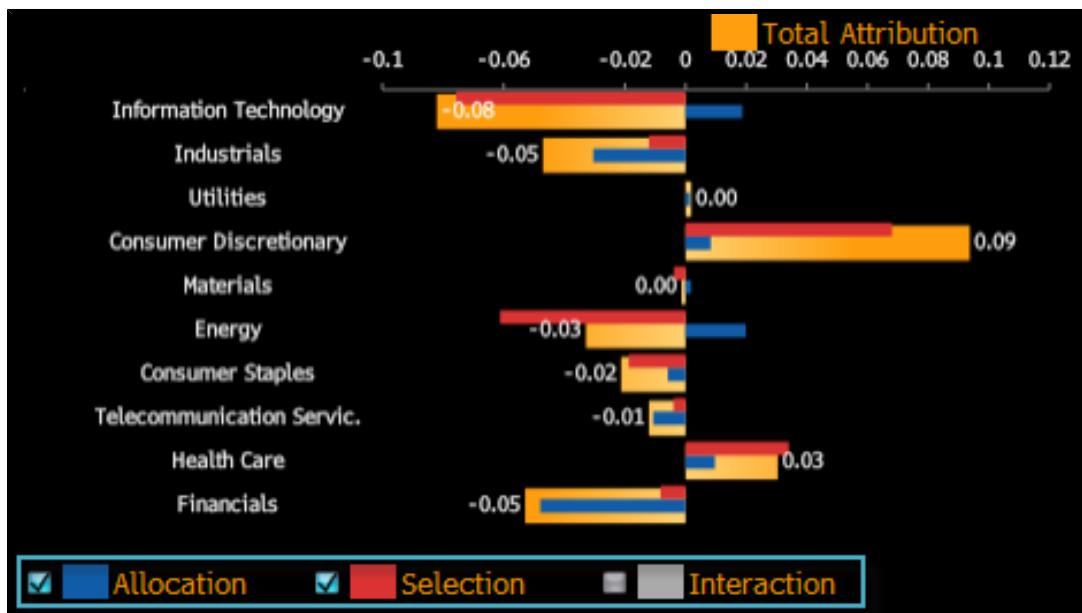
- **Portfolio Summary:** Displays a summary of inputs to the analysis, including the selected benchmark (if any), attribution method (*Model*), and date range, all of which you can update. You can position your cursor over the fields to display definitions.
- **Return Summary:** Displays total return values for your portfolio and benchmark, active return (*Portfolio Return* minus *Benchmark Return*), and the contribution of different effects on the active return. You can position your mouse over each field to display an explanation. For detailed definitions of the terms, see [Definitions](#).
- **Excess Return Chart:** Displays excess return results broken down by average active weight (left) and total attribution (right) over the course of the selected timeframe. The charts are further broken down by your breakdown selection (e.g., GICS sectors). At the bottom of the chart, you can choose to display *Allocation Effect*⁸⁸, *Selection Effect*⁸⁹, *Currency Effect*⁹⁰, and/or *Interaction Effect*⁹¹. You can position your cursor over the bars in the chart to display more details of the data.

⁸⁸ The active return attributed to asset allocation decisions (e.g., sectors, countries, or market caps) that differ from the benchmark. The allocation is generally positive when the fund is overweight for a sector in which the benchmark return exceeds the total benchmark return.

⁸⁹ The active return attributed to security selection decisions that differ from the benchmark. When the portfolio sector returns exceed the benchmark return, a positive number is posted.

⁹⁰ The active return due to currency exposures that differ from the benchmark.

⁹¹ The interaction between the weighting and the selection effects, which does not represent an explicit decision of the investment manager.



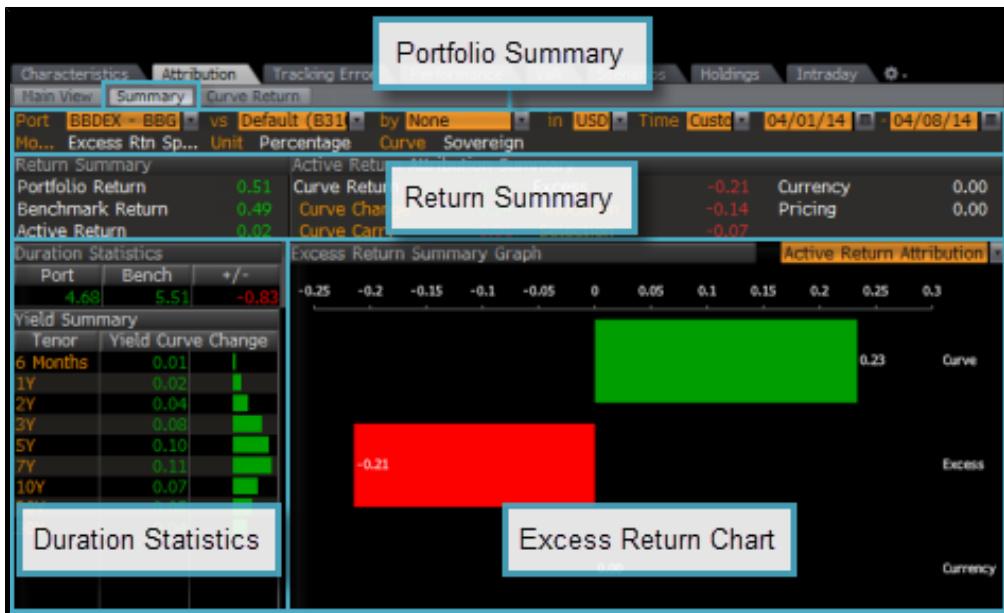
To see attribution effects in the total attribution chart, select the appropriate checkbox at the bottom of the screen.

Attribution Summary for Fixed Income Portfolios: Depending on which attribution calculation method you have loaded for fixed income analysis, the *Summary* sub-tab displays different data. The selected calculation method appears in the portfolio summary section.



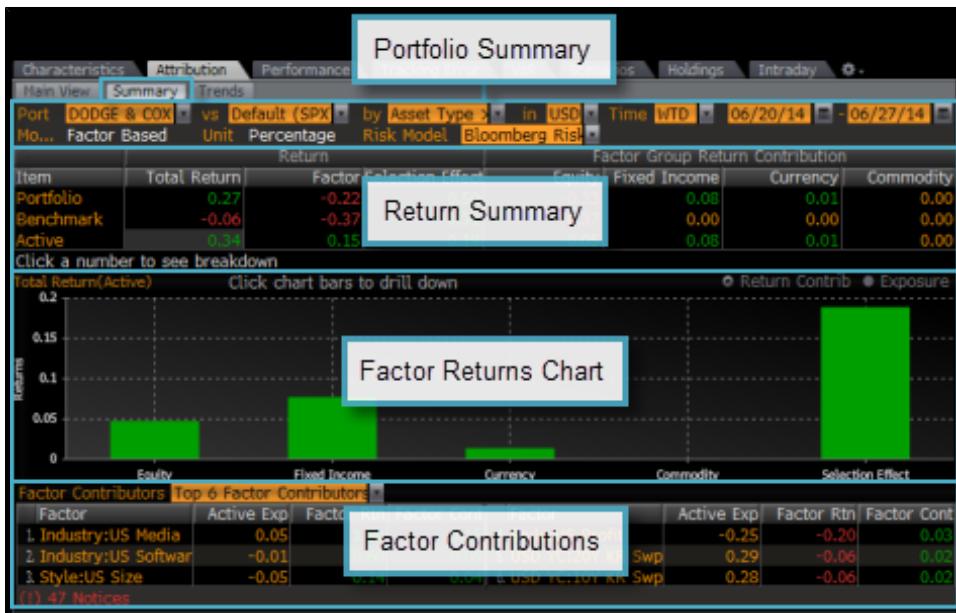
If you are using the Total Return (Brinson) model, the sub-tab is divided into the same sections as that of an equity portfolio analysis (portfolio summary, return summary, and excess return chart). For more information, see above.

If you are using the Excess Return or Spread Return models, the following sections appear:



- **Portfolio Summary:** Displays a summary of the inputs to your analysis, including the selected benchmark, attribution method, pricing source (e.g., BVAL else Custom), type of curve, and date range, all of which you can update. You can position your cursor over the fields to display definitions.
- **Return Summary:** Displays total return values for your portfolio and benchmark, active return (Portfolio Return minus Benchmark Return), and the contribution of different effects on the active return. You can position your mouse over each field to display an explanation. For detailed definitions of the terms, see [Definitions](#).
- **Duration Statistics:** Displays your portfolio and benchmark contributions to duration and their difference, as well as yield curve changes (in percentage) over each tenor.
- **Excess Return Chart:** Displays excess return data. You can click the drop-down menu in the top-right corner of the chart to see a breakdown of each contribution to excess return (such as allocation or selection effect). You can position your cursor over the bars in the chart to display more details.

If you are using the Factor Based model, the following sections appear:



- **Portfolio Summary:** Displays a summary of the inputs to your analysis, including the selected benchmark, attribution method, risk model, and date of analysis, all of which you can update. You can position your cursor over the fields to display definitions.
- **Return Summary:** Displays total return values for your portfolio and benchmark, active return (Portfolio Return minus Benchmark Return), and the contribution of different effects and factors on the active return. You can position your mouse over each field to display an explanation. For detailed definitions of the terms, see [Definitions](#).
- **Factor Returns Chart:** Provides a chart of the factors and factor groups contributing to your portfolio active return, either positive or negative. You can drill down into each factor group, so you can visualize the contribution of individual factors.
- **Factor Contributions:** Allows you to review the top or bottom six factors contributing to your portfolio active return. The top factors have the highest positive contribution to your portfolio return, while the bottom factors have the lowest contribution to your portfolio return (this may be negative or positive). You can select a factor in the table to access the *Factor Transparency* window, where you can analyze and validate factor risk values. For more information on factor transparency, see [Factor Transparency](#).

CURVE RETURN

The *Attribution Curve Return* sub-tab allows you to analyze return contributions due to yield curve bets for fixed income portfolios.

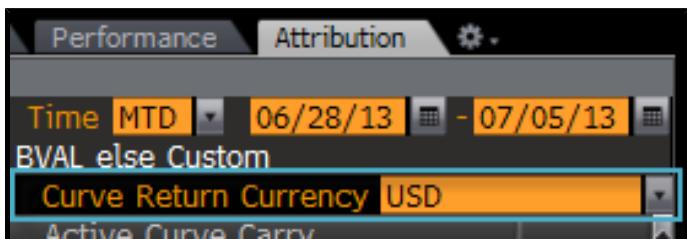
Note: Curve return is computed only for a portfolio vs. benchmark attribution using an Excess Return or Spread Return attribution model.

The *Curve Return* sub-tab is divided into the following sections, which help you analyze curve return at a glance:



- **Portfolio Summary:** Displays a summary of your portfolio analysis, including the selected benchmark, attribution method, pricing source (e.g., BVAL else Custom), type of curve, and date of analysis, all of which you can update. You can position your cursor over the fields to display definitions.
- **Active Curve Change:** Displays the currency being analyzed (in white), parallel and non-parallel shift options (if applicable), tenors of different bonds, and *Convexity*⁹² (at the bottom of the column). Measures the change at each maturity point on the yield curve and correspondingly how much you out- or underperformed the index, based on your relative interest rate exposure at each point on the curve.
- **Note:** For more information on including or removing a parallel shift for analysis, see [Attribution Calculation Defaults](#).
- **Active Curve Carry:** Measures the risk-free income you earned versus the benchmark, based on your relative exposure at each maturity point on the yield curve. The last column, *Curve Return*, is calculated by adding *Curve Change* + *Curve Carry*. The curve change and curve carry values appear in the final column of the *Active Curve Change* and *Active Curve Carry* sections, respectively.
- **Curve Return Chart:** Displays the curve return values (minus convexity).

To analyze a different currency in your fixed income portfolio, from the *Curve Return Currency* drop-down field, select a currency.



⁹² The second derivative of a security's price with respect to its yield, divided by the security's price. A security exhibits positive convexity when its price rises more for a downward move in its yield than its price declines for an equal upward move in its yield.

TRENDS ANALYSIS

The *Attribution Trends* sub-tab allows you to see how returns and return attribution has changed over time. This tab appears if your portfolio analysis uses the *Factor Based* attribution model.

The *Trends* sub-tab is divided into a side panel on the left where you can select the indicators that appear in the chart on the right. The portfolio summary provides details on the portfolio you are analyzing and allows you to update chart parameters.



- **Portfolio Summary:** Displays a summary of the inputs to your analysis, including the selected benchmark, attribution method, risk model, and date range, all of which you can update. You can position your cursor over the fields to display definitions.
- **Indicators Side Panel:** Allows you to select the return indicators you want to illustrate in the trends chart. You can compare the contribution to return amongst all the factors affecting portfolio return. By default, the *Total* indicators are selected, along with the top five contributors to factor returns based on absolute value.
- **Trends Chart:** Provides a visualization of the factors contributing to your overall portfolio return over time. By default, the highest contributing factors appear in the trends chart, so you can quickly see your general portfolio return attribution. You can update the chart analysis timeframe in the portfolio summary section, so you can compare the historical movements of factor contribution.

To select a different factor to compare in the chart, from the side panel, drill down into the *Indicators* list and select the factors you want to analyze.

TRADE SIMULATION

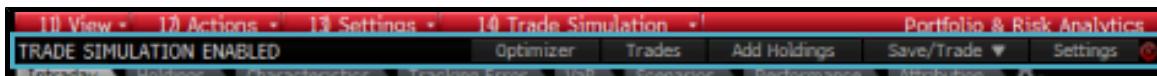
PORT's Trade Simulation functionality allows you to select and edit hypothetical trading positions for your portfolio to assess the impact these moves may have on your portfolio. You can save and modify these portfolios at a later date.

Note: Trade Simulation is not available for PORT Launchpad.

You can also exclude a portion of your portfolio and benchmark from analysis, such as cash, a sector, or a specific instrument, to see how the performance or characteristics of the portfolio would differ with these exclusions. For more information, see [Excluding Securities](#).

When Trade Simulation is enabled, "TRADE SIMULATION ENABLED" appears in the top-left corner of the screen and new menu and column options appear. For more information on enabling/disabling Trade Simulation, see [Enabling Trade Simulation](#) and [Customizing Trade Simulation](#).

The Trade Simulation menu appears just below the toolbar. The following menu options appear:



- **Optimizer**: Quickly access the Portfolio Optimization tool. For more information, see [Portfolio Optimization](#).
- **Trades**: Access the trades you are simulating.
- **Add Holdings**: Add new securities to your portfolio, edit existing holdings, and recalculate (to refresh the analytics). For more information, see [Managing Positions & Cash](#).
- **Save/Trade**: Save your Trade Simulation scenario as a portfolio, commit or clear trades, show trades only, or export trades. For more information on these options, see [Saving Simulated Trades](#), [Saving Simulated Trades As](#), and [Clearing Simulated Trades](#).
- **Settings**: Customize certain settings of Trade Simulation, taking advantage of additional flexibility of the tool. For example, if you regularly use Trade Simulation, you can automatically enter into Trade Simulation mode each time you access PORT. You can also control which columns appear by default, as well as fund recalculations from your cash (as allocated in PRTU) or from your holdings. For more information, see [Customizing Trade Simulation](#).
- : Exit Trade Simulation mode, returning to your original portfolio holdings. Trade Simulation trades that have not been cleared or committed will reappear next time you enable Trade Simulation.

Depending on your settings, the second column is either *Simulated Wgt (%)* or *Orig Wgt (%)*. The image below illustrates the new Trade Simulation columns in the *Holdings* tab.

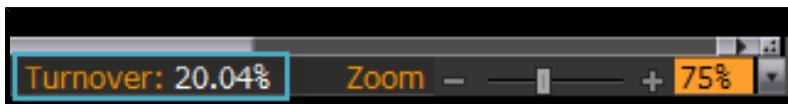
Trade Simulation Columns					
Name	Inc	Simulated Wgt	Orig Wgt (%)	Wgt +/- (%)	Buy/Sell
STRATEGIC OPPORTUNITIES	<input checked="" type="checkbox"/>	100.00	100.00	0.00	
Cash	<input checked="" type="checkbox"/>	2.46	1.93	0.53	
Consumer Discretionary	<input checked="" type="checkbox"/>	23.50	22.22	1.28	
Consumer Staples	<input checked="" type="checkbox"/>	8.85	9.68	-0.83	
Energy	<input checked="" type="checkbox"/>	7.51	7.22	0.29	
Financials	<input checked="" type="checkbox"/>	14.48	15.75	-1.27	

The following table describes the available Trade Simulation columns:

Column	Allows you to
Inc (Security Inclusion)	Select securities to include in a rebalance. Securities not selected are not targeted and do not change in a sector-level rebalance or in a rebalanced fund from holdings.
Simulated Wgt	Enter a new weight for rebalancing to generate hypothetical trades and analyze in the resulting portfolio.
Orig Pos	Enter a new position (number of holdings) for recalculation to generate hypothetical trades and analyze the resulting portfolio.
Orig Wgt (%)	See the market weight of a security in the original portfolio without Trade Simulation Enabled trades applied. This column should be used as a reference, as Trade Simulation analytics change.
Wgt +/- (%)	See the difference in market value weight when Trade Simulation trades are applied to the original portfolio. This column should be used as a reference, as Trade Simulation analytics change. This value updates only when the portfolio is recalculated and does not update immediately when targets are changed.
Buy/Sell	See Trade Simulation trades that result from specified targets. This column should be used as a reference as Trade Simulation analytics change. This value updates only when the portfolio is recalculated and does not update immediately when targets change.

For more information on setting up the second column, see [Customizing Trade Simulation](#).

At the bottom of the screen, the *Turnover*⁹³ field indicates, in percentage terms, the difference between the original portfolio and the portfolio with Trade Simulation trades applied.



The value is calculated as:

$$(\text{mktval of buys} + \text{mktval of sells}) / (2 * \text{portfolio mktval})$$

⁹³ The value of simulated buys plus the value of simulated sells excluding cash, divided by the original portfolio value. This is expressed in percentage terms.

Note: Turnover is only available within Trade Simulation and Portfolio Optimization. In Trade Simulation mode, Turnover appears at the bottom of each tab's Main View sub-tab. In Portfolio Optimization, Turnover can be used as either a goal or a constraint in the Optimization Setup, and the resulting Turnover value appears on the Trades results tab after the Optimization task has been run.

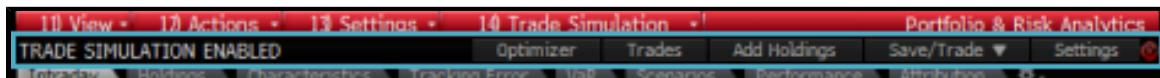
ENABLING TRADE SIMULATION

You can enable or disable Trade Simulation analysis from any tab in PORT.

To enable Trade Simulation analysis:

- From the toolbar, select **Trade Simulation > Simulate Trades**.

The Trade Simulation menu appears at the top of the screen, just below the toolbar. You are now in Trade Simulation mode.



To disable Trade Simulation analysis:

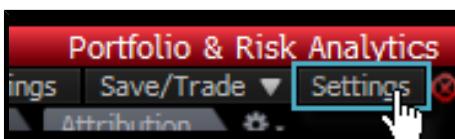
- Click the remove () icon on the far right of the Trade Simulation menu.
- or -
- From the toolbar, deselect **Trade Simulation > Simulate Trades**.
 - If all of your target edits are saved or recalculated, the Trade Simulation menu disappears. You are no longer in Trade Simulation mode.
 - If your target edits are not saved or have not been recalculated, a *Warning* window appears indicating that targets have been edited without rebalancing.

CUSTOMIZING TRADE SIMULATION

You can customize certain settings of your Trade Simulation analysis, taking advantage of additional flexibility of the tool. For example, if you regularly use Trade Simulation Analysis, you can automatically enter into Trade Simulation mode each time you access PORT. You can also control which columns appear by default.

To customize Trade Simulation analysis settings:

- With Trade Simulation analysis enabled, click the **Settings** button.



The Trade Simulation Settings window appears and displays a list of customizable options.

- Select any of the following options:



- **Target:** Choose to enter hypothetical target *Weights* or *Positions* for your portfolio to assess how these moves would impact your portfolio.
Note: Depending on your settings, the second column will either be *Orig Wgt (%)* or *Orig Pos*. The column immediately to the right of the *Orig Wgt (%)* or *Orig Pos* column displays the original weight percentage (*Wgt %*) or position for your reference.
- **Fund from:** Choose to fund recalculations from cash (as allocated in PRTU) or from your portfolio holdings.
 - *Cash:* Indicates that cash holdings in the portfolio are used to purchase the target quantity of each security as specified in the *Orig Wgt (%)* or *Orig Pos* column. If the total of all targets in the portfolio exceeds the value of the portfolio, the cash position will be negative to maintain the market value of the portfolio. Analytics refresh using the new Trade Simulation portfolio holdings.
 - *Holdings:* Indicates that portfolio holdings are sold off to purchase the target quantity of each security as specified in the *Orig Wgt (%)* column. Securities will be sold off based on current market weight (heaviest first). If the target holdings are lower than the previous holdings, securities will be purchased to compensate. Analytics refresh using the new Trade Simulation portfolio holdings.**Note:** This option is not available if your *Target* is set for *Positions*.
- **Enable Trade Simulation on Startup:** Select to enable Trade Simulation analysis mode each time you access PORT.
- **Show Additional Trade Simulation Columns:** Select to see columns specific to Trade Simulation, such as *Orig Wgt (%)* or *Orig Pos*, by default. For more information on Trade Simulation columns, see the table in *Trade Simulation*.
- **Rebalance against Reporting Currency:** Select to indicate that all cash generated from sells (or required for buys) is taken from the *reporting currency*⁹⁴ specified in the PORT analysis, not the local *currency*⁹⁵ of the portfolio.

⁹⁴ The currency used in the analysis, as indicated by the selection in the Curr drop-down menu of any Main View sub-tab. By default, the currency under analysis is the portfolio base currency.

⁹⁵ Generally, Currency indicates the currency of the portfolio being analyzed. In the Attribution Summary sub-tab, Currency indicates the active return due to currency exposures that differ from the benchmark.

- **Clear Simulated Trades Overnight:** Remove simulated trades from your portfolio at the end of the trading day.
- Note:** You can only clear Trade Simulation trades that have NOT been saved to your portfolio. Once Trade Simulation trades are saved (using the *Save* option), trades can only be removed using the *Portfolio Administration (PRTU)* function. For more information, see the [PRTU Help Page](#).
- **Equity Round Lots:** Enter the round lot shares in which you want to trade equities. Round lots usually involve at least 100 shares of stock or five bonds. A deal involving less than 100 shares is considered an odd lot transaction.
 - **Derivative Round Lots:** Enter the round lot shares in which you want to trade derivatives. Round lots usually involve at least 100 shares of stock or five bonds. A deal involving less than 100 shares is considered an odd lot transaction.
 - **FI Min Piece:** Enter the minimum initial fixed income position that can be purchased.
 - **Increment:** Enter the number of positions that can be added to the *FI Min Piece*.

3. Click the **Save** button.

Your Trade Simulation analysis settings are saved.

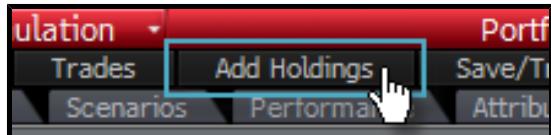
For more information on managing your positions and Trade Simulation trades, see [Managing Positions & Cash, Saving Simulated Trades, Saving Simulated Trades As, and Clearing Simulated Trades](#).

MANAGING POSITIONS & CASH

You can add hypothetical positions or edit current positions for your what-if portfolio. For bonds in trade simulation mode, you can simulate pricing any bond that was recently issued in the market and not yet priced by official sources, or you can override existing bond prices with a custom price.

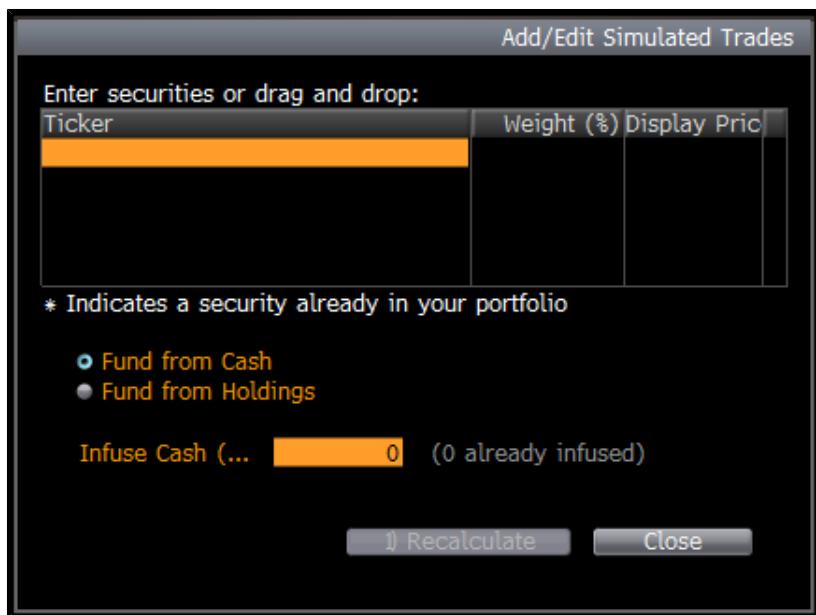
To add or edit positions:

1. From the Trade Simulation menu, click the **Add Holdings** button.



The Add/Edit Simulated Trades window appears.

2. Update your holdings and/or cash infusions:



- **Ticker:** Allows you to enter the name of the security you want to add/edit.

The ticker appears in the table below the ticker field. The corresponding *Weight* or *Position* and *Display Price* fields activate (depending on your settings).

Enter a weight/position for the security, as well as a custom display price, then press <GO>.

Note: Alternatively, you can enter new values in the corresponding highlighted fields with the portfolio loaded on screen, then press <GO>.

Repeat this step until all tickers are added.

- **Fund from Cash/Fund from Holdings:** Allows you to choose whether you want to fund the holding from cash or from your holdings, if you are editing securities with weight values. If you select *Fund from Cash*, enter the cash amount in the *Infuse Cash* field.

Note: The cash amount should be provided in units of the portfolio's reporting currency.

Trade Simulation trades remain until they are committed or cleared.

SIMULATING HISTORICAL TRADES

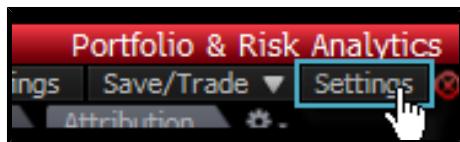
You can enter simulated trades as of one or more historical dates, so you can evaluate the "what-if" performance of your portfolio for a specific forward period. You can select the original portfolio as a benchmark for the simulated historical trades, so you can compare and analyze actual versus "what-if" performance.

Note: Simulated historical trades are supported in all PORT analysis tabs except the *Intraday* tab.

To set up a historical performance analysis of simulated trades:

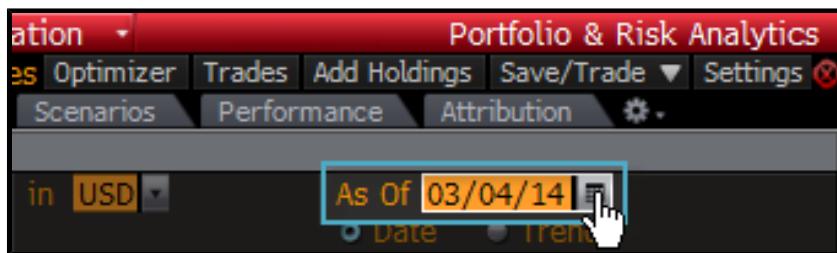
1. With Trade Simulation analysis enabled, click the **Settings** button.

Note: For more information on enabling Trade Simulation, see [Enabling Trade Simulation](#).



The Trade Simulation Settings window appears and displays a list of customizable options.

2. Select the tab in which you want to enter simulated trades and analyze your portfolio.
3. In the As Of field, click the calendar icon to choose a date or enter a date historically, then press <GO>.



The portfolio updates based on the selected historical date.

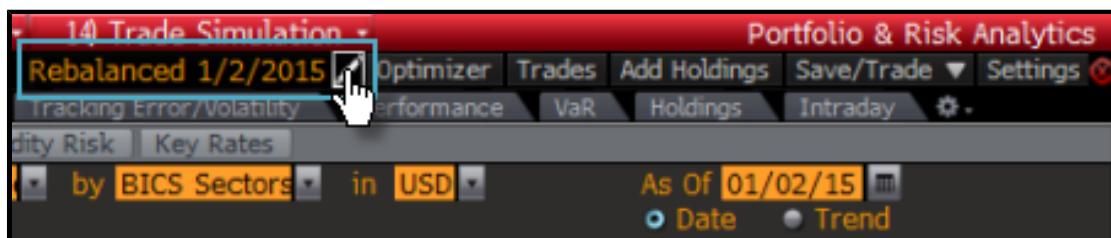
4. Reweight or rebalance the portfolio for your trade simulation.
The columns in the Trade Simulation view update based on your reweighting.
5. If you want to simulate trades on a different historical date, repeat steps 3 and 4 for another date.
6. If you want to benchmark the portfolio with simulated trades to the original portfolio, from the *VS*⁹⁶ field, select **Original Portfolio**.

⁹⁶ Indicates the benchmark against which you are comparing your portfolio, which can be an index, portfolio, or fund. You can create and maintain custom benchmarks in the Portfolio Administration (PRTU) function. For more information on using PRTU to maintain benchmarks, click [here](#) .



The Brmk columns in the Trade Simulation view update based on your selection.

7. To apply historical corporate actions to the simulated trades:
 - a) Select the **Performance** tab.
 - b) From the *Corporate Actions* window that appears, click the **Yes** button.
The Performance tab appears with data on the simulated trades compared to the selected benchmark.
8. Analyze the historical performance of the simulated trades. For information on analyzing portfolios in the *Performance* tab, see [Performance Tab](#).
9. If you want to jump to a different rebalancing date, next to the Trade Simulation menu, click the *Rebalanced* edit icon, then select a rebalancing date from the window that appears.



Your portfolio updates based on the selected historical date.

10. If you want to save the historical simulated trades as a new portfolio, from the Trade Simulation menu, select **Save/Trade > Save As**. For more information on saving simulated trades, see [Saving Simulated Trades As](#).

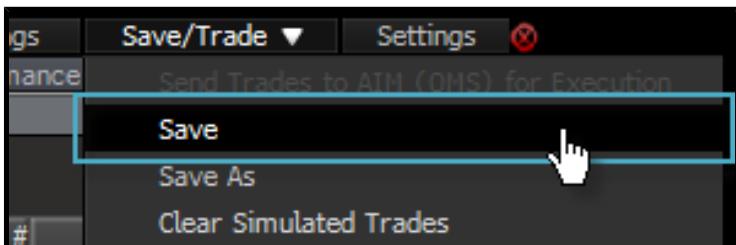
SAVING SIMULATED TRADES

You can save trades entered in Trade Simulation Analysis as a snapshot of the original portfolio.

Note: You can only save trades to a portfolio you own or are permitted to update.

To save Trade Simulation trades in the original portfolio:

1. From the Trade Simulation menu, select **Save/Trade > Save**.



The Warning window appears.

2. Click the **Yes** button.

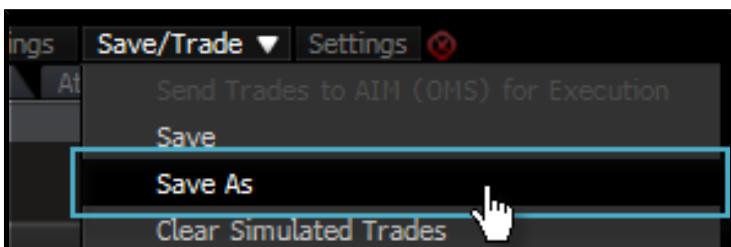
The Trade Simulation trades are saved in your portfolio.

SAVING SIMULATED TRADES AS

You can also save trades entered in Trade Simulation Analysis as a new portfolio or as a snapshot of another existing portfolio, which is similar to simply saving the simulated trades, except you are saving the trades in a different, already existing portfolio, not in the original portfolio.

To save Trade Simulation trades as a new portfolio or as a different existing portfolio:

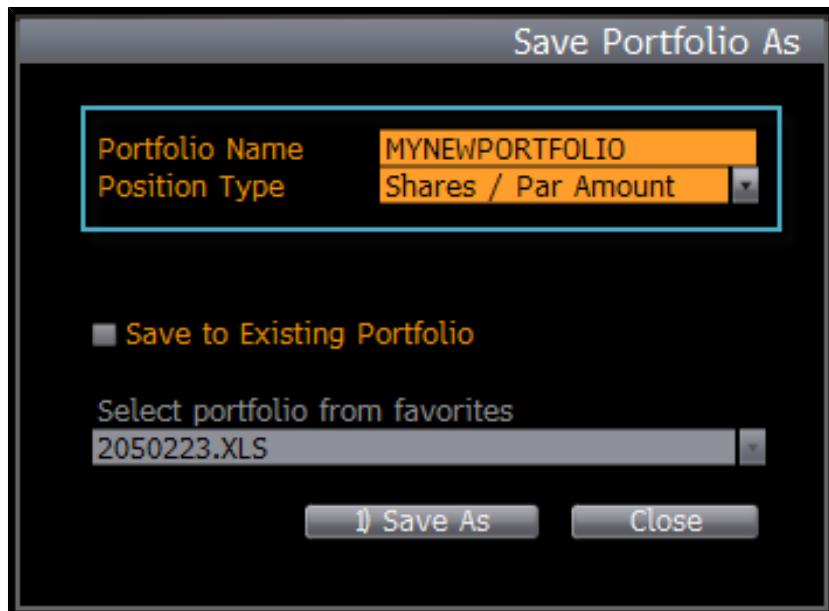
1. From the Trade Simulation menu, select **Save/Trade > Save As**.



The Save Portfolio As window appears.

2. Save the simulated trades:

- To save the simulated trades as a new portfolio, update the new portfolio settings:

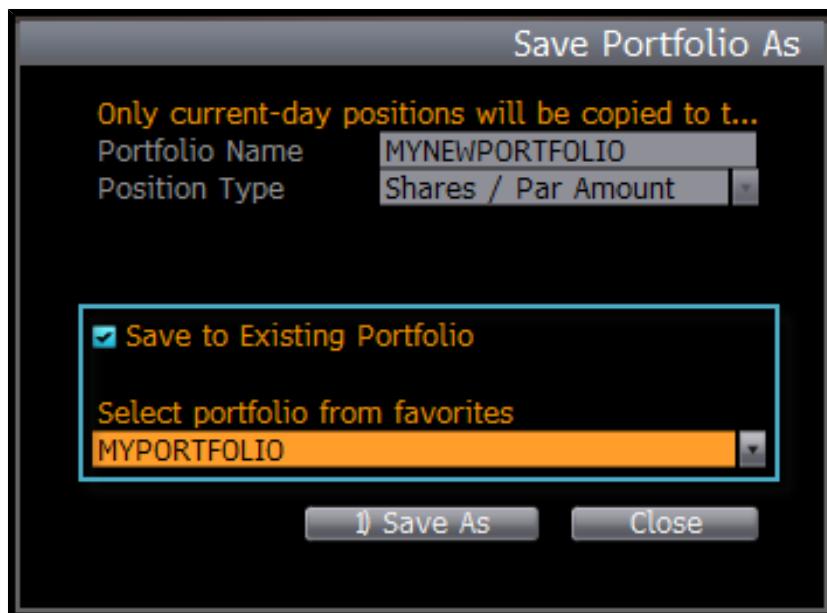


- **Portfolio Name:** Enter a name for the new portfolio.
- **Position Type:** Choose how positions are valued in the new portfolio by selecting *Shares / Par Amount*⁹⁷, *Fixed Weight*⁹⁸, or *Drifting Weight*⁹⁹.
- To save the simulated trades as a current-day snapshot of a different existing portfolio, update the existing portfolio settings:

⁹⁷ In Trade Simulation, indicates position values are defined explicitly by the number of shares in each security.

⁹⁸ In Trade Simulation, indicates positions are valued with a set percentage (%) weight. This weight is rebalanced at the market close each day back to the original weight. The default overall market value of the portfolio is 100,000,000. Fixed weights remain fixed until you update them.

⁹⁹ In Trade Simulation, indicates the percentage (%) weights drift with changes in the market each day. No rebalancing assumptions are made.



- **Save to Existing Portfolio:** Select if you want to save the trades to a different, existing portfolio.
- **Select Portfolio from Favorites:** Choose the portfolio by selecting an option from the drop-down menu.

3. Click the **Save As** button.

The portfolio is created or saved and is available in your list of saved portfolios.

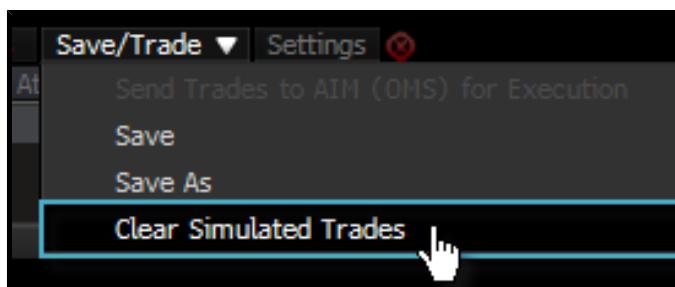
For more information on accessing portfolios, see [Setting Up Analysis](#).

CLEARING SIMULATED TRADES

You can remove trades that you have added to your portfolio in Trade Simulation Analysis.

To clear Trade Simulation Trades:

1. From the Trade Simulation menu, select **Save/Trade > Clear Simulated Trades**.



The Warning window appears.

2. Click the **Yes** button.

The Trade Simulation trades are removed from your portfolio.

Note: You can only clear Trade Simulation trades that have NOT been saved to your portfolio. Once what-if trades are saved (using the Save As option), trades can only be removed using the *Portfolio Administration* (PRTU) function. For more information, see the [PRTU Help Page](#).

PORTFOLIO OPTIMIZATION

You can use the Portfolio Optimization tool to construct, hedge, and re-balance portfolios with tailored risk, return, and exposure characteristics, so you can see how the portfolio analytics change after these trade ideas are incorporated. For example, you may want to change the portfolio composition or hedge some portfolio exposures without changing portfolio holdings. Examples include:

- Index replication with liquid instruments
- Stock picking and hedging market exposure
- Maximizing portfolio expected return subject to sector constraints
- Choosing 10 trades from a given list that lower portfolio *Tracking Error*¹⁰⁰

Note: Portfolio Optimization is currently not available for PORT Launchpad.

Hint To see related white papers and examples of Portfolio Optimization application, see [3. Portfolio Construction](#).

The Portfolio Optimization tool is accessed from the toolbar by selecting **Trade Simulation > Launch Optimizer**.



¹⁰⁰ Tracking errors are annualized volatilities of active returns, expressed in percentages. Tracking error on security level shows the contribution to the portfolio level tracking error. This would be the annualized volatility x (relative) weight x correlation. It is important to keep in mind that there is a difference between the total tracking error and the security level track error.

Total track error is the standard deviation of the active portfolio (which is the portfolio minus the benchmark), and it can never be negative. However, when the tracking error is shown broken up in securities or sectors, what is actually shown is a marginal contribution to tracking error. Then, the security level tracking error shows how sensitive is the total tracking error when increasing a given position. Usually that number is positive: increasing a given position would make the returns of the portfolio less alike the returns of the benchmark, thus increasing the total track error.

It can happen due to correlations, however, that increasing a position will make the portfolio more similar to the benchmark (decreasing the tracking error). In that case, the security contribution to tracking error would be negative.

The *Portfolio Optimization* screen is divided into four tabs:

- **Setup:** Allows you to set portfolio optimization parameters, such as goals, universe, constraints, and security properties. For more information, see [Optimization Setup](#).
- **Frontier:** Allows you to generate a set of optimal portfolios based on a range of values for a given constraint field. The efficient frontier reflects the plotting of goal versus constraint range values. For more information, see [Optimization Frontier](#).
- **Backtest:** Displays the progress and results from the backtesting process, so you can quickly evaluate the results of your backtest. The tab provides a chart with the analytic results of the backtest, where you can click data points to see the trades suggested by the Optimizer for a specific date. For more information, see [Backtesting Optimization](#).
- **Trades:** Displays the results of your portfolio optimization run and lets you export trade data. For more information, see [Optimization Trades](#).

Note: If there are no resulting trades due to conflicting constraints within your optimization parameters, the *Results Transparency* window appears with information on the error. For more information, see [Results Transparency](#).

SETUP PROCESS

The *Setup* tab allows you to set portfolio optimization parameters, such as goals, universe, constraints, and security properties. The following procedure provides an example for setting portfolio optimization parameters. You can complete these steps in any order that satisfies your optimization requirements.

For a complete description of the *Setup* tab, see [Optimization Setup](#).

Steps:

1. **Goals:** Define the goals of the portfolio optimization by specifying which fields should be minimized or maximized. For more information on setting goal definitions, see [Optimization Goals](#).
2. **Trade Universe:** Choose which securities can be included in the optimization. For more information on creating a trade universe, see [Optimization Universe](#).
3. **Constraints:** Determine the constraints on the optimal portfolio for any aggregate field available in PORT. For more information on defining constraints, see [Optimization Constraints](#). For more information on specifying constraints for individual securities, see [Security Properties](#).
4. **Security Properties:** Limit the amount of trading to a fixed percentage of average daily volume (ADV). For more information on limiting trading by these parameters, see [Limiting Amount of Trades](#).

OPTIMIZATION GOALS

The *Goal Definition* section on the *Setup* tab on the *Portfolio Optimization* screen allows you to define the goals of the portfolio optimization. If more than one goal variable (e.g., Active Total Risk) is selected, then a trade-off between the variables must be specified to determine their relative value worth.

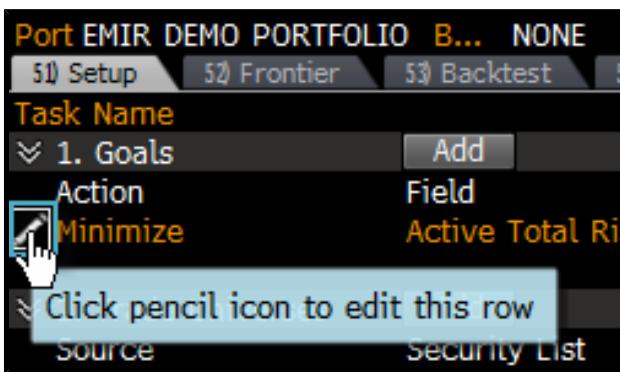
If you define more than one indicator for a specific goal, you must provide *trade-off*¹⁰¹ coefficients, which allow the optimizer to combine multiple goals together. For example, suppose you want to maximize dividend yield and minimize active total risk.

¹⁰¹ In the *Setup* tab of the *Portfolio Optimization* screen, the *Trade-Off* field defines how different goal and constraint fields are evaluated relative to each other. The trade-off can be understood in two contexts:

If you set the trade-off coefficients to 1 and 0.25 respectively, this denotes that for an extra 1% dividend yield in the optimal portfolio, you are willing to incur an additional 0.25% of Active Total Risk.

To define portfolio optimization goals:

1. To select the optimization field you want to minimize/maximize, click the pencil icon adjacent to the *Field*.



The Add Goal Term window appears.

2. Select the field you want to minimize or maximize:

- Browse the *Select Field* column to find the field.

Note: Scenarios available on the *Scenarios* tab can be added as optimization goals. They are located under *Scenario (P&L %)*. Multiple scenarios can be added as goals.

- Enter a search term in the *Search* field.
- Create a custom equity formula to calculate a value to minimize or maximize. To create a custom formula, select **Equity Formulas > Create Formula**. The *Formula Builder (FORM)* function appears, where you can create and manage custom formulas using Bloomberg's proprietary formula language.

Note: You must be enabled for FORM to access this option. For more information, contact your Bloomberg account representative.

- If you want to see more options, click the **More Equity Fields** button. The *Select Field* window appears where you can search for additional options.

-
- Multiple Goal Terms:** As an example, specifying two goal terms may look like:

- Minimize Active Total Risk (Unit: %, Trade-off = 0.2)
- Maximize Current Ratio (Unit: number, Trade-off = 1)

This means that a .2% increase in Active Total Risk is worth the same as an increase of 1.0 in Current Ratio, and vice-versa.

- Soft Constraints:** In the context of constraints, the trade-off applies to the value in excess of the minimum and maximum bounds specified. As an example:

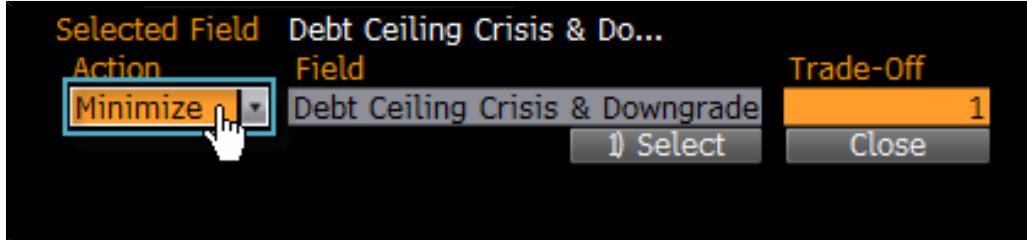
- Goal: Maximize Current Ratio (Trade-off = 1)
- Constraint: Active Total Risk (Maximum = 10, Trade-off = 0.5)

This means that every 0.5% that Active Total Risk goes above 10% is worth an increase of 1 in Current Ratio. If trade-off is not specified for a constraint, then the constraint can never be violated.

[Hint] You can click any field option to see a definition in the *Description* column.



3. From the field below the *Action* header, choose whether you want to maximize or minimize the selected field.

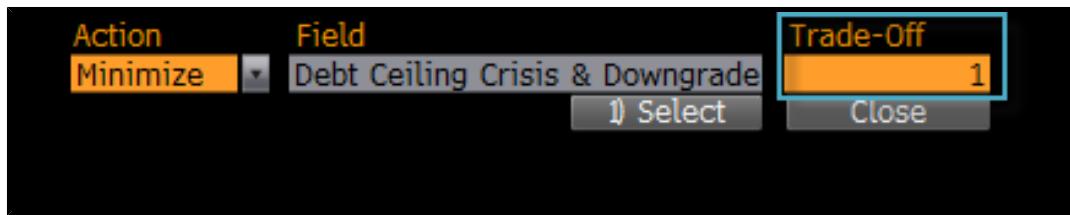


Note: Depending on your optimization attribute selection, the minimize or maximize setting may be automatically set.

4. If you select more than one optimization field, you must also specify trade-off values. The *Trade-Off*¹⁰² field defines how different goal and constraint fields are evaluated relative to each other.

¹⁰² In the Setup tab of the Portfolio Optimization screen, the Trade-Off field defines how different goal and constraint fields are evaluated relative to each other. The trade-off can be understood in two contexts:

- **Multiple Goal Terms:** As an example, specifying two goal terms may look like:
 - Minimize Active Total Risk (Unit: %, Trade-off = 0.2)
 - Maximize Current Ratio (Unit: number, Trade-off = 1)
 This means that a .2% increase in Active Total Risk is worth the same as an increase of 1.0 in Current Ratio, and vice-versa.
- **Soft Constraints:** In the context of constraints, the trade-off applies to the value in excess of the minimum and maximum bounds specified. As an example:



Note: For more information on the two contexts for trade-off selection, see [Optimization Setup](#).

The goal fields are reset.

5. Click the **Select** button.

The selection appears in the optimization field.

Now that your optimization goals are set, you can establish your trade universe, portfolio constraints, security-level constraints, and an efficient frontier. For more information, see [Optimization Universe](#), [Optimization Constraints](#), [Adding a Frontier](#), and [Security Properties](#).

For more information on running your optimization, see [Running Optimization](#). For an example of running an optimization, see [Example: Maximize Sharpe Ratio](#).

OPTIMIZATION UNIVERSE

The *Trade Universes* section of the *Setup* tab allows you to choose which securities are included in the optimization. The optimization universe can include portfolios, benchmarks, or indexes, and supports up to 10,000 securities. Securities in the original portfolio can be bought and sold, but securities in the benchmark may not be bought or sold unless they are also present in the original portfolio or the universe.

update the *Rule*¹⁰³, *Source*¹⁰⁴, and *Security List*¹⁰⁵ fields.

1. To determine the portfolio optimization universe, click the pencil icon adjacent to the *Field*.

— Goal: Maximize Current Ratio (Trade-off = 1)

— Constraint: Active Total Risk (Maximum = 10, Trade-off = 0.5)

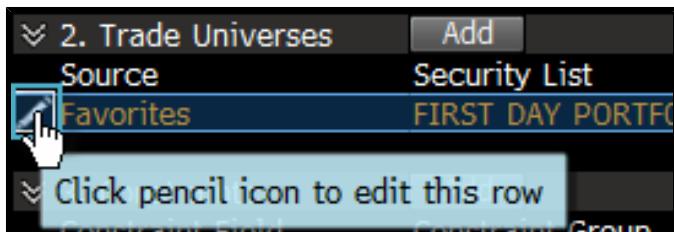
This means that every 0.5% that Active Total Risk goes above 10% is worth an increase of 1 in Current Ratio. If trade-off is not specified for a constraint, then the constraint can never be violated.

¹⁰³ When optimizing a portfolio, allows you to set the rule that applies to the trade universe. The following options are available:

- **No Trade List:** A list of securities in your portfolio that you do not buy or sell (trade).
- **No Sell List:** A list of securities in your portfolio for which you do not reduce weights (cannot sell).
- **No Buy List:** A list of securities in your portfolio for which you do not increase weights (cannot buy).
- **Liquidate (No Hold):** Sets security weights to zero.
- **No Short:** A list of securities you cannot have short.
- **No Long:** A list of securities you cannot have long.

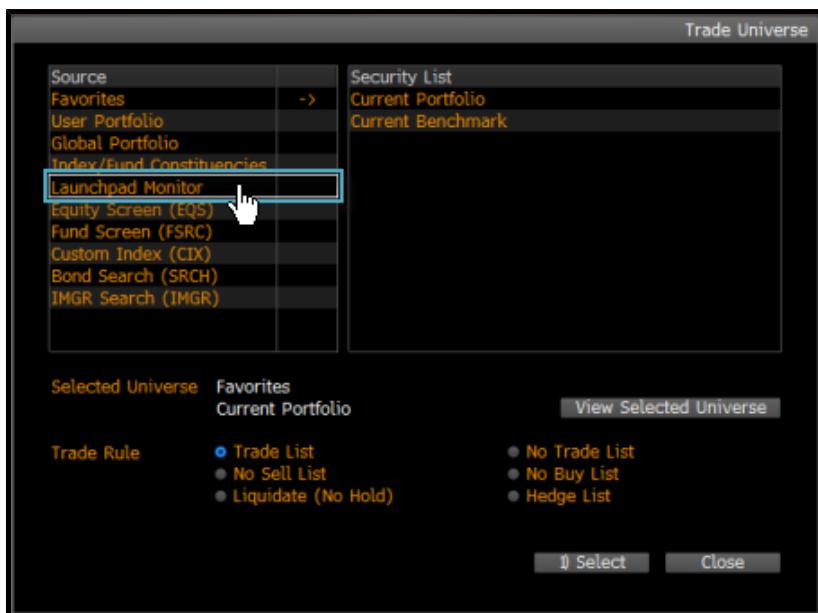
¹⁰⁴ The source of trades you want to optimize, either Portfolio, Equity Index, Favorites, or Benchmark.

¹⁰⁵ The destination portfolio, equity index, benchmark, or favorite source, depending on the *Source* selection.



The *Trade Universe* window appears.

2. From the *Source* column, select a source of securities (e.g., *Launchpad Monitor*).



In the *Security List* column, security lists from the selected source appear. The *Selected Universe* field updates to show your currently selected source and universe.

3. From the *Security List* column select the list that contains the securities you want to include in the trade universe.
4. From the *Trade Rule* section, click a rule for the trade universe.

Note: If you want to keep the weights of some securities in your portfolio constant, you can create a portfolio comprised of these securities and set the list rule to *No Trade List* for that portfolio. You can also set up a *No Sell List* for securities you do not want to sell or decrease weight, a *No Buy List* for securities you do not want to buy or increase weight, or a *Liquidate (No Hold)* list for securities you want to liquidate or set weight to zero.

5. Click the **Select** button.

Under the *Trade Universes* section, the selected *Source*, *Security List*, and *Rule* appear.

When your optimization goals and universe are set, you can establish your portfolio constraints, security-level constraints, and a frontier. For more information, see [Optimization Constraints](#), [Adding a Frontier](#), and [Security Properties](#).

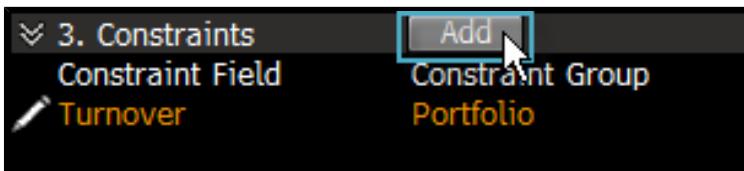
For more information on running your optimization, see [Running Optimization](#). For an example of running an optimization, see [Example: Maximize Sharpe Ratio](#).

OPTIMIZATION CONSTRAINTS

The *Constraints* section of the *Setup* tab allows you to determine the rules the optimizer follows in order to construct the optimal portfolio. These constraints can be applied to the entire portfolio or to a subset of the portfolio (including security-level) specified by the aggregation bucket.

To set portfolio and group constraints:

1. Click the **Add** button.



The Add Constraint window appears.

2. Select the field you want to constrain:

- Browse the *Select Field* column to find the field.
- Enter a search term in the *Search* field.
- Create a custom equity formula to calculate a value to constrain. To create a custom formula, from the *Select Field* column, select **Equity Formulas > Create Formula**. The *Formula Builder* (FORM) function appears, where you can create and manage custom formulas using Bloomberg's proprietary formula language.

Note: You must be enabled for FORM to access this option. For more information, contact your Bloomberg account representative.

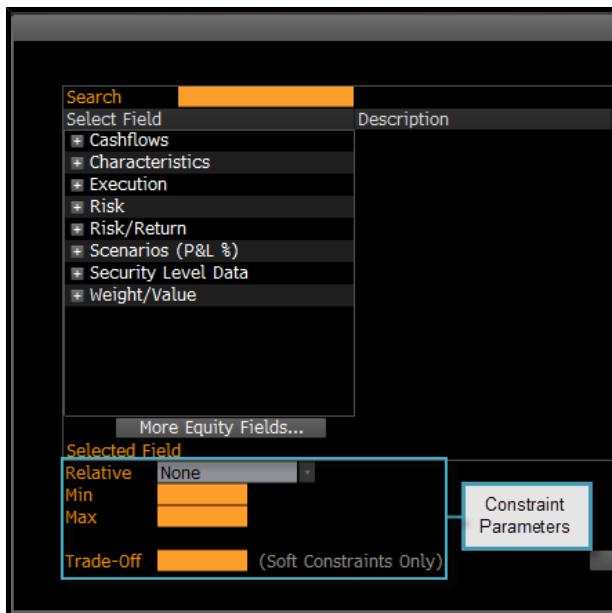
- If you want to see more options, click the **More Equity Fields** button. The *Select Field* window appears where you can search for additional options.

[Hint] You can select any field option to see a definition in the *Description* column.

Constraint level options appear at the bottom of the window. Depending on your selection, the fields and the corresponding options vary.

3. Define constraint parameters by updating constraint fields, then click the **Add Constraint** button.

- **Example:** If you select to constrain the Number of Trades, you can then choose to constrain the variable relative to another portfolio or benchmark (Relative) as well as set the minimum (Min) and maximum (Max) number of trades. You cannot, however, determine the Trade-Off value for this selection.



- **Example:** If you select to constrain the Trade Size (%), you can only determine the trade size relative to another portfolio/benchmark and/or the minimum trade value.
 - **Example:** When you add a constraint for a given category (e.g., Dividend Yield in BICS Technology Sector), you can define the *Aggregation* type as either Contribution (meaning you are applying the constraint to the sum product of security weights of the indicator's value) or Gross Value (meaning only the indicator's value, set in the *Min*¹⁰⁶ and *Max*¹⁰⁷ fields). When shorts are allowed, in addition to Contribution and Gross Value, you can also select Long Value and Short Value aggregation methodology.
- |Hint|** For details on the calculations of the aggregation options, see page 37 of the *Bloomberg Portfolio Optimizer* white paper.

¹⁰⁶ In the Setup tab of the Portfolio Optimization screen, specifies a minimum constraint in order to shape your optimal portfolio.

¹⁰⁷ In the Setup tab of the Portfolio Optimization screen, specifies a maximum constraint in order to shape your optimal portfolio.

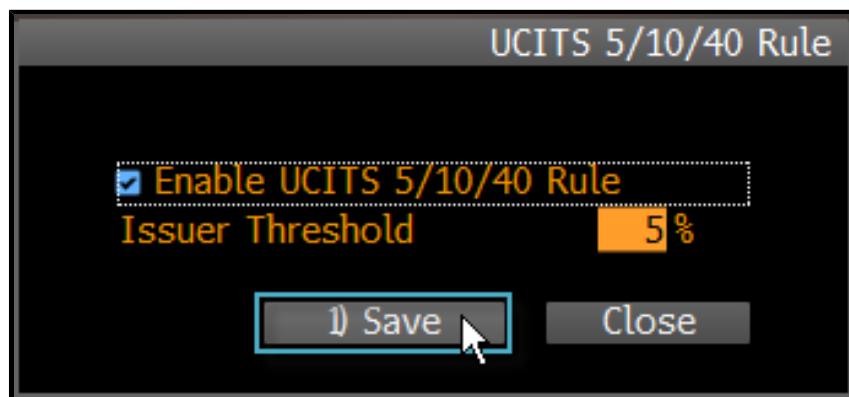


Note: Scenarios that are available on the *Scenarios* tab can be added as constraints. They are located under *Scenario (P&L %)*. Multiple scenarios can be added as constraints.

The constraints appear in the *Portfolio and Group Constraints Definition* section.

4. Add as many constraints as needed by clicking the **Add Constraint** button, then click the **Close** button.
The constraints appear in the *Constraints* section of the *Setup* tab.
5. If you want to add an efficient frontier, see the instructions in [Adding a Frontier](#). Adding a frontier allows you to generate a set of optimal portfolios based on a range of values for a given constraint.
6. If you want to apply UCITS compliance rules, from the toolbar select **Settings > UCITS 5/10/40 Rule**.

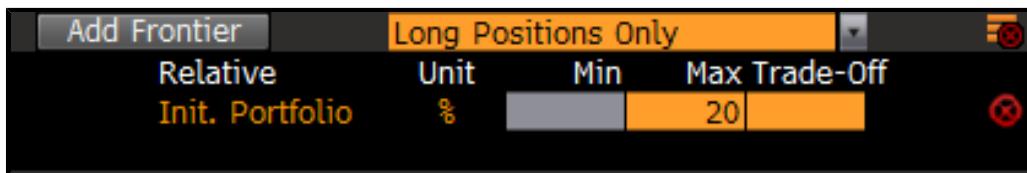
In the *UCITS Compliance Rules* window that appears, select the **Enable UCITS Compliance Rule** checkbox, enter the threshold value (the default value is 5%), then click the **Save** button.



Note: UCITS compliance rules are applicable to European portfolio manager who are subject to UCITS regulations.

Two constraints are added to the Portfolio and Group Constraints Definition section: [UCITS Rule \(5 sum 40 rule\)¹⁰⁸](#) and [Issuer Constraint¹⁰⁹](#). When you run the optimization, the UCITS constraints are enforced.

- If you want to edit a constraint, update the [Relative¹¹⁰](#), [Min¹¹¹](#), [Max¹¹²](#), and/or [Trade-Off¹¹³](#) fields, then press <GO>.



Your changes are saved. If you want to delete a constraint, select the row and click the **Delete** button.

Now that your optimization goals, universe, and constraints are set, you can establish your security-level constraints, or choose to add a frontier. For more information, see [Adding a Frontier](#) and [Security Properties](#).

For more information on running your optimization, see [Running Optimization](#). For an example of running an optimization, see [Example: Maximize Sharpe Ratio](#).

¹⁰⁸ The UCITS rule ensures that the sum of issuer weights greater than the specified threshold is not greater than the [Max](#) value (default is 40%).

¹⁰⁹ Ensures that no single issuer has the weight of greater than [Max](#) value (default is 10%) in the optimal portfolio.

¹¹⁰ In the Setup tab of the Portfolio Optimization screen, specifies whether the corresponding constraint is calculated relative to another portfolio, benchmark, or nothing (none).

¹¹¹ In the Setup tab of the Portfolio Optimization screen, specifies a minimum constraint in order to shape your optimal portfolio.

¹¹² In the Setup tab of the Portfolio Optimization screen, specifies a maximum constraint in order to shape your optimal portfolio.

¹¹³ In the Setup tab of the Portfolio Optimization screen, the Trade-Off field defines how different goal and constraint fields are evaluated relative to each other. The trade-off can be understood in two contexts:

- **Multiple Goal Terms:** As an example, specifying two goal terms may look like:

— Minimize Active Total Risk (Unit: %, Trade-off = 0.2)

— Maximize Current Ratio (Unit: number, Trade-off = 1)

This means that a .2% increase in Active Total Risk is worth the same as an increase of 1.0 in Current Ratio, and vice-versa.

- **Soft Constraints:** In the context of constraints, the trade-off applies to the value in excess of the minimum and maximum bounds specified. As an example:

— Goal: Maximize Current Ratio (Trade-off = 1)

— Constraint: Active Total Risk (Maximum = 10, Trade-off = 0.5)

This means that every 0.5% that Active Total Risk goes above 10% is worth an increase of 1 in Current Ratio. If trade-off is not specified for a constraint, then the constraint can never be violated.

SECURITY PROPERTIES

The table in the *Security Properties* section of the *Setup* tab allows you to specify properties for individual securities (rather than an aggregation of many securities). The first line in this section is used to define the default value for all securities which are not specified individually below this line.

To set security-level properties and constraints, update any of the following fields:

Note: You can specify as many security-specific constraints as necessary.

- **Min % / Max %:** Enter the minimum and maximum weight of cash in the portfolio.
- **Security:** To specify constraints for a particular security, enter the ticker symbol in the first-available *Security* field.

Example: You want to set the optimal maximum weight for IBM US <Equity> to be 10%. Therefore, enter IBM US <Equity> in the first-available field in the *Security* column, then enter 10 in the corresponding *Max Weight* column.

Example: If you want to apply global constraints (applied to all securities in the portfolio), enter the values in the corresponding rows with "Default for all securities" selected in the *Security* column.

Security	Relative	Unit	Min	Max	MinHld	MinTrd	MaxTrd	Lot
USD	Infuse	None	Wgt%	0	5			
Default for all		None	Wgt%	0	100			1
<Type or drag values>		None	Wgt%					

- **Relative:** Choose whether the security should be calculated relative to the portfolio (Init. Portfolio), benchmark, or neither (None).
- **Min Weight:** The minimum *Weight Bounds (%)*¹¹⁴.
- **Max Weight:** The maximum *Weight Bounds (%)*¹¹⁵.
- **Max Trade:** The maximum number of shares bought or sold for a security during optimization.
- **Lot Size:** Enter the smallest increment in number of shares traded or held.

Note: You can also limit the amount of trading to a fixed percentage of average daily volume (ADV). You can also incorporate Bloomberg-provided round lot values into your optimization. For more information on limiting trading by these parameters, see *Limiting Amount of Trades*.

Now that your optimization goals, universe, portfolio constraints, and security-level constraints are set, you can run a portfolio optimization. For more information on running your optimization, see *Running Optimization*. For an example of running an optimization, see *Example: Maximize Sharpe Ratio*.

INFUSING CASH

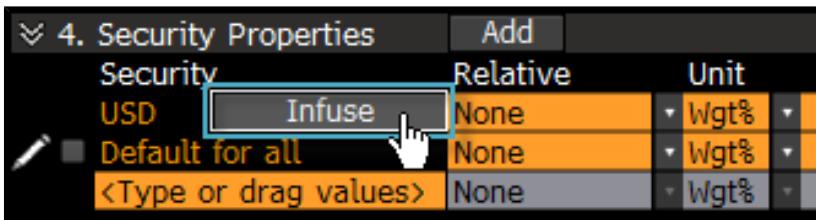
If you have cash that you want to put to work in your portfolio, you can infuse cash from the *Setup* tab of the *Portfolio Optimization* screen.

Steps:

¹¹⁴ In the *Portfolio Optimization* screen, the portfolio weights in the optimal portfolio between a specified range (minimum and maximum).

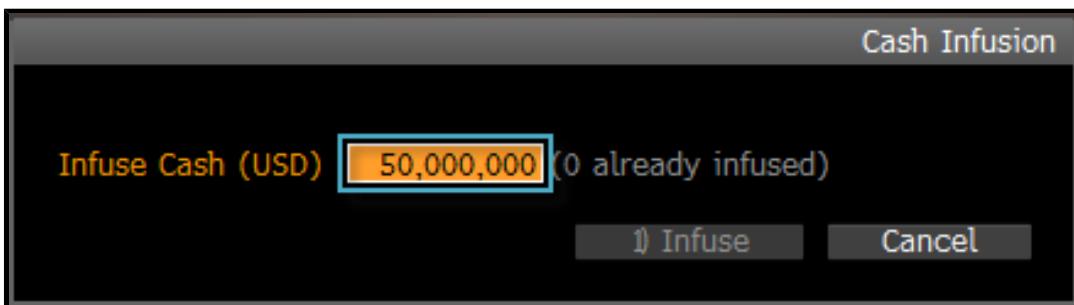
¹¹⁵ In the *Portfolio Optimization* screen, the portfolio weights in the optimal portfolio between a specified range (minimum and maximum).

- From the 4. Security Properties section, click the **Infuse** button.



The Cash Infusion window appears.

- In the **Infuse Cash (USD)** field enter the amount of cash you want to add (e.g., 50,000,000).



The **Infuse** button activates.

- Click the **Infuse** button.

The Cash Infusion window closes. A * appears on the Infuse button.

- From the toolbar, click the **Run** button.



Depending on your optimization parameters, either action may occur:

- A Warning window appears confirming that existing Trade Simulation trades will be overwritten. Click **Yes**.
- An Optimization Error window appears describing any errors in your optimization. For example: "Please Specify the Trading Universe." Click **Close** and address errors as appropriate.

When the portfolio optimization is successful, the results appear in the Trades tab, which displays the results of your portfolio optimization settings and lets you export trade data. For more information, see [Optimization Trades](#). For more information on troubleshooting optimization errors, see [Troubleshooting](#).

For more information on running your optimization, see [Running Optimization](#). For an example of running an optimization, see [Example: Maximize Sharpe Ratio](#).

RESULTS TRANSPARENCY

Some combinations of constraints, goals, and security universes may result in an infeasible optimization, meaning the parameters are too constrained for any trades to meet your requirements. When an optimization results in an infeasibility, you can use the *Results Transparency* window to find out which constraints are too tight, so you can resolve the error and see optimized trades.

In the example below, the following parameters have been set up for the optimization:

Constraint Field	Constraint Group	Relative	Unit	Min	Max	Trade-Off
Turnover	Portfolio	Init. Portfolio	\$	100		20

Security	Relative	Unit	Min	Max	MinHld	MinTrd	MaxTrd	Lot
USD	Infuse	None	Wgt%	0	5			
Default for all	None	None	Wgt%	0	100			1
<Type or drag values>	None	None	Wgt%					

- **Trade Universe:** Current Portfolio
- **Constraint:** Minimum Dividend Yield is 10%
- **Security Properties:** Minimum Weight for each security is 10%

Because the parameters of this optimization are too constrained, the optimization results in an infeasibility error. Once you run the optimization, the *Results Transparency* window appears with information on a conflicting constraint and the recommended action you can take to resolve the infeasibility error.



Note: The *Results Transparency* window reports one infeasibility at a time. If there is more than one set of conflicting constraints in the optimization setup, you can address the first infeasibility, run the optimization again, and see the next infeasibility in the *Results Transparency* window. This behavior occurs until all conflicting constraints are resolved.

You can export the *Security Properties* data to Microsoft® Excel by clicking the export () icon on the right, which allows you to manage the security list outside of your PORT activity.

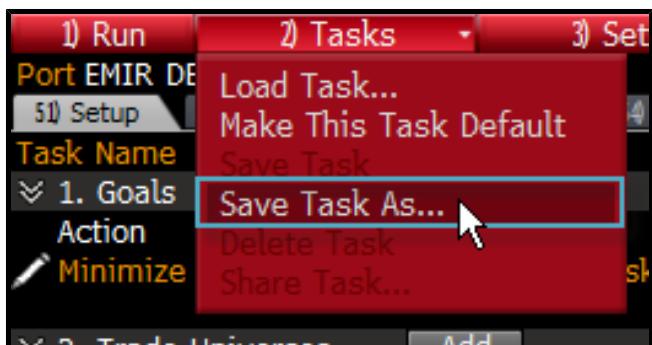
Note: For more information on infeasibility transparency, see the *Portfolio Optimizer Infeasibility Transparency* document.

SAVING TASKS

In the *Portfolio Optimization* screen, you can define optimization tasks. A task is a problem definition that includes the goal definition, portfolio/group constraint definitions, and security constraint/property definitions. Once set up, you can save the task so you can quickly reuse the optimization in the future.

To set up a task:

- Establish your portfolio optimization parameters, as outlined in the following topics:
 - [Optimization Goals](#)
 - [Optimization Universe](#)
 - [Optimization Constraints](#)
 - [Security Properties](#)
- From the toolbar, select **Tasks > Save Task As...**



The **Save Task As...** window appears.

3. Enter a name in the **Task Name** field, then click **Save**.

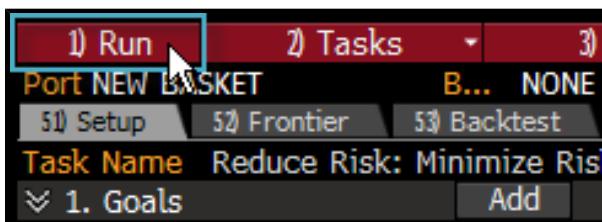
*The task is saved and can be accessed by selecting, from the toolbar, **Tasks > My Tasks**.*

For more information on predefined tasks, task defaults, and saving, sharing, and deleting tasks, see [Predefined Tasks](#), [Task Defaults](#), [Saving Tasks](#), [Sharing Tasks](#), and [Deleting Tasks](#).

RUNNING OPTIMIZATION

After you set your optimization goals, trade universes, portfolio and group constraints, and security-level properties and constraints in the *Setup* tab, you can run a portfolio optimization.

To run a portfolio optimization, from the toolbar, click the **Run** button.



Depending on your optimization parameters, either action may occur:

- A *Warning* window appears confirming that existing Trade Simulation trades will be overwritten. Click **Yes**.
- An *Optimization Error* window appears describing any errors in your optimization. For example: "Please Specify the Trading Universe." Click **Close** and address errors as appropriate.

When the portfolio optimization is successful, the results appear in the *Trades* tab, which displays the results of your portfolio optimization settings and lets you export trade data. For more information, see [Optimization Trades](#). For more information on troubleshooting optimization errors, see [Troubleshooting](#).

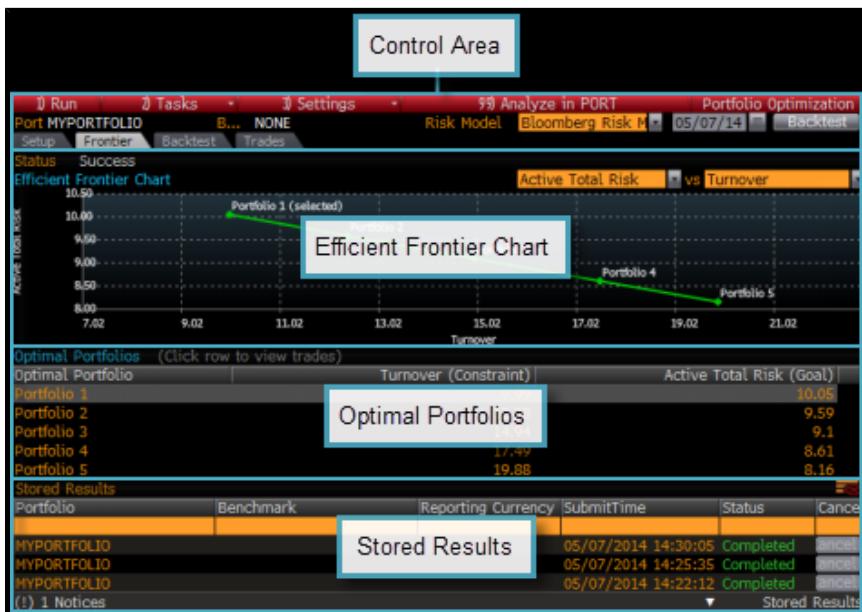
For more information on running your optimization, see [Running Optimization](#). For an example of running an optimization, see [Example: Maximize Sharpe Ratio](#).

OPTIMIZATION FRONTIER

The *Frontier* tab allows you to generate a set of optimal portfolios based on a range of values for a given constraint. For example, you can minimize portfolio active total risk while allowing maximum portfolio turnover to vary from 10% to 20%. The plotting of the goal versus constraint values is called the "efficient frontier."

The *Frontier* tab is activated when you click the **Add Frontier** button in the *Setup* tab, add constraints, then click the **Run** toolbar button. For instructions, see [Adding a Frontier](#).

The *Frontier* tab is divided into the following sections:



- **Control Area:** Displays information for the portfolio being optimized, including the portfolio (*Port*¹¹⁶), benchmark (*Bmrk*¹¹⁷), and selected *Risk Model*¹¹⁸. Allows you to run and refine optimizations as well as enable backtesting. For information on backtesting, see [Backtesting Optimization](#).
- **Efficient Frontier Chart:** Displays the upper, middle, and lower linear division of the optimal portfolios that fit within the range of your frontier constraint and optimization goal.
- **Optimal Portfolios:** Displays five optimal portfolios that match your frontier constraint and optimization goal. You can click any portfolio to display suggested trades and related information in the *Trades* tab.

¹¹⁶ In general, *Port* indicates the portfolio being analyzed. The portfolios are created and maintained in PRTU and BBU. For more information, see the [PRTU Help Page](#) and the [BBU Help Page](#). In the Characteristics - Characteristics Summary sub-tab, however, *Port* indicates the weight value of the portfolio.

¹¹⁷ Indicates the benchmark against which you are comparing your portfolio, which can be an index, portfolio, or fund.

— In the Characteristics - Characteristics Summary sub-tab, the benchmark indicator value.

— In the View Manager, allows you to choose which fields appear in the benchmark column (for each tab).

¹¹⁸ See [Model](#).

- **Stored Results:** Displays optimization requests that may take a while to process, the time it was submitted, and the *Status*¹¹⁹ of the request. You can click any stored result to run that optimization again.

OPTIMIZATION TRADES

The *Trades* tab displays the results of your portfolio optimization settings and allows you to export trade data.

The *Trades* tab is divided into the following sections:

Portfolio	Benchmark	Submitted	SubmitTime	Status	Action
STRATEGIC OPPORTUNITIES	SPX Index		05/12/2014 17:15:06	Completed	Cancel

Note: If there are no resulting trades due to conflicting constraints within your optimization parameters, the *Results Transparency* window appears with information on the error. For more information, see [Results Transparency](#).

- **Control Area:** Displays information on the portfolio being optimized, including the portfolio (*Port*¹²⁰), benchmark (*Bmrk*¹²¹), and selected *Risk Model*¹²². Allows you to run and refine optimizations as well as enable backtesting. For information on backtesting, see [Backtesting Optimization](#).
- **Optimization Summary:** Displays the success/failure status of portfolio optimization and trade summary results. The *Status*, either Success or Failed, may have a corresponding warning, such as "Round lots have been relaxed for some securities." You can click the **Warnings** button to see details for any errors and recommended actions. Trade summary

¹¹⁹ Indicates whether the optimization request is pending, failed, or a success.

¹²⁰ In general, *Port* indicates the portfolio being analyzed. The portfolios are created and maintained in PRTU and BBU. For more information, see the [PRTU Help Page](#) and the [BBU Help Page](#). In the Characteristics - Characteristics Summary sub-tab, however, *Port* indicates the weight value of the portfolio.

¹²¹ Indicates the benchmark against which you are comparing your portfolio, which can be an index, portfolio, or fund.

— In the Characteristics - Characteristics Summary sub-tab, the benchmark indicator value.

— In the View Manager, allows you to choose which fields appear in the benchmark column (for each tab).

¹²² See [Model](#).

data may include: *Turnover (%)*¹²³, *Number of Buys*¹²⁴, *Number of Sells*¹²⁵, *Trades Value*¹²⁶, *Value of Buys*¹²⁷, and *Value of Sells*¹²⁸. For more information on errors, see [Troubleshooting](#).

- **Goal Summary:** Displays the initial and final values for each goal that was part of the optimization. For example, if in the *Goal Definition* section of the *Setup* tab, you chose to minimize Active Total Risk, the *Goal Summary* section displays the value of Active Total Risk for the initial portfolio (Initial Value: e.g., 39.61%) and the optimized portfolio (Final Value: e.g., 34.13%).
- **Proposed Trades:** Displays a list of the proposed trades that need to be implemented in order to get from the initial portfolio to the optimal portfolio. The table displays the name of the instrument (*Name*), a proposal to Buy or Sell (*Trade*), the quantity of shares to buy/sell (*Quantity*), the weight (in percentage terms) for the initial portfolio (*Init. Weight (%)*), the optimized weight (*Opt. Weight (%)*), and the difference between the initial and optimal weight (*Wgt Diff*). You can click any row to access more analytical functions for the instrument, such as *Historical Pricing* (HP), security *Description* (DES), and *Company News and Research* (CN). The corresponding <Help> pages display more information.

Above the *Proposed Trades* table, you can click the **Export Trades** button to export trades to a spreadsheet.

If there are exceptions in the optimized portfolio, you can click the **Exceptions (#)** button to view these instruments. The number in parentheses indicates the number of exceptions in the portfolio. Exceptions are viewed in the *Exceptions* window.

- **Portfolio and Group Constraint Results:** Displays summary of how each constraint field performed in the optimization, including the name of the constraint, the minimum and maximum constraint values, and the constraint for the initial and optimal portfolios. The data directly corresponds with your optimization setup in the *Constraints Definitions* section of the *Setup* tab.

For more information on defining constraints, see [Optimization Constraints](#).

- **Stored Results:** Displays optimization requests that may take a while to process, the time it was submitted, and the *Status*¹²⁹ of the request. You can click any stored result to run that optimization again.

ANALYZING IN PORT

Once you have optimized a portfolio in the *Portfolio Optimization* screen and are satisfied with the results, you can analyze the optimal portfolio in PORT.

To analyze the optimal portfolio in PORT, from the toolbar, click the **Analyze in PORT** button.



¹²³ The turnover, in percentage terms, incurred from the initial portfolio to the optimal portfolio.

¹²⁴ The number of portfolio positions bought.

¹²⁵ The number of portfolio positions sold.

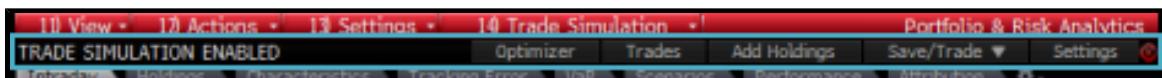
¹²⁶ The combined market value of the trades.

¹²⁷ The buy values associated with the Trades Value (in the reporting currency).

¹²⁸ The sell values associated with the Trades Value (in the reporting currency).

¹²⁹ Indicates whether the optimization request is pending, failed, or a success.

The optimal portfolio appears in PORT. Trade simulation mode is enabled. The Trade Simulation menu appears at the top of the screen, just below the toolbar.



For more information on Trade Simulation mode, see [Trade Simulation](#).

For an example of using the optimizer to maximize user-supplied expected returns, see [Example: Maximize Sharpe Ratio](#).

REPORTING

You can export reports of portfolio data from the *Actions* menu in PORT, so you can quickly generate summaries of PORT data for offline analysis.



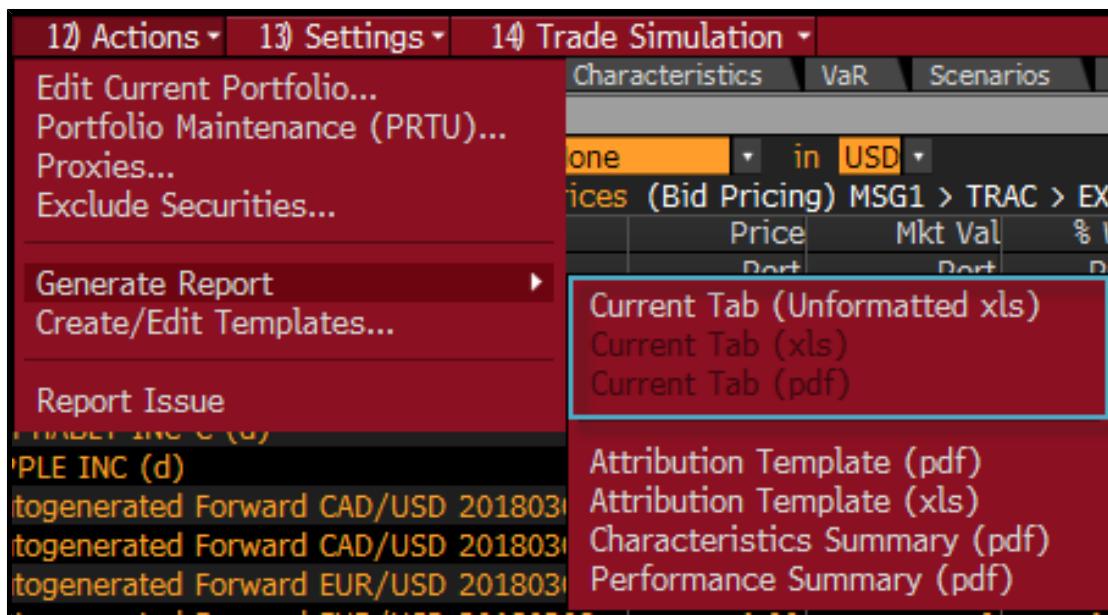
- For information on generating standalone reports from the tab you are currently viewing in PORT, see [Current Tab Reports](#).
- For information on generating standard Bloomberg reports, see [Bloomberg Reports](#).
- For information on customizing your own report templates, see [Creating Report Templates](#).
- For information on accessing existing custom report templates, see [Accessing Custom Reports](#).

CURRENT TAB REPORTS

You can generate reports for holdings, performance, and other data specific to the currently selected tab in either PDF or spreadsheet format.

You can also create custom report templates, which allow you to combine different tabs into one report. For more information, see [Creating Report Templates](#).

From the toolbar, select **Actions > Generate Report > Current Tab {Format}**.

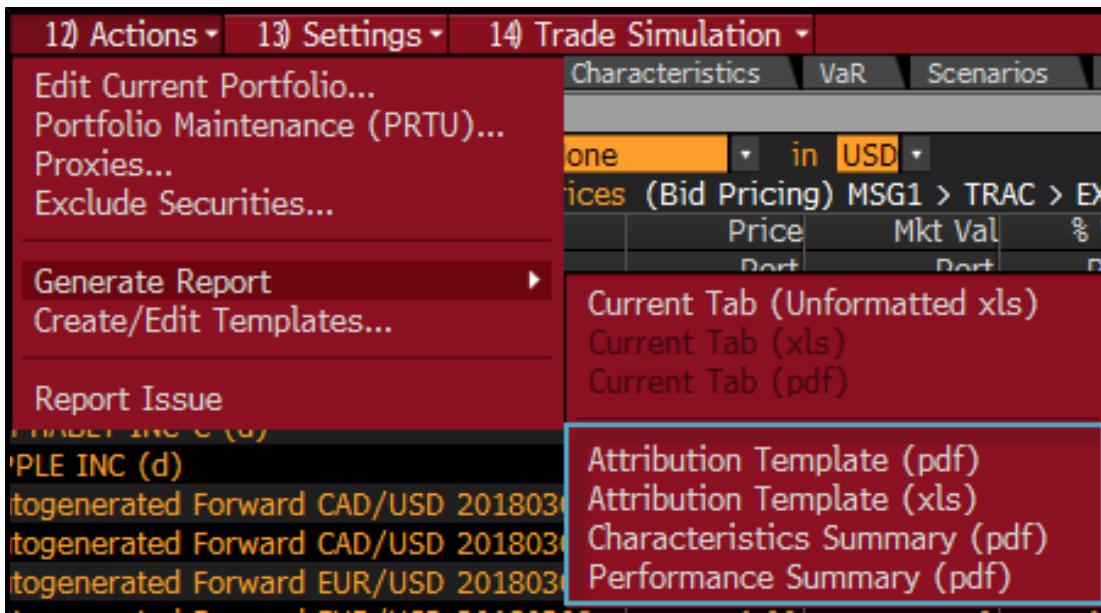


A message appears at the top of the screen indicating that your report is running. The report is generated using the Retrieve Reports (RPT) function. If you want to check the status of your report, enter RPT <GO>. When the report is complete, the corresponding spreadsheet or PDF appears on your computer. For more information on RPT, see the [RPT Help Page](#).

BLOOMBERG REPORTS

You can access standard reports maintained by Bloomberg, so you can quickly generate an on-demand summary of portfolio attribution or characteristics.

To generate a Bloomberg report, from the toolbar, select **Actions > Generate Report > {Report Name}**.



The table below explains the available reports:

Report	Generates
Attribution Template (PDF)	A PDF report of attribution information, including the top 20 and bottom 20 securities in the portfolio in terms of contribution to return, total return, relative weight, and relative return, plus holding-level details and a summary of the portfolio. This report also displays exceptions to each attribution calculation.
Attribution Template (xls)	A Microsoft® Excel report of attribution information displayed within separate tabs, including the top 20 and bottom 20 securities in the portfolio in terms of contribution to return, total return, relative weight, and relative return, plus holding-level details and a summary of the portfolio. This report also displays exceptions to each attribution calculation in separate tabs.
Characteristics Summary (PDF)	A PDF report including a one-page summary of portfolio characteristics, which are dependent on the securities represented in the portfolio.
Performance Summary (PDF)	A PDF report including a one-page summary of the total return performance of your portfolio over the previous month, expressed as a percentage.

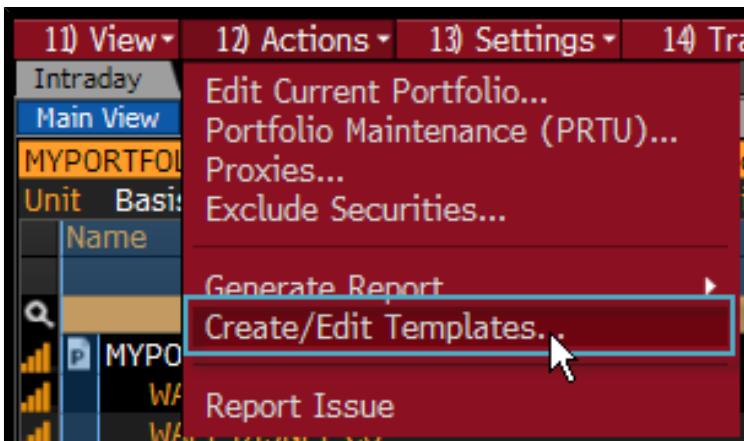
You can also customize the standard reports and save the customizations as new templates. For example, you can customize the Characteristics Summary report to include a % Weights pie chart or field details. For more information on customizing reports and saving templates, see [Creating Report Templates](#).

CREATING REPORT TEMPLATES

You can create and save custom report templates that allow you to mix and match information from any of PORT's tabs into one report. You can create custom templates from scratch or begin with a standard Bloomberg template.

To create and save a report template:

1. From the toolbar, select **Actions > Create/Edit Templates**.



The Portfolio Report Templates screen appears with a list of the existing saved report templates.

2. From the toolbar, click the **Create** button.

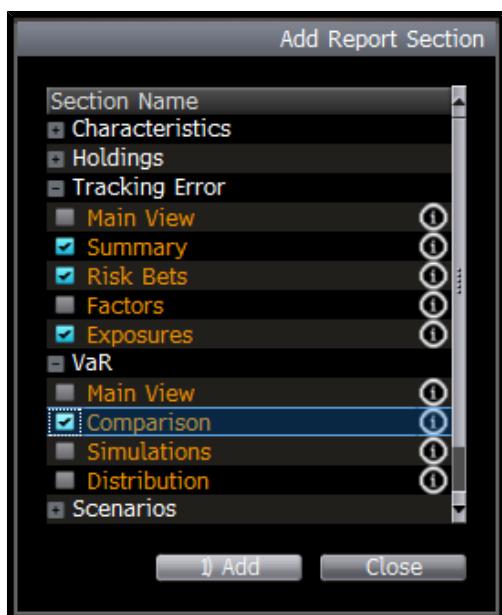
The screenshot shows the 'Portfolio Report Templates' screen. At the top, there is a red toolbar with a 'Create' button highlighted by a blue box. Below the toolbar is a table titled 'Portfolio Report Templates' with the following columns: Name, Type, # Sect, Owner, and Last Updated. The table lists five existing report templates:

	Name	Type	# Sect	Owner	Last Updated
1.	Attribution Template (pdf)	PDF	17	BLOOMBERG	07/08/14
2.	Attribution Template (xls)	Excel	17	BLOOMBERG	07/08/14
3.	Characteristics Summary (pdf)	PDF	1	BLOOMBERG	07/08/14
4.	Performance Summary (pdf)	PDF	2	BLOOMBERG	07/08/14
5.	Tracking Error Template	PDF	4	LAUREN SEITZ	05/19/15

The Add Report Section window appears.

Note: You can also build your template from a standard Bloomberg report by selecting the pencil icon to the left of a Bloomberg report, then modifying the section organization as described in the following steps. For more information on standard Bloomberg reports, see [Bloomberg Reports](#).

3. Browse the Section Name list and select all the sections (i.e., the sub-tabs) you want to add to the report, then click the **Add** button.



Note: You can click the (i) icon to the right to see a description and preview of the report output.

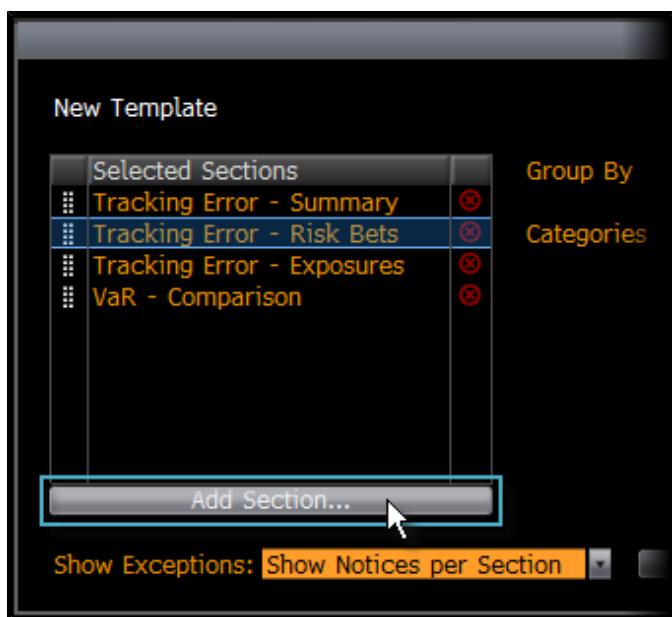
The *Edit Report* window appears with your selections listed on the left.

- From the list on the left, select a section, then customize the settings that appear on the right. Some examples of reporting options include choosing the type of chart that appears in the report, selecting how data is sorted, or entering a custom timeframe for the report analysis.

For example, for the *Tracking Error/Volatility Risk Bets* section, the *Group By* and *Categories* options are available.

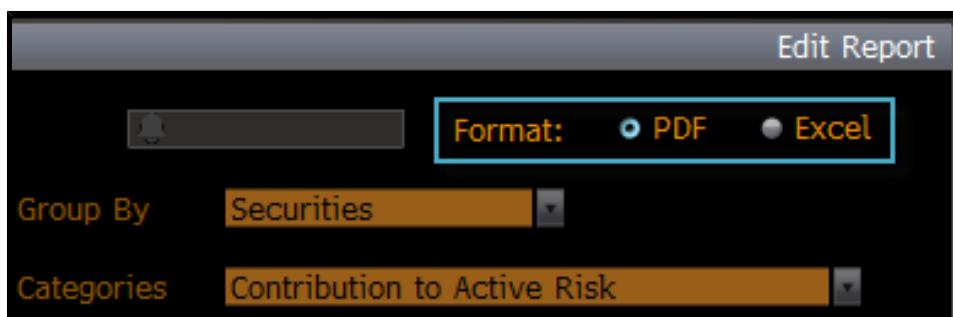


- If you want to add another section to the report, click the **Add Section** button and repeat steps 3-4.

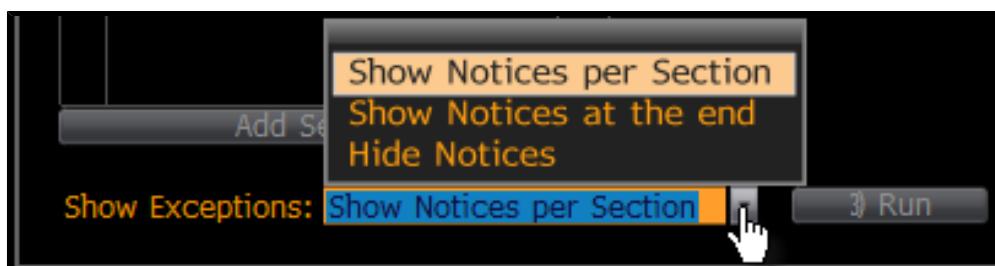


Note: To remove a tab from the *Selected Sections* list, click the red X next to the section name.

- From the *Format* field, choose whether the report is produced in *PDF* or *Excel* format.



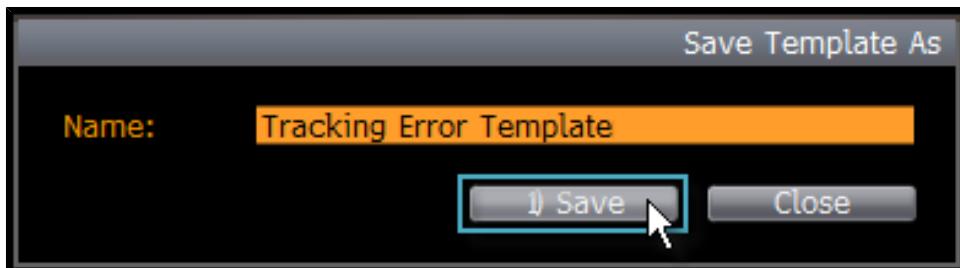
- From the *Show Exceptions* drop-down menu, choose how exceptions are treated in the report:



- Show Notices per Section:** The report displays exception notices relevant to each section in the individual sections.
- Show Notices at the end:** The report displays all exception notices at the end of the report.

- **Hide Notices:** The report does not display any exception notices.
[Hint] An exception is a security that is not covered by PORT analytics.

8. Click the **Save** button.
The Save Template As window appears.
9. In the **Name** field, enter a name for the template, then click the **Save** button.



The report is added to the list of reports on the Portfolio Report Templates screen, but you remain on the Edit Report window.

10. To launch the report, click the **Run** button.

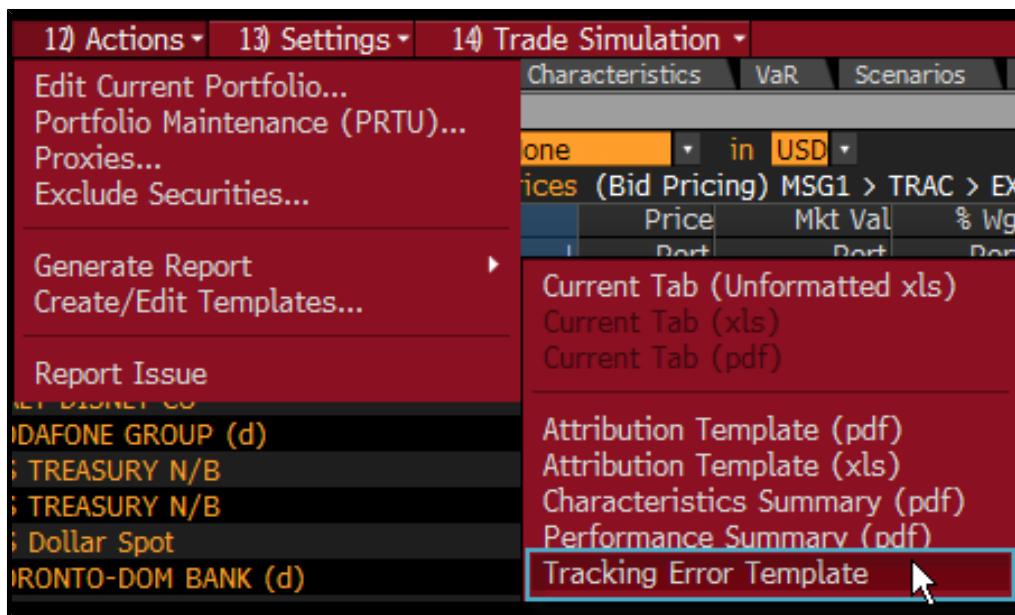


The report generates in the specified format. You can see the status of the report in the Retrieve Reports (RPT) function. For more information on RPT, see the [RPT Help Page](#).

ACCESSING CUSTOM REPORTS

From the PORT Actions menu, you can quickly access custom report templates that you created and saved on the *Portfolio Report Templates* screen.

To access a saved template, from the toolbar, select **Actions > Generate Report > {Template Name}**.



The report generates.

Note: If your report template includes a chart or a sorting order that uses a field not present in the view you are using, a Warning appears with options: 1) Generate the report anyway, 2) Edit the template to remove the problem field, or 3) Close (so you can add the field to the view and then re-run the report).

SETTINGS

The *Settings* toolbar menu provides quick access to function settings that allow you to manage the appearance of the portfolio, enable look-through functionality, and view your portfolio using *Long/Short* mode.

In addition to these settings, you can use calculation profiles and PORT views across your portfolios, ensuring that you get meaningful analysis whenever you open any portfolio. Calculation profiles let you manage critical inputs such as pricing sources, return calculation settings, and risk models. Views let you control the PORT screen layout, including columns and classifications. For more information on using the *Portfolio Administration* (PRTU) function to assign calculation profiles to your

portfolios, click [here](#) . For more information on using PRTU to assign PORT views to your portfolios, click [here](#) .



The following table describes the settings available from the Settings menu. Note that some settings available in PORT do not appear in the *Settings* tool, but you can access all PORT settings through the View Manager.

Setting	Allows you to	For more details, see
Show Benchmark Securities	Show or hide the benchmark to which your portfolio is compared.	Showing/Hiding Benchmarks
Show Intraday Chart	Manage the intraday monitoring chart on relevant tabs.	Intraday Monitor Chart
Portfolio Look-Through	Enable <i>look-through</i> ¹³⁰ functionality for the funds or ETFs in your portfolio, so you can better understand your sector exposures and generate meaningful performance attribution analysis.	Enabling Look-Through For information on enabling multi-level lookthrough on public and private portfolios, see Multi-Level Lookthrough .
Benchmark Look-Through	Enable <i>look-through</i> ¹³¹ functionality for the funds or ETFs in your benchmark, so you can better understand	Enabling Look-Through

¹³⁰ The concept of evaluating each underlying holding in an index or exchange-traded fund (ETF) individually when looking at portfolio exposure or return, rather than evaluating the index or ETF as a whole. Enabling portfolio or benchmark look-through temporarily replaces the funds or ETFs in your portfolio with their underlying securities, while maintaining the same total market values and weights relative to the rest of your portfolio. This allows you to see a complete picture of the sectors where you have exposure, because indexes and ETFS are comprised of instruments that vary in sector or industry.

¹³¹ The concept of evaluating each underlying holding in an index or exchange-traded fund (ETF) individually when looking at portfolio exposure or return, rather than evaluating the index or ETF as a whole. Enabling portfolio or benchmark

Setting	Allows you to	For more details, see
	your sector exposures and generate meaningful performance attribution analysis.	
Private Portfolio Look-Through	Enable <i>look-through</i> ¹³² functionality for a <i>portfolio of portfolios</i> ¹³³ , so you can analyze the aggregate of the <i>sub-portfolio</i> ¹³⁴ positions. Note: This option is only available to users enabled to create a <i>tickerized portfolio</i> ¹³⁵ .	<i>Expanding Private Portfolios</i>
Enable Position Analytics	Enable position-level analytics, so you can see the individual positions from mutual funds or ETFs that are held by your portfolio.	<i>Enabling Position Analytics</i>
Inherit Parent Classifications	Allow securities without associated classifications to be bucketed based on the portfolio or fund to which they belong.	<i>Inheriting Classifications</i>
Long/Short Mode	Enable and use Long/Short mode for your leveraged long/short portfolios.	<i>Long/Short Mode</i>

look-through temporarily replaces the funds or ETFs in your portfolio with their underlying securities, while maintaining the same total market values and weights relative to the rest of your portfolio. This allows you to see a complete picture of the sectors where you have exposure, because indexes and ETFS are comprised of instruments that vary in sector or industry.

¹³² *The concept of evaluating each underlying holding in an index or exchange-traded fund (ETF) individually when looking at portfolio exposure or return, rather than evaluating the index or ETF as a whole. Enabling portfolio or benchmark look-through temporarily replaces the funds or ETFs in your portfolio with their underlying securities, while maintaining the same total market values and weights relative to the rest of your portfolio. This allows you to see a complete picture of the sectors where you have exposure, because indexes and ETFS are comprised of instruments that vary in sector or industry.*

¹³³ *A compilation of multiple tickerized sub-portfolios into one portfolio, which allows you to analyze an aggregation of portfolios and positions in one view in PORT. You can set up a portfolio of portfolios by adding positions on sub-portfolios to any portfolio in PRTU or by uploading portfolio tickers to your portfolio via BBU. For complete*



information on tickerized portfolios, click [here](#)

¹³⁴ *A portfolio that comprises a *portfolio of portfolios*.*

¹³⁵ *A portfolio to which a ticker has been assigned in the Portfolio Administration (PRTU) function. You can load the portfolio in the command line similar to a security and analyze risk, characteristics, and performance analytics throughout the Bloomberg. You can create "positions" on the tickerized portfolio in other portfolios, thereby creating a*



portfolio of portfolios. For complete information on tickerized portfolios, click [here](#)

Setting	Allows you to	For more details, see
Currency Hedge Portfolio	Enable an autogenerated currency hedge for the selected portfolio, which appears as a new <i>Autohedge FX Forward</i> instrument on all PORT tabs.	Currency Autohedging
Currency Hedge Benchmark	Enable an autogenerated currency hedge for the benchmark index, which appears as a new <i>Autohedge FX Forward</i> instrument on all PORT tabs.	Currency Autohedging
Apply Advanced FX Hedging	Enable autogenerated currency hedges as specified in the default calculations profile for the selected portfolio. Note: Selecting <i>Apply Advanced FX Hedging</i> disables the currency hedge settings listed above.	Currency Autohedging

For information on additional settings, such as excluding or including specific securities in your analysis, displaying security exceptions, setting up proxies, and customizing residual calculations, see [Excluding Securities](#), [Displaying Exceptions](#), [Setting Up Proxy Assets](#), and [Performance Computations](#).

ENABLING LOOK-THROUGH

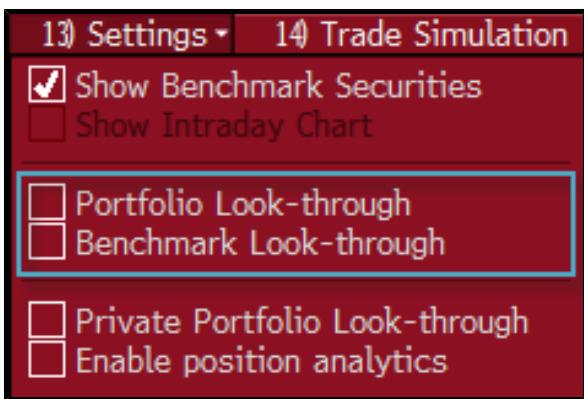
If your portfolio or benchmark contains funds or ETFs, you can optionally "look through" them to their underlying holdings. Enabling fund lookthrough can give you a more accurate understanding of your sector exposures and can also generate more meaningful performance attribution analysis.

When you enable the *Benchmark Look-through* setting, lookthrough opens up any funds that you might have. As a result, you may see securities that you do not own.

Note: For more information on exposure and attribution analysis, see [Analyzing Exposures](#) and [Attribution Tab](#).

To enable *look-through*¹³⁶ for portfolios and/or benchmarks, from the toolbar, select **Settings > (Portfolio / Benchmark) Look-through**.

¹³⁶ The concept of evaluating each underlying holding in an index or exchange-traded fund (ETF) individually when looking at portfolio exposure or return, rather than evaluating the index or ETF as a whole. Enabling portfolio or benchmark look-through temporarily replaces the funds or ETFs in your portfolio with their underlying securities, while maintaining the same total market values and weights relative to the rest of your portfolio. This allows you to see a complete picture of the sectors where you have exposure, because indexes and ETFS are comprised of instruments that vary in sector or industry.



The analysis is re-calculated. Using this option temporarily replaces the funds or ETFs in your portfolio (or benchmark) with their underlying securities while maintaining the same total market values and weights relative to the rest of your portfolio.

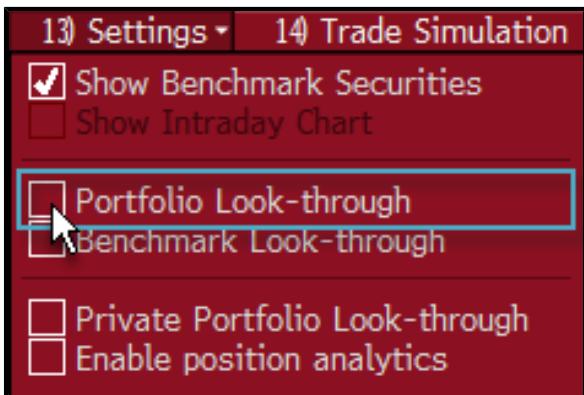
[Hint] When looking through a portfolio that has mutual funds or ETFs, you can enable position-level analytics so you can analyze individual holdings. For more information, see [Enabling Position Analytics](#). You can also set up multi-level lookthrough for portfolios with public or private funds, so you can see the deepest portfolio in which the holding is booked. For more information, see [Multi-Level Lookthrough](#). If you invest in funds, you can use look-through to evaluate fund characteristics and risks. For more information, see [Using Look-Through](#).

MULTI-LEVEL LOOKTHROUGH

Multi-level lookthrough allows you to individually evaluate the holdings in public portfolios such as mutual funds and ETFs and, if enabled, your private portfolios, so you can see the funds and holdings that comprise the portfolios and discover up to six levels of holding ownership. You can also use multi-level lookthrough to drill down into public funds that have holdings in other funds, which means you have direct exposure to the listed holdings plus indirect exposure via the fund's holdings.

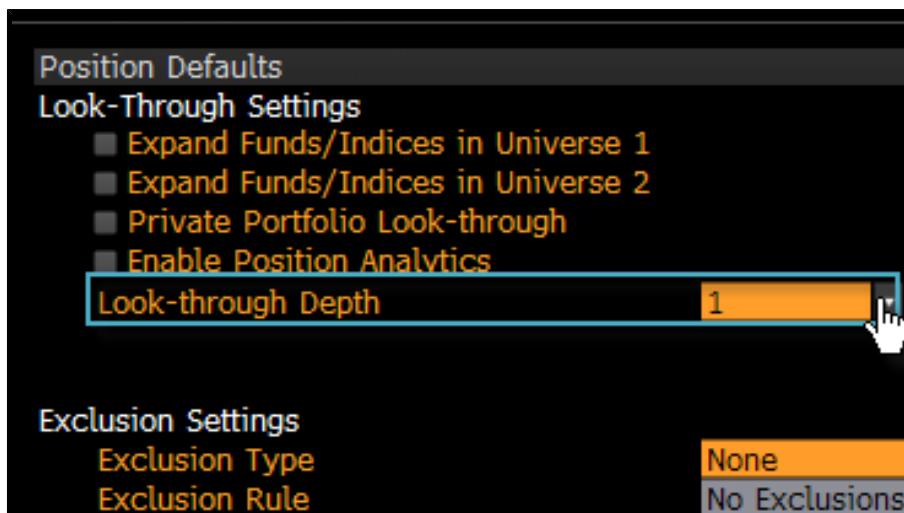
To enable multi-level lookthrough on your portfolio:

1. From the toolbar in PORT, select **Settings > Portfolio Look-through**.



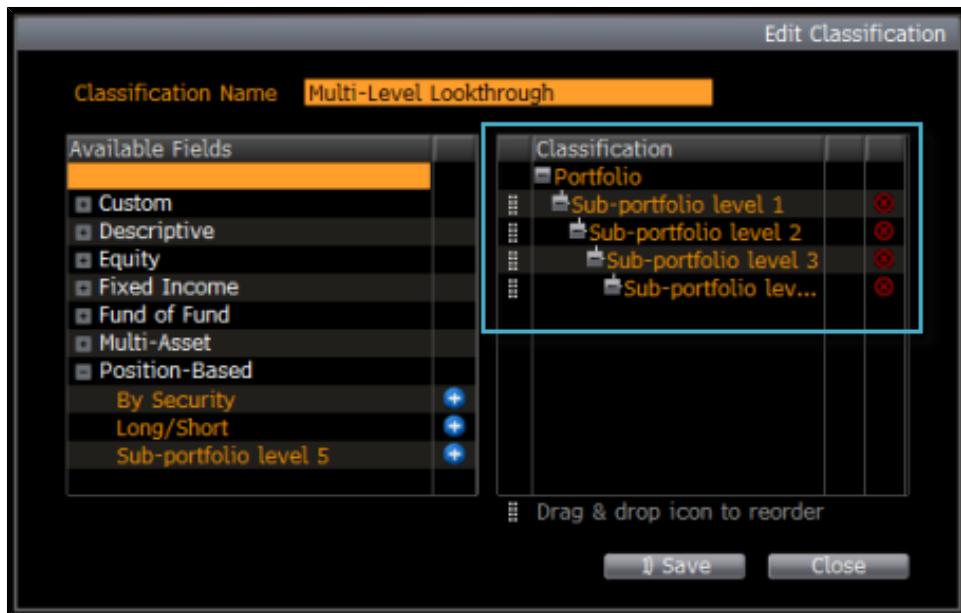
Note: If you are enabled to create a *tickerized portfolio*¹³⁷, also select **Settings > Sub-Portfolio Look-through** to ensure private portfolios are included in the lookthrough process.

2. Select the maximum level of portfolio look-through you want to see:

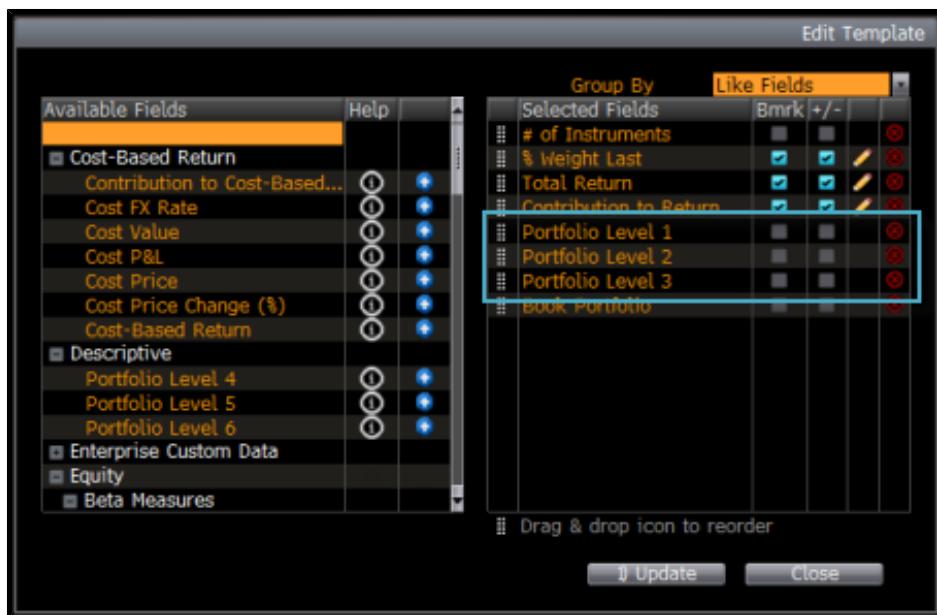


- a) From the toolbar in PORT, select **View > Edit Current View**.
 - b) From the *General Settings* sidebar, select **Position Defaults**.
 - c) From the *Look-through Depth* drop-down menu, select the deepest portfolio level (up to six) you want to see for the fund.
 - d) From the toolbar, click **Save**, then click **Run**.
Your portfolio appears in PORT.
3. Set up a new custom classification that drills down into the maximum portfolio level you want to see:

¹³⁷ A portfolio to which a ticker has been assigned in the Portfolio Administration (PRTU) function. You can load the portfolio in the command line similar to a security and analyze risk, characteristics, and performance analytics throughout the Bloomberg. You can create "positions" on the tickerized portfolio in other portfolios, thereby creating a *portfolio of portfolios*. For complete information on tickerized portfolios, click [here](#) .



- a) From the *by* drop-down menu in PORT, select **More Options**.
 - b) In the *Select Classification* window that appears, click **More**.
 - c)
 - In the *Create Classification* window that appears, expand the *Position-Based* field list, then click next to **Sub-portfolio level 1** to add it to your classification.
 - The Sub-portfolio field 1 level appears on the right, while the Sub-portfolio level 2 option appears on the left.*
 - d)
 - Next to *Sub-portfolio level 2*, click to add it to the next level in the classification hierarchy.
 - The Sub-portfolio field 2 level appears on the right, while the Sub-portfolio level 3 option appears on the left.*
 - e) Repeat step d for each subsequent sub-portfolio level.
 - f) Click the **Save** button, then click the **Select** button.
PORT updates using your customized classification.
4. Display the lookthrough columns, so you can see each fund's constituents:



- a) From any tab in PORT, right-click a column header and select **Add/Remove Fields**.
 - b) From the *Available Fields* list on the left, scroll to the *Descriptive* group and click  next to each level of portfolio column you want to display in your portfolio.
 - c) Rearrange the selected columns on the left, then click the **Update** button.
The new columns appear in your portfolio view.
5. Add the *Book Portfolio* column to your view, so you can see the ultimate portfolio where the position is held.
- a) From any tab in PORT, right-click a column header and select **Add/Remove Fields**.
 - b) From the *Available Fields* list on the left, scroll to the *Descriptive* group and click  next to *Book Portfolio*.
 - c) Click the **Update** button.
The Book Portfolio appears in your portfolio view.

SHOWING/HIDING BENCHMARKS

Across all of PORT's tabs, you can choose to hide or display the benchmark securities against which you are comparing your portfolio.

Note: When you enable the *Show Benchmark Securities* setting, benchmark securities will show you what the benchmark holds along with your securities. As a result, you may see securities that you do not own.

To show or hide benchmark securities, from the toolbar, select **Settings > Show Benchmark Securities**.



The securities appear or are hidden based on your selection.

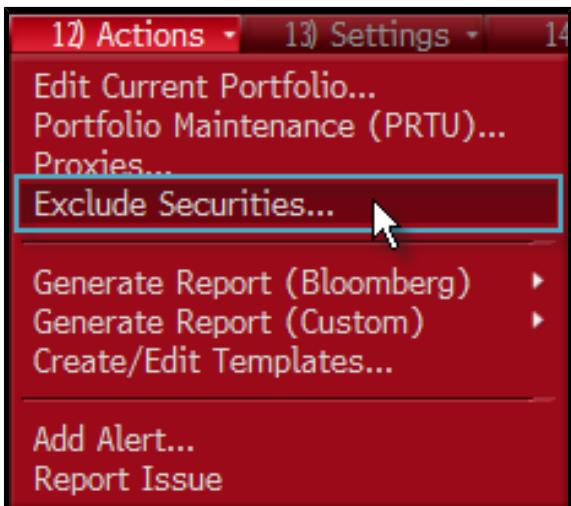
EXCLUDING SECURITIES

You can exclude a portion of your portfolio or benchmark from analysis in PORT, which allows you to see how the performance or characteristics of your portfolio would differ without a given sector or instrument, or without excess trading cash. The exclusions tool also allows you to *include* only a specific portion of the portfolio or benchmark in the analysis.

Once the exclusion or inclusion is applied, the remaining instruments in the portfolio and benchmark are re-weighted to 100% for the analysis.

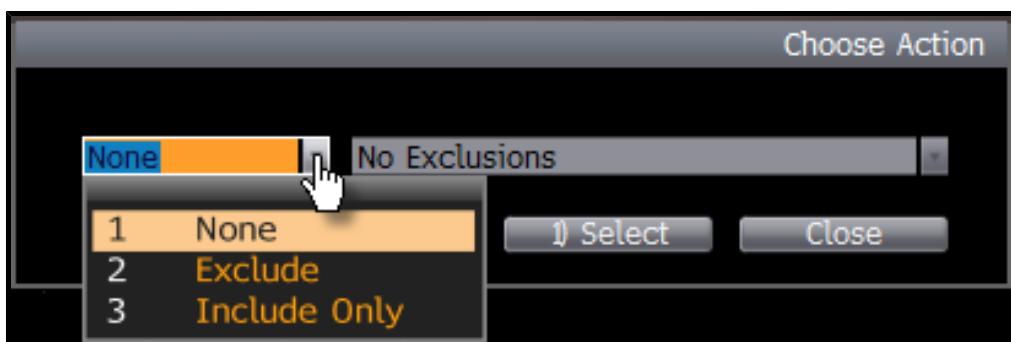
To exclude or include securities:

1. From the toolbar, select **Actions > Exclude Securities**.



The Choose Action window appears.

2. From the first drop-down menu, select *Exclude* or *Include Only* to determine the exclusion action type:



- **Exclude:** Removes all securities that meet the selected criteria from the portfolio.
 - **Include Only:** Removes all securities from the portfolio, except those that meet the selected criteria.
3. From the second drop-down menu, select the exclusion or inclusion, such as cash or a specific sector (e.g., Energy {GICS}).



4. If you want to exclude individual securities or a custom classification, click the **Exclusion Editor** button.
The Custom Sector Exclusions (PXCL) function appears, where you can set up a custom exclusion rule. For more information, see the [PXCL Help Page](#).
5. If you want to remove the exclusions, from the first drop-down menu, select **None**.
6. Click the **Select** button.
The portfolio and benchmark are re-weighted based on your selections. Your exclusions appear in parentheses next to the portfolio name, e.g., BBDEX (Including Only: Energy {GICS}).

DISPLAYING EXCEPTIONS

If security exceptions are present in your portfolio, a red warning message appears at the bottom of tab informing you of the number of exceptions. An exception is a security that is not covered by PORT analytics. An example of an exception reason is "This instrument is no longer active." As such, it cannot be factored into the overall calculation of your portfolio.

[Hint] You can create a proxy for a security exception, so it can be included in risk and characteristic analysis and reporting. For more information, see [Setting Up Proxy Assets](#).

To see exceptions:

- At the bottom of the *Main View* sub-tab, click the red (!) # Notices warning.



The Exceptions window appears and displays the ticker number, security identification, and reason for all exceptions.

- Select the filters for the exceptions list:



- Filter by Portfolio:** Filter the list of exceptions by the relevant portfolio.
 - Filter by the Origin:** Filter the list of exceptions by the source, i.e., *All*, *Portfolio*, or *Benchmark*.
- If you want to perform further analysis on an exception, right-click the security and select from the available options (e.g., *Description* (DES), *Company News and Research* (CN), or *Historical Table* (HP)).
The information appears in another window. For more information on an option, see the associated Help Page, e.g., the HP Help Page.
 - If you want to create a proxy for the exception, which allows you to effectively evaluate your portfolio as a whole, click the corresponding **Proxy** button. For complete instructions on setting up a proxy, see [Setting Up Proxy Assets](#).
 - If you want to export the list of exceptions to a Microsoft® Excel spreadsheet, click the **Export** button.
The list of exceptions appears in an Excel spreadsheet.

SETTING UP PROXY ASSETS

You can set up proxy assets for security exceptions, so you can effectively evaluate your portfolio as a whole. PORT allows you to establish proxies for the risk attributes, security-level characteristics, price, and return of one security to another.

Note: If you set up a proxy asset with a different currency than your original security, the currency of the original security does not change.

Once a proxy is set up, the security is no longer considered an exception and is included in your risk and characteristic analysis and reporting. Proxy assets apply across all tabs. Descriptive data and classifications of the original security are maintained for more accurate reporting.

Hint You can also set up a proxy in the *Portfolio Administration* (PRTU) function. For more information on using PRTU to set

up and manage proxies, click [here](#).

To set up proxy assets in PORT:

- At the bottom of the *Main View* sub-tab, click the (!) # **Notices** warning.



The Exceptions window appears with a list of security exceptions that you can proxy.

- For the excepted security for which you want to set up a proxy, click the **Proxy** button.



The Personal Proxy Configuration window appears. The excepted security appears grayed out in the Original Security field. The currency for the security and the security type also appear.

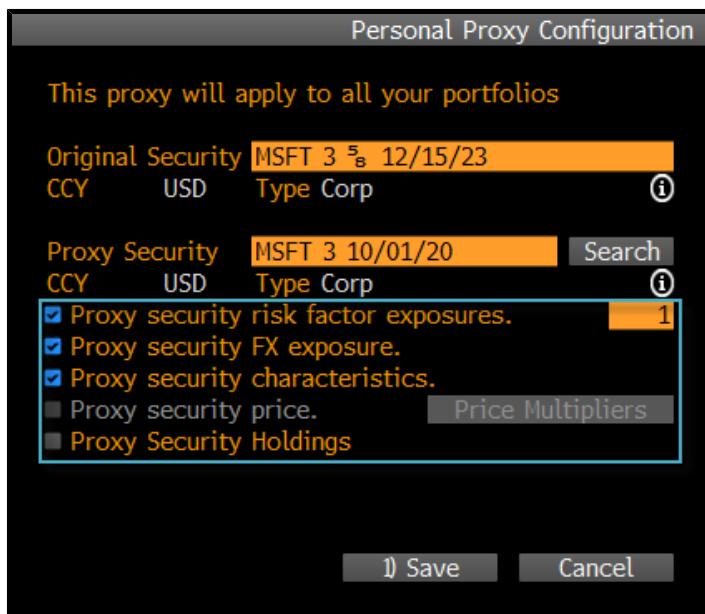
- In the **Proxy Security** field, enter the proxy security, or click the **Search** button to search for securities that meet similar criteria as the original security.

Note: The smart search tool is available when setting up proxies for fixed income securities only.



The associated Currency and Type fields update, so you can see if the parameters match the original security.

4. Set up your proxy preferences:



- **Proxy Security Risk Factor Exposures:** The original security takes on the exposure of the proxy security to its risk factors. Enter a multiplier in the adjacent field to apply to the risk factors if the proxy represents different exposure values than the original.
- **Proxy Security FX Exposure:** The original security takes on related FX exposure if the original and proxy securities are denominated in different currencies.

- **Proxy Security Characteristics:** The original security takes on the characteristics of the proxy security.
- **Proxy Security Price:** An artificial price series is built so that the original security matches the proxy security's return and maintains its original market value.

Note: Even though the original security price can be the same as the proxy one, this setting is not intended for matching the price. If the proxy asset has a different currency than the original security, the currency of the original security does not change.

While matching the return of the proxy, PORT takes into account the cashflow of the proxy security. When a capital event occurs for the proxy security, you don't need to change the amount of original shares owned, but when a capital event occurs for the original security, you must update the amount of original shares owned. Setting up a price multiplier takes into account any capital event of both proxy and original security.

- **Proxy Security Holdings:** The original security uses the holdings of the proxy security. For example, if you are trying to model a fund, such as a hedge fund, private equity fund, or mutual fund for which holdings data is not publicly available or up-to-date, you can upload a private portfolio and use its holdings data as a proxy to model the fund. You can also use a public portfolio, such as a mutual fund, ETF, or index as a proxy, if it closely resembles the security you're trying to model. For hedge funds, you can also create a proxy based on a 13-F filing.

Note: You can then use these proxy holdings when you use *Portfolio Look-through* in PORT. For information on using *Portfolio Look-through* to analyze holdings in PORT, click [here](#).

5. If you selected *Proxy Security Price* and the selected proxy security represents multiple shares of the original security, set up the price multiplier to apply to the proxy:
 - Next to *Proxy Security Price*, click the **Price Multipliers** button.
 - Enter a multiplier to apply to the proxy as of a specific date.
 - If you want to automatically apply stock splits of the proxy instrument to the original security (i.e., the security you hold), select **Apply Proxy Split Factors to Original Security**. This is helpful for participatory notes (P-Notes) and other private instruments with returns that are linked to an equity and split when the linked security splits.



Your price multiplier preferences are updated for the proxy instrument.

Note: The number of positions of the original security held will not automatically update, even if you choose to apply corporate actions on the proxy instrument's price to the original security. If the number of positions of the original security changes due to a corporate action, you must manually update the number of actual positions held by updating the portfolio in PRTU or by using the Bloomberg Uploader (BBU) function.

6. Click **Save**, then **Save** again on the proxy configuration window.

PORT refreshes with analytics for the newly created proxy. The security is no longer listed as an exception. An asterisk next to the security in the Name column indicates the security has an assigned proxy.

The proxy also applies to other portfolios in which the security resides, so you do not have to repeat the proxy setup for each portfolio. This is true for both equity and fixed income assets.

Complete management of proxy assets is available in the *Portfolio Administration* (PRTU) function. In PRTU, you can share proxies with other users, remove a proxy, and display an audit of changes to the proxy. For more information on using PRTU to



manage proxies, click [here](#)

EXPANDING PRIVATE PORTFOLIOS

You can analyze portfolios of portfolios with the positions on tickerized sub-portfolios as they are, i.e., without "expanding" the sub-portfolio's holdings. You can also choose to look through the sub-portfolio tickers and analyze the aggregate of all of your sub-portfolio positions.

Note: This sub-portfolio look-through option is only available to users enabled to create a *tickerized portfolio*¹³⁸. For more information on tickerized portfolios, which are created in the *Portfolio Administration* (PRTU) function, click [here](#).

To enable sub-portfolio *look-through*¹³⁹ for a *portfolio of portfolios*¹⁴⁰, from the toolbar, select **Settings > Sub-Portfolio Look-through**.

¹³⁸ A portfolio to which a ticker has been assigned in the *Portfolio Administration* (PRTU) function. You can load the portfolio in the command line similar to a security and analyze risk, characteristics, and performance analytics throughout the Bloomberg. You can create "positions" on the tickerized portfolio in other portfolios, thereby creating a *portfolio of*



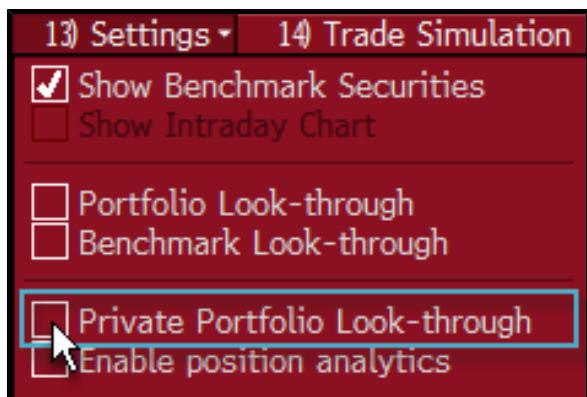
portfolios. For complete information on tickerized portfolios, click [here](#)

¹³⁹ The concept of evaluating each underlying holding in an index or exchange-traded fund (ETF) individually when looking at portfolio exposure or return, rather than evaluating the index or ETF as a whole. Enabling portfolio or benchmark look-through temporarily replaces the funds or ETFs in your portfolio with their underlying securities, while maintaining the same total market values and weights relative to the rest of your portfolio. This allows you to see a complete picture of the sectors where you have exposure, because indexes and ETFS are comprised of instruments that vary in sector or industry.

¹⁴⁰ A compilation of multiple tickerized sub-portfolios into one portfolio, which allows you to analyze an aggregation of portfolios and positions in one view in PORT. You can set up a portfolio of portfolios by adding positions on sub-portfolios to any portfolio in PRTU or by uploading portfolio tickers to your portfolio via BBU. For complete



information on tickerized portfolios, click [here](#)



You can perform further analysis on sub-portfolios when *Private Portfolio Look-Through* is enabled by updating your decomposition strategy:

- To group positions by their original portfolios, add the *Sub Portfolio Level 1* aggregation level to your decomposition strategy. You can add up to six levels of aggregation to your classification, so you can drill down into each sub-portfolio.
- Note:** The *Sub Portfolio Level 1* option is available from the *Position-Based* section on the *Create Classification* window. Once you select *Sub Portfolio Level 1* for your classification, the *Sub Portfolio Level 2* option appears, and so on through level six. This behavior maintains the intended hierarchy of portfolio levels within your portfolio classification.
- To group positions by underlying security, add the *By Security* aggregation level to your decomposition strategy. The *By Security* option is available from the *Position-Based* section on the *Create Classification* window.

For information on creating a custom classification or decomposition strategy in PORT, see [Creating New Classifications](#).

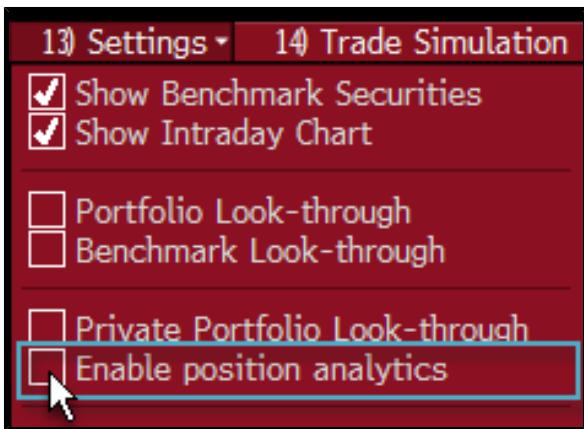
You can enable multi-level lookthrough analysis on your sub-portfolios, which allows you to discover the deepest portfolio in which a holding is owned. For example, if there are two positions on 3M CO in your portfolio, you can use multi-level lookthrough to see the portfolio or fund where each specific position is ultimately held. For information on enabling multi-level lookthrough, see [Multi-Level Lookthrough](#).

ENABLING POSITION ANALYTICS

When you are looking through a portfolio of mutual funds or ETFs that may have positions on the same instruments, you can choose to see the individual positions by enabling position analytics, or you can see aggregates at the security level.

Note: These instructions assume you have already enabled portfolio look-through. For more information, see [Enabling Look-Through](#).

To display position-level analytics for a portfolio holding mutual funds or ETFs, from the toolbar, select **Settings > Enable Position Analytics**.



The analysis is re-calculated and separate rows for each individual holdings appear in the portfolio.

For example, if two different funds in your portfolio hold IBM:

- With *Enable Position Analytics* selected, the portfolio has two rows for IBM, each from a different fund.
- With *Enable Position Analytics* deselected, the portfolio has only one row for IBM with the sum of the positions from the two funds.

Note: When looking through a *portfolio of portfolios*¹⁴¹, position-level analytics is automatically enabled to allow you to group your positions by *sub-portfolio*¹⁴². For more information, see *Expanding Private Portfolios*.

INHERITING CLASSIFICATIONS

If the portfolio or fund under analysis contains securities without associated classifications, you can enable them to inherit the classifications of the corresponding parent portfolio or fund.

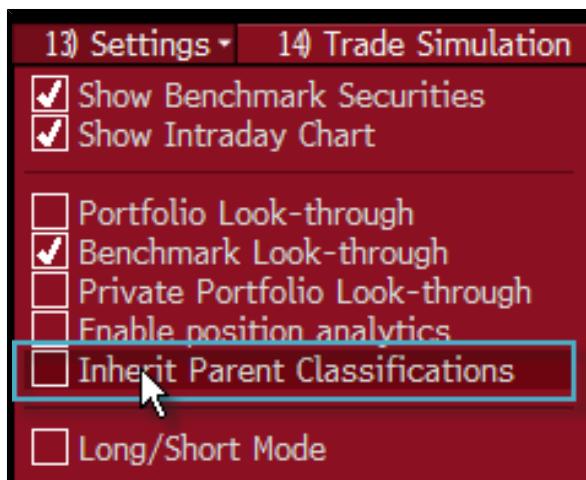
To enable securities to inherit parent classifications, from the toolbar, select **Settings > Inherit Parent Classifications**.

¹⁴¹ A compilation of multiple tickerized sub-portfolios into one portfolio, which allows you to analyze an aggregation of portfolios and positions in one view in PORT. You can set up a portfolio of portfolios by adding positions on sub-portfolios to any portfolio in PRTU or by uploading portfolio tickers to your portfolio via BBU. For complete



information on tickerized portfolios, click [here](#).

¹⁴² A portfolio that comprises a *portfolio of portfolios*.



Parent classification inheritance is enabled..

Note: This setting applies only for a single session in PORT. For more on applying to this setting to a portfolio as the default by using the View Manager's General Settings: [PRTU Help Page > General Settings](#).

LONG/SHORT MODE

You can use Long/Short mode to gain insight into a long/short portfolio's characteristics, performance, and risk structure, which are unique to the requirements of a long/short equity manager. Long/Short mode applies across all PORT tabs.



The long/short columns organize your positions into long and short groups, so you can accurately value the positions in your long/short portfolio. The *Net* column, provides the sum of the *Long*¹⁴³ and *Short*¹⁴⁴ column values, while the *Gross* column, provides the sum on an absolute basis. For information on setting up *Long/Short* mode, see [Enabling Long/Short Mode](#).

For leveraged long/short portfolios, the portfolio market value is not always the sum of the market values of each position. Therefore, *Long/Short* mode allows you to customize your portfolio value calculation to account for the inclusion and calculation of short cash. For information on portfolio value, see [Portfolio Capital](#).

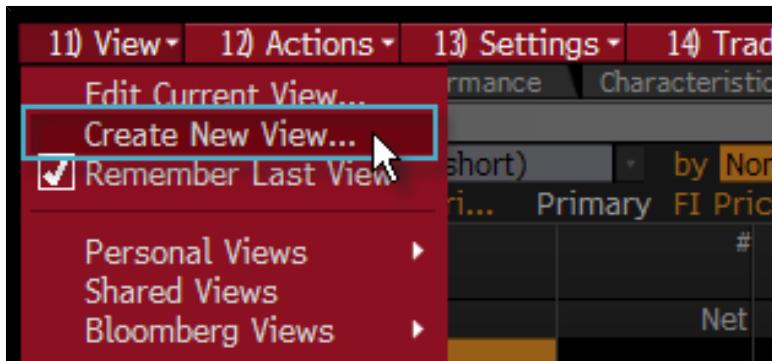
|Hint| If the value in the *Gross* column does not appear to equal the sum of the *Long* and *Short* columns, this is because of rounding. You can edit your display to show more decimal places by following the instructions in [Adding Field Variations](#).

ENABLING LONG/SHORT MODE

Long/Short mode breaks down your portfolio by *Long*, *Short*, *Net*, and *Gross* calculations, which allows you to include short cash positions in the market value calculation, so you can accurately determine the value of a leveraged long/short portfolio.

To enable *Long/Short* mode:

1. From the toolbar in PORT, select **View > Create New View**.



The *Create PORT View* window appears.

2. Enter a name for the view in the *View Name* field.
3. From the *New View With* drop-down menu, select **Long/Short View Settings**.

¹⁴³ Provides a value that reflects your long positions for the corresponding metric and security. For example, when appearing under the *Market Value Last* column, shows the market value of long positions only. A long position is the buying of a security, such as a stock, commodity or currency, with the expectation that the asset will rise in value.

¹⁴⁴ Provides a value that reflects your short positions for the corresponding metric and security. For example, when appearing under the *Market Value Last* column, shows the market value of short positions only. A short position is a sale of a borrowed security, commodity, or currency with the expectation that the asset will fall in value.



- Click the **Create** button.



Your portfolio display updates to include fields relevant to analysis of a long/short portfolio divided into *Long*¹⁴⁵, *Short*¹⁴⁶, *Net*¹⁴⁷, and Gross columns for each field. For a description of the columns, see [Definitions](#).

Note: The *vs* (benchmark) field, which indicates the benchmark against which you are comparing your portfolio, is deactivated in Long/Short mode.

- [Hint]** You can also enable Long/Short mode from the *Settings* toolbar drop-down menu, by selecting **Settings > Long/Short Mode**.

¹⁴⁵ Provides a value that reflects your long positions for the corresponding metric and security. For example, when appearing under the Market Value Last column, shows the market value of long positions only. A long position is the buying of a security, such as a stock, commodity or currency, with the expectation that the asset will rise in value.

¹⁴⁶ Provides a value that reflects your short positions for the corresponding metric and security. For example, when appearing under the Market Value Last column, shows the market value of short positions only. A short position is a sale of a borrowed security, commodity, or currency with the expectation that the asset will fall in value.

¹⁴⁷ Indicates that portfolio weights are calculated as the exposure of the positions divided by the market value of the portfolio. This is the default portfolio capital calculation for most portfolios, but it does not work for hedge funds with a long/short strategy, which requires the flexibility to use a different denominator when calculating portfolio weights.



PORTFOLIO CAPITAL

The value of a leveraged long/short portfolio is not necessarily equal to the sum of the market values of each position. To account for this calculation, you can customize the calculation of portfolio weights for your long/short portfolio.

For long-only portfolios, portfolio market value is usually defined on a *net*¹⁴⁸ basis. The weight of each portfolio position is defined as the ratio of the value of the position (for a stock, the product of price and number of shares) divided by the portfolio's market value (i.e., the sum of the market values of all portfolio positions).

To represent a long/short portfolio on a net basis, short cash must be included in the portfolio. For example, if you have a long position worth \$100 and decide to establish a short position worth -\$100, you get \$100 cash when the stock is sold short. Therefore, the final portfolio has three positions: \$100 long, -\$100 short, and \$100 cash. In this case, the net portfolio value equals \$100 (longs - shorts + cash). If the short cash is omitted from the portfolio, the portfolio market value, which is used as the denominator in the portfolio weight calculation, is zero (i.e., \$100 - \$100), resulting in undefined portfolio weights.

To address this issue for long/short portfolios, the *Portfolio Administration* (PRTU) function allows you to customize how portfolio value is calculated when you create a new portfolio. You can decide if the portfolio value is calculated based on position values using either *Net*¹⁴⁹, *Gross (At Inception)*¹⁵⁰, or *Gross (Daily Recalc)*¹⁵¹, or if you want to specifically set

¹⁴⁸ Indicates that portfolio weights are calculated as the exposure of the positions divided by the market value of the portfolio. This is the default portfolio capital calculation for most portfolios, but it does not work for hedge funds with a long/short strategy, which requires the flexibility to use a different denominator when calculating portfolio weights.

¹⁴⁹ Indicates that portfolio weights are calculated as the exposure of the positions divided by the market value of the portfolio. This is the default portfolio capital calculation for most portfolios, but it does not work for hedge funds with a long/short strategy, which requires the flexibility to use a different denominator when calculating portfolio weights.

¹⁵⁰ Indicates that the gross portfolio value, which is the absolute market value for each position, is calculated once on the portfolio inception date, then divided by the leverage. On subsequent days, the portfolio value increases or decreases in line with the portfolio P&L. This option is available when creating a new portfolio in PRTU, and impacts the calculation of portfolio value in PORT.

¹⁵¹ Indicates that the gross portfolio value, which is the absolute market value for each position, is calculated on the portfolio inception date and divided by the leverage, then recalculated on a daily basis independent of the portfolio P&L. This option is available when creating a new portfolio in PRTU, and impacts the calculation of portfolio value in PORT.

the portfolio value based on your firm's calculations (*Specified by User*¹⁵²). For information on using PRTU to customize how

portfolio value is calculated when you create a new portfolio, click [here](#) .



For descriptions of the different weight types, click [here](#) .

CURRENCY AUTOHEDGING

You can enable currency autohedging to hedge portfolios and indices on the fly. When enabled, synthetic "Autogenerated Forward" instruments appear on all PORT tabs. Autogenerated forwards assume a monthly rebalancing frequency and 100% exposure to the selected currency.

Characteristics Holdings Tracking Error/Volatility VaR Scenarios Perform			
Main View Allocation	EMU GVT FOCUS	vs Default (LEA)	by Asset Type
<input checked="" type="radio"/> Date <input type="radio"/> Trend		in CHF	
Name	#		
	Port	Bmrk	Port
EMU GVT FOCUS	10	356	100.00
Derivatives	1	1	-101.36
Autogenerated Forward EUR/CHF 20171031			-101.36
Fixed Income	8	354	100.63
BTPS 9 11/01/23			27.60
DBR 4 01/04/18			18.33

Note: Autogenerated FX forward instruments do not appear in the *Performance* tab for Bloomberg Barclays indices; BRAIS formula-based hedging is applied instead in this case.

To enable currency autohedging, from the *Settings* menu, select an autohedging option.

¹⁵² Indicates that the portfolio market value is defined by the user, then incorporated as the denominator in the portfolio weight calculations. When you supply a portfolio value via BBU or PRTU as of a historical date, if there are no cash inflows or outflows, the portfolio adopts the newly supplied portfolio value and includes any accumulated P&L from the historical date up to the date of analysis. For more information on the calculation of portfolio weights, see [Portfolio Capital](#).

The screenshot shows the PORT interface with the 'Settings' menu open. The 'Currency Hedge Portfolio' option is highlighted with a red box.

The following options are available.

- *Currency Hedge Portfolio*: Displays an *Autogenerated Forward* instrument for the selected portfolio.
- *Currency Hedge Benchmark*: Displays an *Autogenerated Forward* instrument for the specified benchmark index, if applicable.
- *Apply Advanced FX Hedging*: Enables customized autogenerated currency hedges as specified on the *Hedging* tab in the default calculations profile for the selected portfolio. Advanced options allow you to customize the rebalancing frequency and exposure ratio for *Universe 1* (portfolio) and *Universe 2* (benchmark) independently, as well as specify additional currencies to hedge.

— For more information on using the calculations profile editor in the *Portfolio Administration* (PRTU) function, click [here](#)



— For more information on currency hedging settings for portfolios, click [here](#)



Note: Selecting *Apply Advanced FX Hedging* disables the other currency hedge options.

PERFORMANCE COMPUTATIONS

By default, PORT is a holdings-based analytic system that calculates historical returns using daily positions and end-of-day market prices or information about your specific security transactions. To improve the accuracy in your performance and attribution calculations, you can update your settings so that the *Performance* and *Attribution* tabs show both holdings-based (bottom-up) and aggregate (top-down) returns for the selected portfolio.

Top-down return calculations, based on a fund's aggregate price history -- such as the official net asset value of the fund, a history of periodic return data, or the value of a related index -- allow you to accurately approximate official performance measures. Meanwhile, standard indicators based on holdings data and security-level price history provide transparency by allowing you to decompose the computed indicators on a security-by-security basis.

The **Residuals** provide the *difference* between the two calculation methods, so you can assess the overall accuracy of the analysis and determine the impact of discrepancies on the overall performance calculation. Nuances within the official performance calculations -- such as availability of pricing data, FX rates, NAV computation rules, fees, etc. -- can account for the residual between the top-down and bottom-up performance calculation values. For information on adding this data to your analysis, see [Adding Official Pricing](#).

The screenshot shows the PORT application's main view for a portfolio named 'SPDR S&P500'. The 'Residuals' section is highlighted with a blue box. A tooltip above it says 'Indicators Based on Aggregate Price History'. Another tooltip below it says 'Indicators Based on Security-Level Price History'. The interface includes tabs for Intraday, Holdings, Characteristics, Tracking Error/Volatility, VaR, Scenarios, Performance, and Attribution.

Name	% End Wgt	Port	Bmrk	+/-	
SPDR S&P500 ETF TRUST (S...	-3.66	-3.74	0.08	-8.46	-8.51
Residuals	0.07	0.00	0.07	0.06	0.03
Holdings	-3.73	-3.74	0.01	-8.52	-8.54

- **Indicators Based on Aggregate Price History:** Shows returns based on the official price/NAV history for the index, fund, or ETF available in the Bloomberg database. When possible, PORT uses the time series embedding total returns, i.e., those corrected for the capital operations and the distributions affecting the security's total return. These values are consistent with other performance-related functions, such as the *Historical Fund Analysis* (HFA) function, the *Comparative Returns* (COMP) function, and the *Total Return Analysis* (TRA) function. You can modify the performance calculation setting for tickerized portfolios, funds, or indexes.

For information on setting the source of aggregate price/return data, see [Price/NAV Data Sources](#).

- **Indicators Based on Security-Level Price History:** Shows returns based on bottom-up, security-level performance data. On the *Attribution* tab, only the attribution effect columns are populated with the figures computed based on the bottom-up calculation.
- **Residuals:** Provides the difference between the top-down performance calculation and the performance computed bottom-up from holdings or transaction data, so you can assess the overall accuracy of the analyses.

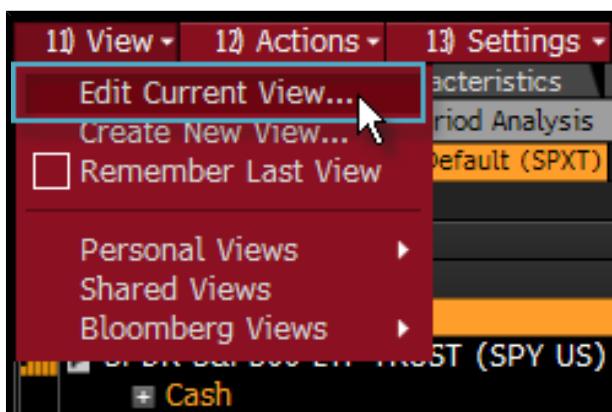
Note: For Portfolios of Portfolios (PoP), when *Portfolio Look-through* is disabled, PORT uses official price/NAV data to calculate returns. If you enable *Portfolio Look-through* and *Use official or custom prices/returns for performance computations*, the top-line return data computes based on official NAV/Price data. Meanwhile, the bottom-up return data computes based on the holdings at the defined level of look-through. For information on setting your look-through depth, see [Multi-Level Lookthrough](#).

ADDING OFFICIAL PRICING

You can improve the accuracy of your performance and attribution calculations by updating your calculation settings so that the *Performance* and *Attribution* tabs show both bottom-up and top-down returns for the selected portfolio.

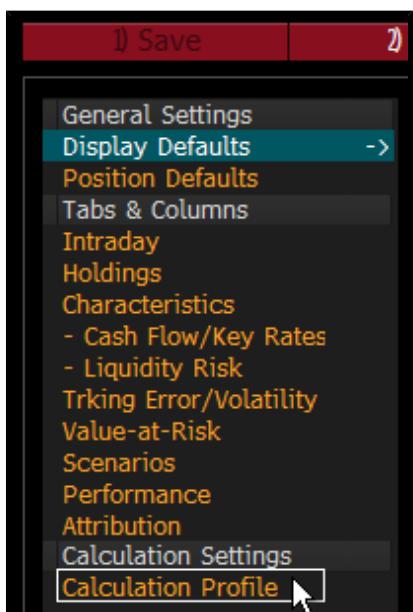
To add official pricing and see top-down returns:

1. From the toolbar, select **View > Edit Current View**.



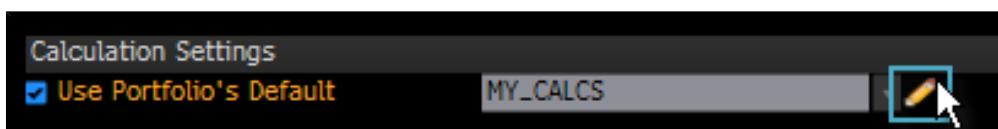
The View Manager screen appears.

2. From the Calculation Settings, click **Calculation Profile**.



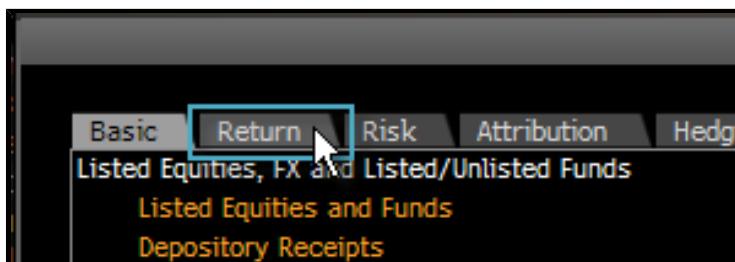
The general calculation settings appear.

3. Under Calculation Settings, click the Edit icon.



The calculation profile editor appears.

- Click the **Return** tab.



The editor window updates and displays return settings.

- From the *Total Return Method* section, select **Use official or custom prices/returns for performance computations**.



- Click the **Update** button.

Your changes save. The Performance and Attribution tabs now show both bottom-up and top-down returns for the selected portfolio based on the sources described in [Price/NAV Data Sources](#).

PRICE/NAV DATA SOURCES

The table below provides the possible data sources for pricing and returns for tickerized portfolios, funds & ETFs, and indexes.

For tickerized portfolios, you can select the data source for returns when you set up the portfolio in the *Portfolio Administration* (PRTU) function by updating the *Source of Price/NAV* field with the source you want to use. For information on setting up your

tickerized portfolio and updating the *Source of Price/NAV* field, click [here](#) and navigate to step 10.

Type of Aggregate	Data Source Option	Description
Tickerized Portfolios	Holdings	PORT computes aggregate return/pricing data bottom-up, based on portfolio holdings. The same bottom-up return/pricing data also appears in the <i>Last Price</i> field for the portfolio.
	Custom Data	PORT uses custom pricing or return data uploaded via the <i>Custom Data Editor</i> (CDE) function. For information on using CDE to create a custom field, click here . If you upload pricing data, you must upload the data

Type of Aggregate	Data Source Option	Description
		<p>to a custom data field with a <i>Content Type</i> of <i>Price</i>. If you upload return data, you must upload the data to a custom data field with a <i>Content Type</i> of <i>Return</i>.</p> <p>After you create the custom price field, you must ensure that your tickerized portfolio has the <i>Source of Price/NAV</i> set to <i>Custom Data</i>. If you upload both return data and pricing data for the same portfolio ticker, PORT uses the return data in its calculations.</p>
	Security	<p>PORT uses the returns from a selected proxy security that has similar holdings to your portfolio. You can enter the ticker when creating your tickerized portfolio and choose whether PORT uses gross dividends or net dividends to compute total return data by updating your <i>Portfolio Value (Capital)</i> view settings.</p> <p>For information on setting the <i>Portfolio Value (Capital)</i> calculation settings for your tickerized portfolio, click here  and navigate to step 3.</p>
Fund or ETF	Price	<p>PORT uses price to calculate returns of funds/ETFs.</p> <p>You can choose whether PORT uses gross dividends or net dividends to compute total return data by updating your <i>Return Calculation Type</i>¹⁵³ view settings. For instructions on updating your view settings, see General Calculations (Equity).</p>
Index	Index's official historical pricing data as published by the index provider. Return data for a user-selected ticker from the <i>Return Calculation Type</i> field	<p>PORT uses publically reported index prices. You can choose whether the index returns that appear are based on gross or net dividends, by updating the <i>Return Calculation Type</i>¹⁵⁴ field in your PORT view settings. For more information, see General Calculations (Equity).</p>

¹⁵³ Allows you to choose your taxation calculation method:

- **Gross:** No tax is taken out of dividends included in return calculations.
- **Net:** The withholding tax is based on the country of domicile of the company, and is taken out of the dividend in the return.
- **Portfolio Gross / Bench Net:** Calculates gross returns for the portfolio versus net of tax returns for the benchmark.

¹⁵⁴ Allows you to choose your taxation calculation method:

- **Gross:** No tax is taken out of dividends included in return calculations.
- **Net:** The withholding tax is based on the country of domicile of the company, and is taken out of the dividend in the return.
- **Portfolio Gross / Bench Net:** Calculates gross returns for the portfolio versus net of tax returns for the benchmark.

CALCULATIONS

GENERAL

FUTURES & OPTIONS

PORT supports the following listed equity derivatives: Equity Index Futures, Single Stock Futures & Futures Options, Listed Equity Options, Listed Index Options, Commodity Futures, Listed Options on Equity Index & Commodity Futures.

Market Value of Futures Contracts: The market value of futures contracts in your portfolio may equal zero (0) at the close of day. Because futures contracts are settled daily, any P&L added to the margin (the market value) at the close of business is zero.

To calculate weight and, in turn, contribution to return (CTR), PORT uses the nominal contract value as the basis for exposure. The nominal value of a futures contract is obtained by multiplying the futures value of one point by the traded price.

Market Value of Options Contracts: PORT calculates the market value of options contracts as:

- Number of Contracts * Contract Size * Price of Option Contract

% Weight of an options contract is calculated as the market value of the contract divided by the total market value of the portfolio. PORT *Intraday* also supports delta-adjusted exposure for options.

Economic Cash: Economic cash appears when the market value of an instrument is not equal to its nominal exposure value. When exposure is not equal to market value, in the case of a leveraged instrument, economic cash can be generated to ensure that the portfolio notional exposure is equal to the portfolio market value, and that all weights sum to 100%.

For long/short portfolios, portfolio weights do not need to add up to 100%. In this case, you can disable the automatic economic cash generation process in your portfolio view. For more information, see [General Calculations](#).

Portfolio Return Including Futures: To calculate weight and, in turn, contribution to return (CTR), PORT uses the nominal contract value as the basis for exposure. The nominal value of a futures contract is obtained by multiplying the futures value of one point by the traded price.

The contribution to portfolio return of a futures contract is calculated as follows:

- $CTR = \% \text{ Weight} * (\text{Futures P\&L} / \text{Nominal Contract Value})$

Where:

- % weight is the nominal contract value / total market value of the portfolio
- nominal contract value = the futures value of one point * the price.

FX FORWARDS

PORT allows you to hedge your foreign currency positions into the base currency of the portfolio, and to close out those hedges by either letting them expire, or by entering an offsetting position. PORT supports this by allowing you to book foreign exchange forwards that will mitigate or dampen the currency risk of holding foreign securities.

FX forwards are treated as special hedging vehicles that impact the return of any security of the hedged currency. To book a hedge, use the following sample syntax in the *Bloomberg Uploader* (BBU) function:

PID	Ticker	Quantity	Date	Cost
FX_HEDGED	F equity	1000	20081231	
FX_HEDGED	BMW GY equity	100	20081231	
FX_HEDGED	EUR/USD 12/31/2010 currncy	-2200	20081231	1.3953
FX_HEDGED	F equity	1000	20091231	
FX_HEDGED	BMW GY equity	75	20091231	
FX_HEDGED	EUR/USD 12/31/2010 currncy	-2200	20091231	1.3953
FX_HEDGED	USD/EUR 12/31/2010 currncy	-3150	20091231	0.6984

Note: For more information on BBU, see the [BBU Help Page](#).

In the above example, on the last day of December 2008, the portfolio held a position in BMW valued at 2,200 Euros. To hedge this exposure on the above USD portfolio, 2,200 Euros were sold forward for dollars at a rate of 1.3953 Dollars per Euro.

One year later, the hedge was taken off by selling 3,150 dollars for Euros at the then prevailing rate of .6984 Euros per Dollar. At this point the portfolio is exactly equivalent to a portfolio with only the long positions in Ford (F equity) and BMW (BMW GY equity).

As an alternative the initial hedge could have been booked by purchasing 3,070 Dollars for Euros (e.g. USD/EUR 12/31/2010 currncy at a rate of .7167) and then closed out at end of 2009 (e.g. EUR/USD by buying 2,144 Euros for Dollars at a rate of 1.4318).

You can use the *Historical Fund Analysis* (HFA) function to analyze the effects of hedging by comparing the un-hedged portfolio to the hedged portfolio. For more information on HFA, see the [HFA Help Page](#).

OVML FX FWDS IN PORT

If you are an investor who models FX Forwards in the *Option Valuation* (OVML) function, you can display portfolio analytics and risk for portfolios that include OVML FX Fwds. OVML FX forward securities appear under *Currency Forwards* on any PORT tab.



For information on using OVML to create a FX forward, see the [OVML Help Page](#). For information on using OVML to add FX forward securities to a portfolio, click [here](#).



After you create an OVML FX Fwd and add it to your portfolio, you can analyze it in PORT. For information on splitting your FX forwards into their base leg and counter currency leg, so you can analyze each leg individually and better understand the impact of each currency on your forward security's valuation, see [Analyzing FX Fwd Legs](#).

The following table provides a summary of FX Forward fields in PORT and which OVML fields they correspond to. While the fields have different names in each function, their definitions are the same:

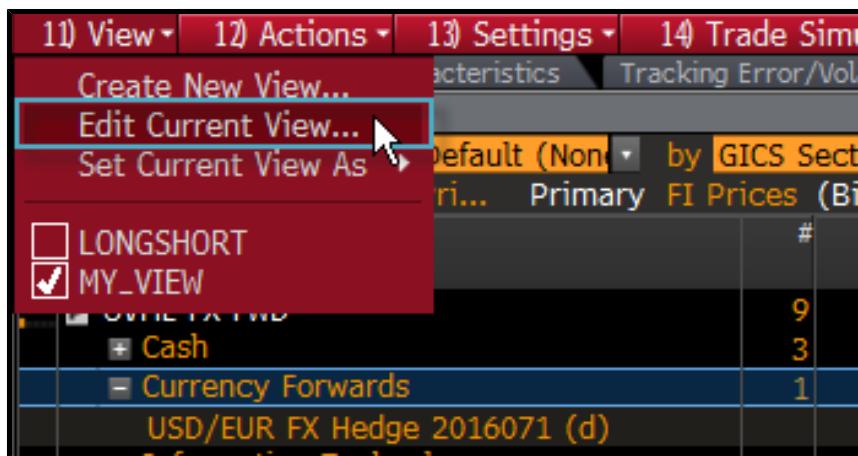
Field name in PORT	Field name in OVML	Definition
Base Currency Deposit Rate	[Base Curr code] Depo (e.g., USD Depo)	The deposit rate for the base currency of the FX forward.
Counter Currency Deposit Rate	[Counter Curr code] Depo (e.g., EUR Depo)	The deposit rate for the counter currency of the FX forward.
Forward Rate	Rate	The agreed exchange rate for the forward agreement. For information on changing the source PORT uses for your FX rate, see Changing FX Rate Source .
Market Value	Premium	The total cost of an option, calculated as the difference between the higher price paid for a security and the security's face amount when issued.

ANALYZING FX FWD LEGS

You can split your FX forward into its base leg and counter currency leg, so you can analyze each leg individually and better understand the impact of each currency on your forward security's valuation.

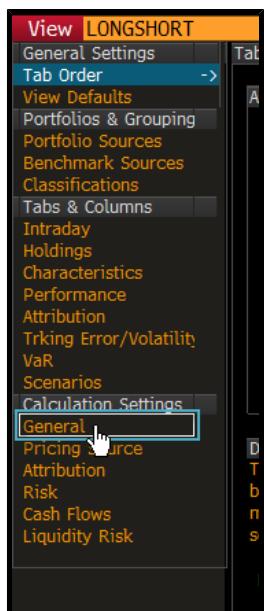
Steps:

- From the toolbar, select **View > Edit Current View**.



The View Manager screen appears.

2. From the Calculation Settings section, click **General**.



General calculation options appear at the top of the screen.

3. Select **Split into legs**.



In the toolbar, the Save button activates.

- From the toolbar, click the **Save** button.



On the PORT tabs, under *Currency Forwards*, your forwards split into two lines: one for each leg of the agreement, so you can analyze each leg individually. A currency code appends to each leg to indicate which currency the leg represents. For example, *_USD* appends to a leg of a forward deal buying or selling dollars. Likewise, *_EUR* appends to a leg of a forward deal buying or selling euros. If you run a trade simulation, you can edit the positions for hypothetical changes to the legs of the forward. For more information on running a trade simulation, see [Trade Simulation](#).

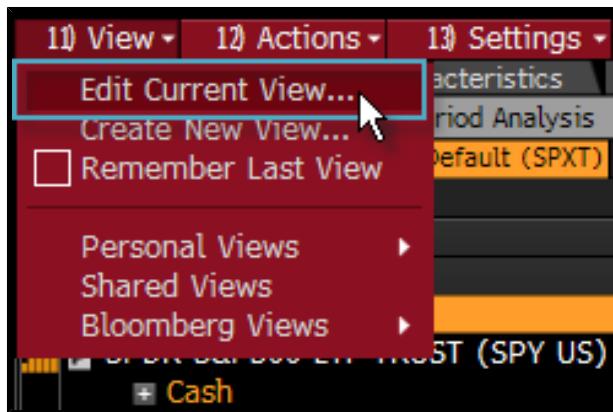
CHANGING FX RATE SOURCE

You can change the FX rates used to calculate FX forward values to ensure your FX forward valuations are accurate.

These instructions assume that you have created a view and are in the *View Manager* screen. For more information, see [Creating a View](#).

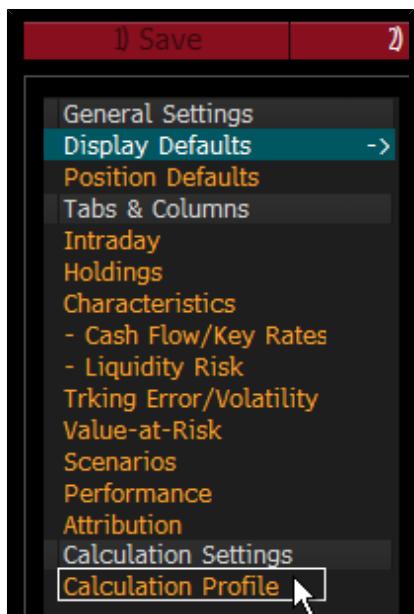
Steps:

- From the toolbar, select **View > Edit Current View**.



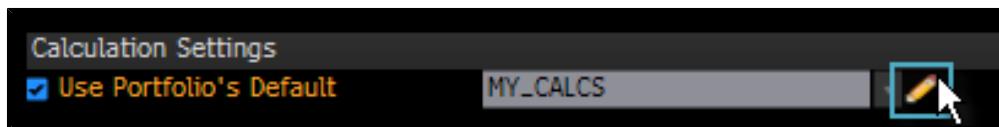
The View Manager screen appears.

2. From the Calculation Settings, click **Calculation Profile**.



The general calculation settings appear.

3. Under Calculation Settings, click the Edit icon.



The calculation profile editor appears.

4. From the *FX Rates* drop-down menu, choose the source *waterfall*¹⁵⁵ for currency rates used in pricing calculations. You can choose a predefined waterfall provided by Bloomberg or create a custom waterfall, which is a set of pricing sources you select and organize or a set of FX rate sources that is based on a predefined waterfall.



- *Global (Index-BFIX4PM-BB Composite(LO 6PM))*: Uses a predefined waterfall that sources the rate provided by the index vendor of the benchmark utilized in the analysis, then the Bloomberg FX fixing rate from New York at 4PM.
- *Global (TTM - BB Composite(LO 6PM))*: Uses a predefined waterfall that sources the Telegraphic Transfer Middle (TTM) rate first, then the Bloomberg composite rate from London at 6PM.
- *Custom Waterfall*: Uses the custom FX rate waterfall that you created or that a colleague shared with you, which may include any set of sources you are licensed to see. The custom waterfall may be a set of FX rate sources you select and organize or a set of FX rate sources that is based on a predefined waterfall. For more information, see [Customizing Price Waterfall](#).

Note: In your custom waterfall for FX rates, you can choose a custom FX rate source that you set up via the *Custom Date Editor* (CDE) function. For more information, see [Using Custom FX Rates](#).

5. From the toolbar, click the **Save** button.

Your pricing source defaults are saved.

*If you want to see your view in PORT, from the toolbar, click the **Run** button. The view and its related settings appears.*

Note: Your portfolio may show a different total return between PORT and the Historical Fund Analysis (HFA) function. For more information on HFA, see the [the HFA Help Page](#).

AGGREGATION METHODOLOGY

PORT provides many options for aggregating the financial metrics of instruments in a portfolio up to the portfolio level. Weighted Average is a well-known and popular approach, but other variations provide options for dealing with missing data, FX adjustments for multi-currency portfolios, and handling of outliers.

By default, equity measures are aggregated to the portfolio level using either a Weighted Average approach or the Index Method, and fixed income measures are generally aggregated using Weighted Average. The aggregation methods described below are available for most fields.

[Hint] For an example of calculating P/E ratio using three different aggregation methods, see [Calculation Example](#).

¹⁵⁵ A hierarchy of sources used to specify the priority of pricing sources you want to use. For each day in the analysis, instruments are priced by checking for a price from the first source in the hierarchy. If not found, the next price source on the list is checked. The process continues until a price is found. For historical analysis such as performance attribution, PORT looks back up to 10 business days to find prices for the start date of the analysis. From that day forward, if the price source hierarchy fails to find a price for a given day, the last known price is carried forward.

Weighted Median: The point at which half of the market value of the portfolio is invested in instruments with values greater than that point and the other half is invested in instruments with values lower than that point. If any instrument is missing the value, that instrument is excluded from the aggregate calculation and the weights of all remaining instruments are rescaled to sum to 100%. The weighted median is calculated by first sorting all of the instruments by their values from smallest to largest, then finding the value at which the cumulative weight of all instruments up to that point is 50%.

Weighted Average: The mean of the instruments' values weighted by the market value weight of each instrument in the portfolio. If any instrument is missing the value, that instrument is excluded from the aggregate calculation and the weights of all remaining instruments are rescaled to sum to 100%. For example, for P/E Ratio, companies with negative earnings are excluded when calculating the weighted average for the portfolio.

Example:

$$\text{Weighted Average P/E Ratio} = \sum_{i=1}^n (w_i \times P/E_i)$$

where:

- w_i = weight of stock i in the portfolio (rescaled excluding the weight of instruments that do not have a P/E, such as cash or companies with negative earnings)
- P/E_i = Price Earnings ratio of stock i

Note: Typically, weighted average is calculated as the market value of the holding divided by the sum of market values at the portfolio level. For custom formulas, by default the weighted average is calculated as the notional exposure divided by the market value at the portfolio level, or exposure at the bucket or sector level. For additional flexibility with custom formulas and some standard fields, you can also customize the *Numerator*¹⁵⁶ and *Denominator*¹⁵⁷ fields, which allow you to choose alternative exposure or duration fields as part of the weighted average calculation. The standard fields that support weighted average aggregation include: OAC, OAD, and OAS. For more information on creating custom formulas, see [Creating Custom Formulas](#).

Minimum: The lowest individual value in the portfolio or sector grouping.

Maximum: The highest individual value in the portfolio or sector grouping.

Median: The midpoint of the range of numbers that are arranged in order of value.

Average: The simple mean of the instruments' values without consideration for the weight of each instrument in the portfolio or sector grouping.

¹⁵⁶ For custom formula fields only, allows you to customize the numerator for the weighted average aggregation methodology. This option provides additional flexibility when including custom fields in your portfolio view.

¹⁵⁷ For custom formula fields only, allows you to customize the denominator for the weighted average aggregation methodology. This option provides additional flexibility when including custom fields in your portfolio view.

Note: If you choose the Market Val (portfolio)/Exposure option, the portfolio market value will be used as the denominator for portfolio aggregations and the sum of security exposures in a given group will be used as the denominator for all other group-level aggregations.

Weighted Harmonic Average: The reciprocal of the weighted average of reciprocal values. This option is sometimes preferred to Weighted Average for price ratios, because it prevents excess weighting of high outlier values. Again, companies with negative earnings are excluded from the aggregate P/E with this approach.

Example:

$$\text{Weighted Harmonic Average P/E Ratio} = \frac{1}{\sum_{i=1}^n (w_i \times E/P_i)}$$

where:

- w_i = weight of stock i in the portfolio (rescaled excluding the weight of instruments that do not have an E/P value, such as cash or companies with negative earnings)
- E/P_i = Earnings Yield of stock i

Index Method: Available only for certain equity fields, with the calculation varying depending on the type of field. For price ratios and dividend yield, this is the same as Weighted Harmonic Average with the important difference that companies with negative earnings are included. In addition, for multi-currency portfolios, all the underlying components such as the price, dividend or eps are converted into the portfolio base currency before aggregating.

Par-Weighted Average: Available only for certain fixed income fields. For these fields, the par-weighted average methodology is calculated as the sum of the indicator * par amount, divided by the sum of the par amount.

Book Value Weighted: Available only for certain fixed income fields that provide book value analysis in PORT. For these fields, the book value weighted methodology is calculated as the book value of the individual lot divided by the portfolio's book value, where:

- Book value = book price * position * factor (excluding accrued income)
- Portfolio book value = the sum of the lot-level book values within the portfolio

CALCULATION EXAMPLE

A portfolio contains three stocks - A, B and C - which make up 40%, 40%, and 20% of the portfolio weight, respectively. Stock A is based in Euros, while Stocks B and C are based in Japanese Yen. The portfolio itself is based in US Dollars. The local Price, Trailing 12 Month EPS, and P/E Ratio are displayed for each of the three stocks in the table below. Note that Stock C has no P/E, because EPS is negative.

Name	Crncy	Wgt	Px (LCL)	EPS (LCL)	P/E
A	EUR	40%	95.12	7.02	13.55
B	JPY	40%	8,470	420.13	20.16
C	JPY	20%	3,135	-111.29	N/A

For this portfolio, PORT calculates the aggregate P/E ratio as follows:

- **Weighted Average P/E:** 16.86
- **Weighted Harmonic Average P/E:** 16.21

- **Index Method P/E:** 20.80

Note: In this example, the Index Method results in a higher portfolio P/E than the other methods. This is primarily because the negative earnings of Stock C are included in the Index Method calculation. The other two approaches exclude Stock C.

The sections below illustrate the calculation using each individual aggregation method.

Weighted Average Calculation

The following inputs are required to calculate the aggregate P/E ratio for the portfolio when using the Weighted Average method.

Name	Wgt	P/E	Adj Wgt
A	40%	13.55	50%
B	40%	20.16	50%
C	20%	N/A	N/A

P/E Ratio using Weighted Average is calculated as:

$$= 0.5 \times 13.55 + 0.5 \times 20.16$$

$$= 16.86$$

Weighted Harmonic Average Calculation

Name	Wgt	P/E	Adj Wgt	E/P
A	40%	13.55	50%	0.0738
B	40%	20.16	50%	0.0496
C	20%	N/A	N/A	N/A

P/E ratio using Weighted Harmonic Average is calculated as:

$$= 1 / (\text{Weighted Average of E/P})$$

$$= 1 / (0.5 \times 0.0738 + 0.5 \times 0.0496)$$

$$= 1 / 0.0617$$

$$= 16.21$$

Index Method Calculation

Name	Crncy	Wgt	Px (LCL)	EPS (LCL)	P/E	Px (USD)	EPS (USD)	E/P (USD)
A	EUR	40%	95.12	7.02	13.55	105.9447	8.9061	0.0841
B	JPY	40%	8,470	420.13	20.16	68.3395	3.8409	0.0562

Name	Crncy	Wgt	Px (LCL)	EPS (LCL)	P/E	Px (USD)	EPS (USD)	E/P (USD)
C	JPY	20%	3,135	-111.29	N/A	25.2945	-1.0174	-0.0402

P/E ratio using Index Method is calculated as:

$$\begin{aligned}
 &= 1 / (\text{Weighted Average of EPS in USD} / \text{Price in USD}) \\
 &= 1 / (0.4 \times 0.0841 + 0.4 \times 0.0562 + 0.2 \times -0.0402) \\
 &= 1 / 0.04808 \\
 &= 20.80
 \end{aligned}$$

AGGREGATION WEIGHTS

You can customize the aggregation method for a selected field in your portfolio, so you can determine whether the weighted average of the field is calculated as the *Gross* or *Net*. If you select *Gross*, the market values of all instruments are added together to calculate the aggregate; if you select *Net*, the market values of all instruments are divided by the position exposure, then summed to calculate the aggregate.

Net Weighted Average is calculated as:

$$WAVG_{NET} = \frac{\sum_i^I exp_i * value_i}{TOT_{MV} * \frac{\sum_i^I mv_i}{\sum_k^K mv_k}}$$

where:

- $i \in I$ is the set of all assets having a valid value for the indicator being averaged,
- $k \in K$ is the set of all assets in the portfolio, and
- TOT_{MV} is either $\sum_k^K mv_k$ or the portfolio capital (for capital portfolios).

Gross Weighted Average is calculated as:

$$WAVG_{GROSS} = \frac{\sum_i^I ABS(exp_i) * value_i}{TOT_{MV} * \frac{\sum_i^I (mv_i)}{\sum_k^K (mv_k)}}$$

where:

- $i \in I$ is the set of all assets having a valid *value* for the indicator being averaged,
- $k \in K$ is the set of all assets in the portfolio, and
- TOT_{MV} is either $\sum_k^K m v_k$ or the portfolio capital (for capital portfolios).

PRICING & FX SOURCES

PRTU provides several options for pricing and FX.

Equity Pricing: For intraday performance monitoring, PRTU uses primary exchange prices with an option to use composite prices. For historical performance and attribution, PRTU provides the option to use composite, primary exchange, and MSCI prices.

Custom prices can be provided for private equities or funds created using the *Equity Custom Security* (EQPL) function. The custom prices can be provided by typing them into the corresponding portfolio via the *Portfolio Administration* (PRTU) function, uploading them with the portfolio via the *Bloomberg Uploader* (BBU) function, or uploading prices or net asset value into a custom field in the *Custom Data Editor* (CDE) function, with the *Content Type* set as "Price". The *Data Source* you specify for the "Price" field can then be selected as part of the *Fixed Income Historical Data* price waterfall. For more information on customizing your price waterfall, see [Customizing Price Waterfall](#).

Fixed Income (all tabs except Intraday): Fixed income instruments include sovereigns, corporates, agency debentures, securitized bonds, convertible bonds, and loans. The following sources are currently available for fixed income instruments in PRTU:

- Index Provider: The prices from the index provider you are benchmarked against. This only applies when you compare your portfolio to the benchmark in PRTU.
- BVAL: Bid-side BVAL pricing with analytics using bid-side sovereign curves and mid-side swap curves. Snap times for prices and curves follow Bloomberg Barclays index convention, which uses a single snap time per currency.
- Local: Local pricing sources, such as MICX and MICB (Russia), ANBE (Brazil), PIPV (Mexico), BMA / PBMA (South Africa), and KCMP (South Korea).
- Custom (Portfolio-Linked): Client-supplied prices. You can provide your own prices by typing them into the portfolio via PRTU or uploading them with the portfolio via BBU. For more information on these functions, see the [PRTU Help Page](#) and the [BBU Help Page](#).
|Hint| When providing prices within a portfolio (either via PRTU or BBU), the prices are specific to that portfolio.
- Custom (Portfolio-Independent): Client-supplied prices. If you want to upload one or more sets of custom prices independent of a specific portfolio, you can upload prices to a field of *Content Type* "Price" via CDE. Each price field must be specified with a different *Data Source*. For more information on using CDE, see the [CDE Help Page](#).

You can also choose to capture portfolio-linked prices uploaded with a portfolio into a portfolio-independent source by creating a field in CDE of *Content Type* "PRTU Price" (the field is automatically assigned a *Data Source* of "Portfolios"). If you price the same bond on the same day in two different portfolios, only one price is stored (the last one uploaded) in the "PRTU Price" field.

Note: The *Data Sources* you use to specify the "Price" fields as well as the "PRTU Price" field can then be selected as part of your custom price waterfall. For more information on customizing your price waterfall, see [Customizing Price Waterfall](#).

- AIM (available to AIM Analytics clients only): Custom prices from Bloomberg's Asset and Investment Manager (AIM). For more information, see the [AIM Help Page](#).

PORT offers several price *waterfall*¹⁵⁸ permutations of the above-mentioned pricing sources for portfolios and benchmarks, such as *Index Provider else BVAL else Portfolio*. You can also create your own customized waterfall, which can include any set of available pricing sources. Price waterfalls are available in the *Fixed Income Historical Data* section of the *Pricing Source* defaults window. For more information on setting up and customizing price waterfalls, see [Customizing Price Waterfall](#).

Fixed Income Intraday: For fixed income intraday, PORT offers the following sources to track intraday indicative P&L changes:

- MSG1: Intraday prices automatically scraped from your Bloomberg Messages
- TRAC: TRACE bond prices
- EXCH: Exchange prices
- CBBT: FIT Composite (average of executable prices on FIT)
- BGN: Bloomberg Generic Prices
- BVAL: BVAL prices

FX Rates: For multi-currency portfolios, PORT offers the following options for FX rates when converting prices from one currency to the *Reporting Currency*¹⁵⁹:

- Use the FX rate provided by the index vendor of the benchmark utilized, else the Bloomberg FX fixing rate from London at 4PM, else the Bloomberg composite rate from London at 6PM.
- Use the Telegraphic Transfer Middle (TTM) rate, else the Bloomberg composite rate from London at 6PM.

Note: TTM is the industry standard FX rate used for Japanese Investment Trusts.

- Create a customized FX rate waterfall using all available sources, including BFIX at a variety of snap times, several index vendor provider sources, TTM, the Index Provider source (which is a wildcard source defined as the source associated with the benchmark chosen at the time of analysis), and custom rates uploaded to a field of type "Price" to a currency spot ticker (e.g., EUR <Crncy>) via BBU. For more information on custom FX rates, see [Using Custom FX Rates](#).

The table below describes the FX rate sources supported in PORT and their earliest date of availability.

FX Rate Source	Earliest Available Date
Bloomberg 4PM London	January 2009
Bloomberg 12PM London	January 2009
Bloomberg Composite (6PM London)	January 2000
MSCI 4PM London	January 1999
FTSE 4PM London	January 1999

¹⁵⁸ A hierarchy of sources used to specify the priority of pricing sources you want to use. For each day in the analysis, instruments are priced by checking for a price from the first source in the hierarchy. If not found, the next price source on the list is checked. The process continues until a price is found. For historical analysis such as performance attribution, PORT looks back up to 10 business days to find prices for the start date of the analysis. From that day forward, if the price source hierarchy fails to find a price for a given day, the last known price is carried forward.

¹⁵⁹ The currency used in the analysis, as indicated by the selection in the Curr drop-down menu of any Main View sub-tab. By default, the currency under analysis is the portfolio base currency.

FX Rate Source	Earliest Available Date
Dow Jones 4PM London	January 1999
S&P 4PM London	January 1999
Telegraphic Transfer Middle (TTM)	January 2009
CDE Sources (User-defined)	Unique to user upload
HSBC	January 2011

MSCI Index Prices: MSCI indices and prices are generally updated by 3AM EST for T-1 data. If your historical pricing source is set to MSCI under Calculation Defaults, PORT does not show returns for T-1 until this update is complete.

PORT supports up to 7 years of MSCI analysis. When using MSCI, typically you can only see month-end data when going back beyond the first year. Thus, with an MSCI index (on either the portfolio or benchmark side), you cannot enter mid-month dates beyond the first year. For example, you can only select 12/31/2009, not 12/15/2009. For more information on setting MSCI index prices as a pricing source, see [Pricing Source Defaults](#).

MID-SIDE SWAP CURVES

As of December 6, 2018, PORT analytics in the *BVAL* pricing set are calculated using a swap curve constructed with the mid-side of swap rate quotes, instead of the bid-side. At the same time, the swap curve used to calculate analytics in the *Barclays Index* pricing set use a new interpolation and curve shifting methodology. The changes are intended to make analytics in the two pricing sets consistent.

The impact on index analytics are very small at the index level, but individual securities may experience noticeable shifts in their Libor key-rate durations, especially in the long end of the curve. In the *BVAL* pricing set, the bid-to-mid change primarily affects the Libor OAS, especially in currencies with illiquid swap markets. In particular:

- Libor OAS changes for all securities by absorbing the bid-to-mid swap curve spread.
- All other Libor analytics are affected to a much lesser degree.
- Treasury curve based analytics are only affected for securities whose cashflows depend on the swap curve. This includes most floating-rate securities, as well as securitized bonds. In particular, US RMBS analytics change, but because the mid-to-bid spread for the USD swap curve is very small, the impact should be minimal.

Attribution clients using the *BVAL* pricing set will experience a one-day change in the Libor OAS that generates larger than usual spread return offset, but an opposite sign curve return. In addition, risk factor exposures that depend on Libor OAS (for example, DTS exposures for credit securities) change, causing a small increase in spread risk.

The table below summarizes the average change of the Libor OAS in the *BVAL* pricing set of index bonds in each currency. IDR, PEN, PHP and RON are the currencies that exhibit the largest changes. The BRL swap curve shows zero impact, as it is constructed using futures contracts for which the closing price is always used.

Currency	Libor OAS Average Change in bps
AUD	0.4

Currency	Libor OAS Average Change in bps
BRL	-
CAD	0.9
CHF	0.7
CLP	2.0
CNY	3.9
COP	4.3
CZK	3.6
DKK	1.2
EUR	0.2
GBP	0.3
HKD	5.3
HUF	2.3
IDR	24.2
ILS	1.7
INR	3.6
JPY	1.5
KRW	1.5
MXN	2.3
MYR	3.7
NOK	1.8
NZD	1.3
PEN	20.8
PHP	24.5

Currency	Libor OAS Average Change in bps
PLN	3.2
RON	36.5
RUB	3.9
SEK	0.9
SGD	0.9
SKK	0.2
THB	2.1
TRY	6.0
TWD	6.0
USD	0.2
ZAR	1.9

Note: PORT supports analytics in a number of additional currencies, such as AED, BGN, BHD, CNH, ISK, KWD, KZT, PKR, QAR, and SAR. These are illiquid currencies and significant changes in the reported Libor OAS can be expected.

SNAPSHOT TIMES

On 8/11/17, PORT moved to using pricing snapshots in alignment with the Bloomberg Barclays L-Series index.

FX Rate Source	PCS Code
New York 3 PM	BVN3
New York 4 PM	BVN4
London 12 PM	BL12
London 4:15 PM	BVL4
Tokyo 3 PM	BVT3
Tokyo 5 PM	BVT5
Sydney 5 PM	BVS5

Note: With respect to G4 markets, no change is expected for bonds denominated in EUR and GBP. However, PORT historically used a 4 PM EST snap for USD bonds and a 4 PM JST for JPY bonds. Going forward, 3 PM EST will be used for USD bonds and 3 PM JST will be used for JPY bonds. Analytics that have been calculated historically will not be restated.

FIXED INCOME PRICE LOOKBACK

PORT looks back up to 10 days to identify fixed income security prices to use on a particular day. This section describes the fallback method for single date and historical portfolio analyses.

When conducting a single date portfolio analysis (e.g., in the *Holdings*, *Characteristics*, and *Tracking Error/Volatility* tabs), PORT attempts to identify a price from any of the sources specified in your price waterfall, which is configured in the pricing source defaults section of your view. If a price on the analysis date is not found, PORT looks for a price by examining the price source waterfall for up to 10 days in the past. If a price is identified, it is carried forward to the requested analysis date. If no price is found using this fallback method, an exception occurs.

When conducting an historical portfolio analysis (e.g., in the *Performance* and *Attribution* tabs), PORT first attempts to identify a price for the start date of the analysis from any of the sources specified in your price waterfall. If a price on the start date is not found, PORT looks for a price by examining the price source waterfall for up to 10 days in the past. If a price is identified, it is carried forward until an explicit price is found using the specified price waterfall. If no starting price is found using this fallback method, an exception occurs.

- For information on setting up your price waterfall, see [Customizing Price Waterfall](#).
- For information on configuring your pricing source defaults, see [Pricing Source Defaults](#).
- For information on addressing security exceptions, see [Displaying Exceptions](#).

OVERRIDING FIXED INCOME ANALYTICS

PORT generates instrument-specific analytics based on prices derived from your chosen price waterfall. These analytics are then used to derive portfolio-level characteristics, performance, and risk measures. You can override these analytical fields with your own values, so you can supplement PORT's coverage of fixed income securities, leverage your firm's internal models, or feed analytics from another licensed index vendor.

To set up your analytical overrides, you must create a custom data field of the content type you want to override using the *Custom Data Editor* (CDE) function, associate it with a specific data source, then upload the override values to the field using

the *Bloomberg Uploader* (BBU) function. For information on creating custom data fields in CDE, click [here](#) . You can also quickly create custom data fields on the fly when uploading data via BBU. For information on uploading analytic values to a new custom field using BBU, click [here](#) .

To enable your custom analytics for a portfolio, you must select the data source with which you associated the custom data field in the *Portfolio Waterfall* window. For information on setting up your price waterfall and selecting an override data source, see [Customizing Price Waterfall](#).

Note: To see a video on overriding fixed income analytics in PORT, click [here](#).

Minimum Requirements: In order to successfully include a bond in performance attribution (except when using the Brinson Model), you typically need to provide at least one *Key Rate*¹⁶⁰, an *Option Adjusted Duration (OAD)*¹⁶¹ that is the sum of all the key rates you provide (missing key rates are set to zero), and an *Option Adjusted Convexity (OAC)*¹⁶². The spread-based models and risk analytics also require *Option Adjusted Spread (OAS)*¹⁶³, *Option Adjusted Spread Duration (OASD)*¹⁶⁴, and *Modified Duration*¹⁶⁵.

The following analytical fields support user-defined overrides:

Field	Measures
6mo Key Rate	The sensitivity of the portfolio to a single basis point shift at the six-month rate.
1yr Key Rate	The sensitivity of the portfolio to a single basis point shift at the one-year rate.
2yr Key Rate	The sensitivity of the portfolio to a single basis point shift at the two-year rate.
3yr Key Rate	The sensitivity of the portfolio to a single basis point shift at the three-year rate.
5yr Key Rate	The sensitivity of the portfolio to a single basis point shift at the five-year rate.
7yr Key Rate	The sensitivity of the portfolio to a single basis point shift at the seven-year rate.
10yr Key Rate	The sensitivity of the portfolio to a single basis point shift at the 10-year rate.
20yr Key Rate	The sensitivity of the portfolio to a single basis point shift at the 20-year rate.
30yr Key Rate	The sensitivity of the portfolio to a single basis point shift at the 30-year rate.
Modified Duration	The percentage change in price for a given change in yield.
OAD (Option Adjusted Duration)	The bond duration considering embedded options (e.g., dynamic cash flows due to change rates).
OAS (Option Adjusted Spread)	The spread relative to the standard swap or sovereign curve in the denomination currency of the bond. The spread specified for the OAS field is added to a specific curve based on your selection in the <i>Discount Curve</i> field in your General Calculation Settings.

¹⁶⁰ A measurement of the sensitivity of the portfolio to a single basis point shift at a specific rate.

¹⁶¹ A measurement of the bond duration considering embedded options (e.g., dynamic cash flows due to change rates).

¹⁶² A measurement of the convexity of the bond considering embedded options (e.g. dynamic cash flows due to change rates).

¹⁶³ The option adjusted spread. The flat spread that must be added to the yield curve in a pricing model to discount a security payment to match its market price.

¹⁶⁴ A measurement of the sensitivity of price to a one percent change in option adjusted spread.

¹⁶⁵ A measurement of the percentage change in price for a given change in yield.

Field	Measures
	<p>For performance calculations, the following security types follow a specific spread behavior (ignoring your selection in the <i>Discount Curve</i> field):</p> <ul style="list-style-type: none"> Municipal Bond: always spread to the muni curve Cash Instruments: always zero spread Convertibles: always spread to the credit curve Preferreds, Loans, Options on Bond Futures: always spread to the swap curve
OASD (Spread Duration)	The sensitivity of price to a one-percent change in option adjusted spread.
Modified Convexity	The sensitivity of the modified duration of a bond to changes in interest rates.
OAC (Option Adjusted Convexity)	The convexity of the bond considering embedded options (e.g. dynamic cash flows due to change rates).
Yield-to-Maturity	The percentage rate of return paid if the security is held to its maturity date.
Yield-to-Worst	The lowest yield a buyer can expect among the reasonable alternatives.
Average Life	The length of time the principal of a debt issue is expected to be outstanding.
Composite Rating	A rating for a bond not rated via the Bloomberg Composite Rating field.
Accrued Interest	The daily accrued interest on a position in decimal format (e.g., 0.03 equals a three-percent accrual). To generate custom cash flows, you must enter the accrued interest each day; otherwise, the PORT engine defaults to the daily accrual data maintained by Bloomberg.
Income Cash Flow	The coupon payment in decimal format (e.g., 0.03 equals a three-percent coupon).
Factor	For amortizing bonds, the amortization factor in decimal format (e.g., 0.99 represents 99-percent).

Note: In order to mitigate extreme risk estimations, analytical overrides for option adjusted spread (OAS) and spread duration (OASD) are capped within a percentile range among the overall population of the instrument's asset class. The minimum and maximum caps range between the 1st and 10th percentiles and between the 90th and 99th percentiles, respectively, based on the asset class of the security.

MODELS APPLIED

The following table describes the models applied to specific security types in PORT:

Security Type	Rate Shock	Term Structure of Volatility Model	Option Model	Prepayment Model	Credit Model
FX Rate Source	PCS Code				

Security Type	Rate Shock	Term Structure of Volatility Model	Option Model	Prepayment Model	Credit Model
Fixed Rate Bonds (no embedded options)	+/- 10 bps shift in Par curve				
Fixed Rate Bonds (with embedded options)	+/- 10 bps shift in Par curve	Hull-White One-Factor Model	Trinomial Tree		
Floating Rate bonds (with embedded options)	+/- 10 bps shift in Par curve	Hull-White One-Factor Model	Trinomial Tree		
Convertible	+/- 10 bps shift in Par curve	Implied 1 yr vol.	Black Model		
US Residential Mortgages (Agency-backed)	+/-25 for OAD & +/-5 for KRDS	Libor Market Model (LMM)		Bloomberg Agency Prepayment Model (BAM)	
US Non-Agency Mortgages (Legacy RMBS)	+/- 10 bps shift in Par curve	Static OAS methodology (Z-Spread)		Bloomberg Transition Model (BTM)	Bloomberg Transition Model (BTM)
US Non-Agency Mortgages (RMBS 2.0)	+/- 10 bps shift in Par curve	Libor Market Model (LMM)		Bloomberg Transition Model (BTM)	Bloomberg Transition Model (BTM)
Non-Agency Commercial Mortgage Backed Securities (CMBS 2.0)	+/- 10 bps shift in Par curve	Static OAS methodology (Z-Spread)		0 CPY	0 CPY
Non-Agency Commercial Mortgage Backed Securities (CMBS Legacy)	+/- 10 bps shift in Par curve	Static OAS methodology (Z-Spread)		0 CPY	0 CPY

Security Type	Rate Shock	Term Structure of Volatility Model	Option Model	Prepayment Model	Credit Model
DUS Pools	+/- 10 bps shift in Par curve	Static OAS methodology (Z-Spread)		0 CPY	
Freddie K (CMBS)	+/- 10 bps shift in Par curve			0 CPY	
Agency Commercial Mortgage Backed Securities (GNR)	+/- 10 bps shift in Par curve	Static OAS methodology (Z-Spread)			15 CPJ
STACRS / CAS (Uninsured US Agencies)	+/- 10 bps shift in Par curve	Static OAS methodology (Z-Spread)		Bloomberg Transition Model (BTM)	Bloomberg Transition Model (BTM)
SBA Pools	+/- 10 bps shift in Par curve	Static OAS methodology (Z-Spread)		7 CPR	
DUS Pools	+/- 10 bps shift in Par curve	Static OAS methodology (Z-Spread)		0 CPY	
Auto	+/- 10 bps shift in Par curve	Static OAS methodology (Z-Spread)		3-month, 1-month Historical CPR else pricing speed	
Student Loans	+/- 10 bps shift in Par curve	Static OAS methodology (Z-Spread)		6 CPR	
Manufactured Housing	+/- 10 bps shift in Par curve	Static OAS methodology (Z-Spread)		6 CPR	
Euro Non-Agency RMBS (Modeled)	+/- 10 bps shift in Par curve	Static OAS methodology (Z-Spread)		Bloomberg Credit Model (BCM) (Credit & Prepay Model)	Bloomberg Credit Model (BCM) (Credit & Prepay Model)

Security Type	Rate Shock	Term Structure of Volatility Model	Option Model	Prepayment Model	Credit Model
Euro Non-Agency RMBS (Contributed)	+/- 10 bps shift in Par curve	Static OAS methodology (Z-Spread)		6-month, 3-month, 1-month Historical CPR else pricing speed	
Euro CMBS	+/- 10 bps shift in Par curve	Static OAS methodology (Z-Spread)		0 CPR	
Euro ABS, SME, Consumer	+/- 10 bps shift in Par curve	Static OAS methodology (Z-Spread)		6-month, 3-month, 1-month Historical CPR else pricing speed	
Japan RMBS	+/- 10 bps shift in Par curve	Static OAS methodology (Z-Spread)		10 CPR	
CAN Pools	+/- 10 bps shift in Par curve	Static OAS methodology (Z-Spread)		Fixed CPR	
CLOs	+/- 10 bps shift in Par curve	Static OAS methodology (Z-Spread)		20 CPR	

RETURN ON CASH

PORT supports multiple ways for you to generate a return on your portfolio's cash positions in their local currency. The cash return method is set in your general calculation settings for a specific portfolio view.

Note: For complete instructions on how to set the return on cash option, see [General Calculations](#).

The following options are available when determining your preferred portfolio or position-level return on cash method:

- **Portfolio Fixed Rate:** Uses a fixed rate of return for portfolio-level cash in the portfolio currency. To use this option, you must first select the *Enable Fixed Rate Return on Cash* option in the PRTU *Advanced Settings* window for a specific portfolio. Once you save this selection, the *Return on Cash* field appears on the PRTU security editing screen for you to enter your custom rate of return for the portfolio cash. For more information on PRTU, see the [PRTU Help Page](#).

Note: The rate can change over time as you update the *Return on Cash* field.

- **Pre-Defined Money Market Program:** Simulates an investment in a money market to see a return on cash in your portfolio analysis. PORT uses a pre-defined money market program for each currency, as listed in the table below. The Bloomberg pre-defined money market programs are linked to the one-month EURIBOR for EUR and to the corresponding one-month LIBOR for other currencies.

- **Custom:** Uses a set of custom cash returns uploaded or entered in the *Custom Data Editor* (CDE) function for any currency cash you have in your portfolio, rather than only at the portfolio level. To upload custom cash returns, create a field of content type "Cash Return" in CDE and associate it with a specific source, then upload or enter the relevant currency cash returns to a cash currency security (e.g., GBP <Crncy>, CHF <Crncy>). Then, in PORT, select the source name from the *Return on Cash* drop-down menu. For more information on uploading custom data via CDE, see the [CDE Help Page](#).
- **None:** Specifies that there is no return on cash in the portfolio.

The following table displays related money market programs:

Currency	Code	Pre-Defined Money Market Program
Argentine Peso	ARS	ARS CASH M-Mkt
Australian Dollar	AUD	AUD CASH M-Mkt
Brazilian Real	BRL	BRL CASH M-Mkt
British Pound	GBP	GBP CASH M-Mkt
Canadian Dollar	CAD	CAD CASH M-Mkt
Chilean Peso	CLP	CLP CASH M-Mkt
Chinese Renminbi	CNY	CNY CASH M-Mkt
Colombian Peso	COP	COP CASH M-Mkt
Czech Koruna	CZK	CZK CASH M-Mkt
Danish Krone	DKK	DKK CASH M-Mkt
Egyptian Pound	EGP	EGP CASH M-Mkt
Euro	EUR	EUR CASH M-Mkt
Hong Kong Dollar	HKD	HKD CASH M-Mkt
Hungarian Forint	HUF	HUF CASH M-Mkt
Indian Rupee	INR	INR CASH M-Mkt
Indonesian Rupiah	IDR	IDR CASH M-Mkt
Israeli Shekel	ILS	ILS CASH M-Mkt
Japanese Yen	JPY	JPY CASH M-Mkt

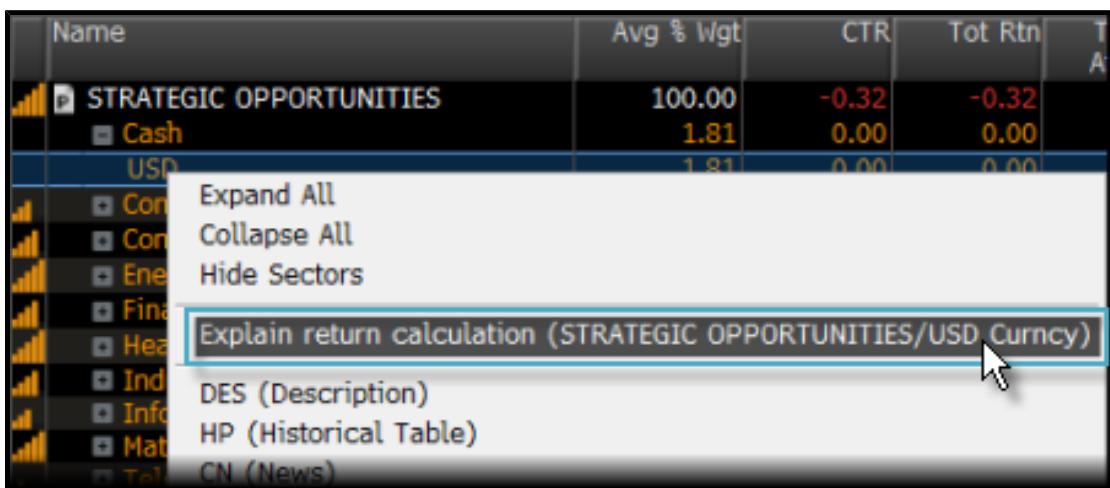
Currency	Code	Pre-Defined Money Market Program
Malaysian Ringgit	MYR	MYR CASH M-Mkt
Mexican Peso	MXN	MXN CASH M-Mkt
New Romanian Leu	RON	RON CASH M-Mkt
New Zealand Dollar	NZD	NZD CASH M-Mkt
Nigerian Naira	NGN	NGN CASH M-Mkt
Norwegian Krone	NOK	NOK CASH M-Mkt
Peruvian New Sol	PEN	PEN CASH M-Mkt
Philippine Peso	PHP	PHP CASH M-Mkt
Polish Zloty	PLN	PLN CASH M-Mkt
Russian Ruble	RUB	RUB CASH M-Mkt
Serbian Dinar	RSD	RSD CASH M-Mkt
Singapore Dollar	SGD	SGD CASH M-Mkt
South African Rand	ZAR	ZAR CASH M-Mkt
South Korean Won	KRW	KRW CASH M-Mkt
Sri Lankan Rupee	LKR	LKR CASH M-Mkt
Swedish Krona	SEK	SEK CASH M-Mkt
Swiss Frank	CHF	CHF CASH M-Mkt
Taiwanese Dollar	TWD	TWD CASH M-Mkt
Thai Baht	THB	THB CASH M-Mkt
Turkish Lira	TRY	TRY CASH M-Mkt
Ukrainian Hryvnia	UAH	UAH CASH M-Mkt
Uruguayan Peso	UYU	UYU CASH M-Mkt
US Dollar	USD	USD CASH M-Mkt

Currency	Code	Pre-Defined Money Market Program
Zambian Kwacha	ZMW	ZMW CASH M-Mkt

Details about pre-defined Money Market Programs used for Return on Cash in PORT are available in the related *Description* (DES) page. To access this information:

1. Enter (Currency Code) CASH <M-Mkt> DES <GO>.
2. Click the (yellow) pre-defined MMP.
3. To see historical rates, use the <Pg Fwd> key.

To see data transparency, in the *Attribution Main View* sub-tab, right click the currency and select **Explain Return Calculation**.



The data appears on the *Performance Data Dashboard* screen in another window.

YIELD CURVES

The table below displays the sovereign curves and swap curves (by currency) PORT utilizes for yield curve-based analytics (e.g., effective duration, option adjusted spread). For more on yield curve snap times: [Yield Curve Snap Times](#).

Note: You can analyze the curves in greater detail by inputting any of the curve tickers into the *Graph Curves (GC)* function. For more on GC: [GC Help Page](#).

Currency	Sovereign Curve Ticker	Swap Curve Ticker
AED	NA	S230
AUD	BI572	S303
BGN	BI662	S183

Currency	Sovereign Curve Ticker	Swap Curve Ticker
BHD	NA	S316
BRL	BI1295	S89
BWP	BI1283	NA
CAD	RV7	S4
CHF	BI607	S21
CLP	BI1294	S193
CNH*	BI1293	S326
CNY	BI1307	S181
COP	BI1296	S329
CZK	BI629	S320
DKK	BI612	S339
DOP	I678	NA
EGP	BI1272	NA
EUR	RV2	S45
GBP	RV6	S22
GHS	BI1286	S220
HKD	BI1299	S10
HRK	I369	NA
HUF	BI569	S124
IDR	BI1300	S380
ILS	BI1194	S162
INR	BI1301	S46
ISK	NA	S188

Currency	Sovereign Curve Ticker	Swap Curve Ticker
JMD	I297	NA
JPY	RV3	S13
KES	BI1148	NA
KRW	BI1302	S57
KWD	NA	S255
KZT	NA	S175
LKR	I271	NA
MNT	BI1204	NA
MXN	BI1297	S83
MYR	BI1303	S39
NAD	BI1201	NA
NGN	BI1244	NA
NOK	BI611	S16
NZD	BI1304	S15
PEN	BI1298	S374
PHP	BI923	S81
PKR	I320	S160
PLN	BI592	S48
QAR	NA	S366
RON	BI631	S225
RSD	BI760	NA
RUB	BI573	S237
SAR	NA	S166

Currency	Sovereign Curve Ticker	Swap Curve Ticker
SEK	BI608	S348
SGD	BI1305	S44
THB	BI1306	S172
TRY	BI658	S235
TTD	BI932	NA
TWD	BI1308	S386
USD	RV1	S23
Muni (Tax Exempt)	M49	S23
VND	NA	S196
ZAR	BI609	S18
ZMW	BI1285	NA

* also used for CNY with DZ067 set to Y

YIELD CURVE SNAP TIMES

PORT uses closing curve times that follow Bloomberg Barclays Index convention in the *Characteristics*, *Tracking Error/VOL*, *VaR*, *Performance*, and *Attribution* tabs for government and credit bonds. In addition, the set of BVAL prices in PORT for these instruments use the same times.

To provide more detail, the snap times used for Bloomberg Barclays Index valuations are a function of the currency of the instrument. The snap times used in PORT are also a function of the currency of the instrument, but have not historically agreed with index snap times for many currencies. The following table displays snap times used in PORT as of August 11, 2017.

For more on sovereign and swap curves by currency: [Yield Curves](#).

Code	Currency	Snap Time
AED	UAE Dirham	4:15 PM London
ALL	Albanian Lek	4:15 PM London
AOA	Angolan Kwanza	4:15 PM London
ARS	Argentine Peso	4 PM New York

Code	Currency	Snap Time
ATS	Austrian Schilling	4:15 PM London
AUD	Australian Dollar	5 PM Sydney
AZN	Azerbaijan Manat New	4:15 PM London
BGN	Bulgarian Lev	4:15 PM London
BHD	Bahraini Dinar	4:15 PM London
BRL	Brazilian Real	4 PM New York
BWP	Botswana Pula	4:15 PM London
BYR	Old Belarus Ruble	4:15 PM London
CAD	Canadian Dollar	4 PM New York
CHF	Swiss Franc	4:15 PM London
CLP	Chilean Peso	4 PM New York
CNH	China Renminbi Offshore	5 PM Tokyo
CNY	China Renminbi	5 PM Tokyo
COP	Colombian Peso	4 PM New York
CZK	Czech Koruna	4:15 PM London
DEM	German Mark	4:15 PM London
DKK	Danish Krone	4:15 PM London
DOP	Dominican Repb.	4 PM New York
DZD	Algerian Dinar	4:15 PM London
EGP	Egyptian Pound	4:15 PM London
ETB	Ethiopian Birr	4:15 PM London
EUR	Euro	4:15 PM London
FRF	French Franc	4:15 PM London

Code	Currency	Snap Time
GBP	British Pound	4:15 PM London
GEL	Georgia Lari	4:15 PM London
GHS	Ghana Cedi	4:15 PM London
HKD	Hong Kong Dollar	5 PM Tokyo
HRK	Croatian Kuna	4:15 PM London
HUF	Hungarian Forint	4:15 PM London
IDR	Indonesian Rupiah	5 PM Tokyo
ILS	Israeli Shekel	4:15 PM London
INR	Indian Rupee	12 PM London
ISK	Iceland Krona	4:15 PM London
ITL	Italian Lira	4:15 PM London
JMD	Jamaica Dollar	4 PM New York
JOD	Jordanian Dinar	4:15 PM London
JPY	Japanese Yen	3 PM Tokyo
KES	Kenyan Shilling	4:15 PM London
KRW	South Korean Won	5 PM Tokyo
KWD	Kuwaiti Dinar	4:15 PM London
KZT	Kazakhstan Tenge	12 PM London
LKR	Sri Lankan Rupee	12 PM London
MAD	Moroccan Dirham	4:15 PM London
MKD	Macedonia Denar	4:15 PM London
MNT	Mongolian Togrog	5 PM Tokyo
MUR	Mauritius Rupee	4:15 PM London

Code	Currency	Snap Time
MXN	Mexican Peso	4 PM New York
MYR	Malaysian Ringgit	5 PM Tokyo
NAD	Namibia Dollar	4:15 PM London
NGN	Nigeria Naira	4:15 PM London
NLG	Dutch Guilder	4:15 PM London
NOK	Norwegian Krone	4:15 PM London
NZD	New Zealand Dollar	5 PM Sydney
OMR	Omani Rial	4:15 PM London
PEN	Peruvian Sol	4 PM New York
PHP	Philippines Peso	5 PM Tokyo
PKR	Pakistani Rupee	12 PM London
PLN	Polish Zloty	4:15 PM London
PTE	Portuguese Escudo	4:15 PM London
QAR	Qatari Riyal	4:15 PM London
RON	Romanian Leu	4:15 PM London
RSD	Serbian Dinar	4:15 PM London
RUB	Russian Ruble	4:15 PM London
SAR	Saudi Riyal	4:15 PM London
SCR	Seychelles Rupee	4:15 PM London
SEK	Swedish Krona	4:15 PM London
SGD	Singapore Dollar	5 PM Tokyo
SKK	Slovakia Koruna	4:15 PM London
SLL	Sierra Leone Leone	4:15 PM London

Code	Currency	Snap Time
THB	Thai Baht	5 PM Tokyo
TND	Tunisian Dinar	4:15 PM London
TRY	Turkish Lira	4:15 PM London
TTD	Trinidad/Tobago Dollar	4 PM New York
TWD	Taiwan Dollar	5 PM Tokyo
TZS	Tanzanian Shilling	4:15 PM London
UAH	Ukraine Hryvnia	4:15 PM London
UGX	Ugandan Shilling	4:15 PM London
USD	US Dollar	3 PM New York
UYU	Uruguay Peso	4 PM New York
VND	Vietnamese Dong	5 PM Tokyo
XAF	CFA Franc Beac	4:15 PM London
XCD	East Caribbean Dollar	4 PM New York
XOF	CFA Franc BCEAO	4:15 PM London
ZAR	South African Rand	4:15 PM London
ZMW	Zambian Kwacha	4:15 PM London

RETURNS ANALYSIS

CONTRIBUTION TO RETURN

Contribution to return (CTR) in PORT is the weighted total return of every instrument in the portfolio or benchmark.

The CTR of every instrument in the portfolio is designed to add up to the *Total Return*¹⁶⁶ of the portfolio. CTR is calculated independently for the portfolio and benchmark, and a relative CTR is also available. These typically appear as *CTR (Port)*¹⁶⁷, *CTR (Bench)*¹⁶⁸, and *CTR (+/-)*¹⁶⁹.

¹⁶⁶ The total return over the stated timeframe as of the date of analysis, expressed as a percentage.

On the *Intraday* tab, CTR for any instrument is calculated as the portfolio's current P&L / the market value of the portfolio at the previous close. On the *Attribution* tab, CTR for any instrument is the daily total return multiplied by the daily weight, compounded over the attribution timeframe. For long/short portfolios, CTR may represent a margin-adjusted contribution to return, depending on the short margin settings.

HISTORICAL RETURNS

By default, PORT is a holdings-based analytic system that calculates historical returns using daily positions and end-of-day market prices. Actual transaction prices and costs associated with trading activity are considered in historical performance only if transactions-based analytics is explicitly enabled and transactions data is uploaded daily by clients. For equity portfolios, dividends are factored into the return calculation on the ex-dates. Historical return in PORT is displayed in the *Performance* and *Attribution* tabs.

Note: For a comparison of the holdings-based versus transactions-based methodology, see the "Holdings vs. Transactions-Based Return Attribution" section below.

General Methodology: In general, if the holdings of the portfolio are unchanged over the course of an analysis period extending from time (0) to time (T), R (return) can be defined simply as:

- $R = \text{Value Portfolio (T)} / \text{Value Portfolio (0)}$

Alternatively, if the return of each security in the portfolio over the analysis period is defined as $r_i(T)$ and the weight of each security at the beginning of the analysis period is defined as $w_i(T-1)$, then R, the return of the portfolio is also equivalent to:

- $R = w_1(T-1) * r_1(T) + w_2(T-1) * r_2(T) + \dots + w_i(T-1) * r_i(T)$

However, since the portfolio holdings do change over a typical analysis period (e.g. year to date), this simplified view of returns only holds true for the sub-period (t) where the holdings remain unchanged. Hence the returns over the period (T) covering sub-periods t_1 through t_n is defined as:

- $R = R(t_1) * R(t_2) * R(t_3) * \dots * R(t_n)$

For PORT, these sub-periods are daily. The daily returns are linked geometrically to form the overall return of the portfolio over the entire period (T). While the daily return is defined by the size of the starting and ending portfolio values every day, the return over the entire period (T) is not affected by adding or removing capital into the portfolio on any given day.

This methodology provides an improvement on the Dietz and Modified Dietz methods for maximum accuracy.

Portfolio Return Including Futures: To calculate weight and, in turn, contribution to return (CTR), PORT uses the nominal contract value as the basis for exposure. The nominal value of a futures contract is obtained by multiplying the futures value of one point by the traded price.

The contribution to portfolio return of a futures contract is calculated as follows:

- $\text{CTR} = \% \text{ Weight} * (\text{Futures P\&L} / \text{Nominal Contract Value})$

Where:

¹⁶⁷ Contribution to return of the security or grouping in the portfolio. This can generally be interpreted as the total return of every instrument multiplied by its weight in the portfolio. The sum of CTR (Port) for all instruments is equal to the *Total Return* of the portfolio.

¹⁶⁸ Contribution to return of the security or grouping in the benchmark. This can generally be interpreted as the total return of every instrument multiplied by its weight in the benchmark. The sum of CTR (Bench) for all instruments is equal to the *Total Return* of the benchmark.

¹⁶⁹ Calculated as CTR (Port) – CTR (Bench).

- % weight is the nominal contract value / total market value of the portfolio
- nominal contract value = the futures value of one point * the price.

Return for Daily Accrual and Money Market Funds: PORT computes the daily return for daily accrual funds, including money market funds, using accrued interest, coupons, and clean price. The calculation is defined as:

$$R_t = \frac{(P_t + AI_t + CP_t) - (P_{t-1} + AI_{t-1})}{P_{t-1} + AI_{t-1}}$$

where:

- Rt = Daily return on day t
- Alt = Accrued interest on day t
- CPt = Coupons on day t (this includes monthly income coupons and other types of coupons like long-term coupons, short-term coupons, and special cash)
- Pt = Clean price on day t

Holdings vs. Transactions-Based Return Attribution: PORT offers two approaches to calculating total return for a portfolio: daily holdings-based returns and transactions-based returns. The sections above each describe aspects of the holdings-based returns method.

The daily holdings-based return model assumes that all buys and sells occur at the close-of-day market price. This approach tends to be the most popular because it requires relatively low integration support (only holdings are required), and if the portfolio has low turnover, these returns should track official returns reasonably well.

For clients that have high portfolio turnover or are exposed to high market volatility, the holdings-based return can significantly deviate from the official return. In these circumstances, it is preferable to upload transactions to incorporate the actual buy and sell prices to improve the accuracy of the total return calculation in PORT.

For more information on the transactions-based method and setting up this returns analysis, see [Transactions-Based Method](#).

INTRADAY RETURNS (EQUITIES)

The following items affect calculation of Intraday Return analysis within PORT.

Current Pricing: Intraday prices refresh every 5 seconds for up to 3000 unique securities across the portfolio and benchmark. This refresh rate is slowed by 1 second for every 200 additional securities.

PORT incorporates the real-time change in FX rates when calculating current market values, P&L, and returns. All measures are converted into the base currency of the portfolio, which is specified in the *Portfolio Administration* (PRTU) function. For more information, see the the [PRTU Help Page](#).

Halted securities that started trading today are supported in the *Intraday* view. PORT carries forward stale prices (e.g., for halted securities) to ensure the % weight exposure to these securities is properly represented.

Previous Close Pricing: Previous close (t-1) prices and weights are calculated based on the *Intraday Reference Price Source* setting in the portfolio's *Calculation Profile*.

- *Latest Historical Source:* Pricing comes from composite, primary exchange, or MSCI prices.

- *Intraday Data Source*: Pricing comes from the Intraday source.

Regional Price Roll: Prices roll from "current day" to "previous close" based on the *Performance Start Time* setting.

- *Automatic*: Prices roll between 6PM EST and 9PM EST for all regions depending on where the security trades.
- *Americas, Europe, or Asia Pacific*: Prices roll at midnight local time in these regions.
- *Custom*: Prices roll exactly 9 hours prior to that custom start time.

Note: The *Reference Price Source* in the portfolio's *Calculation Profile* must be set to *Intraday Data Source* for these custom options to work.

Returns on Cash: Cash, or spot currency, positions contribute to the intraday return in PORT only if the currency is in a different denomination than the portfolio base currency. For example, if the default portfolio currency is EUR and the cash position is in EUR, then the EUR SPOT price change is displayed on PORT with no return; it is always 0. But if the portfolio base currency is USD and the cash position is in EUR, then cash displays a contribution to the return.

Equity Options: PORT Intraday always uses the mid-price for options. Delta adjusted exposures can be viewed for options by adding the fields *Notional Exposure*¹⁷⁰ and *% of Total Notional Exposure*¹⁷¹ to the *Intraday Main View*.

Note: For instructions on how to add fields, see [Adding/Removing Fields](#).

INTRADAY RETURNS (FIXED INCOME)

The default intraday waterfall for fixed income and balanced portfolios is (Bid Pricing) using **MSG1 > TRAC > EXCH > CBBT > BGN**.

[Hint] For information on updating your FI intraday waterfall pricing, see [Pricing Source Defaults](#).

To calculate the intraday P&L, Bloomberg uses:

- **T-1 market price**: T-1 close of day market prices based on your historical fixed income pricing waterfall
- **Market values**: Price quotes are in the conventions of the bond (clean or dirty), but the market value remains Gross (with accrued interest)

The default pricing setting for a bond portfolio is "Bid." For information on changing this setting, see [Pricing Source Defaults](#).

RETURN ATTRIBUTION

For equity portfolios, PORT uses the Brinson-Fachler Total Return Attribution model to decompose the *Active Return*¹⁷² (excess return of the portfolio relative to the benchmark) into four Attribution Effects: Asset Allocation, Stock Selection,

¹⁷⁰ The current value of the underlying asset. For an option, notional exposure is the delta-adjusted underlying value (calculated as number of contracts * contract size * option delta * underlying asset price), while for a future it is the contract value. For non-derivative instruments, the current market value is displayed.

¹⁷¹ The current *Notional* value of the instrument or grouping divided by the total current notional value of the portfolio, expressed as a percentage.

¹⁷² The difference between portfolio return and benchmark return. If you are using the Geometric Method:

$$\text{Active return} = 100 * [(1 + \text{portfolio return} / 100) / (1 + \text{benchmark return} / 100) - 1]$$

Interaction, and Currency. By default, *Interaction Effect*¹⁷³ is embedded within *Selection Effect*¹⁷⁴, but this may be changed from the *View Manager* screen. For fixed income and balanced portfolios, additional factor-based attribution models are available. For more information on these settings, see *Attribution Calculation Defaults*.

The following calculations apply to historical Brinson-Fachler Total Return Attribution in PORT. Historical total returns and weighted contributions to return are calculated daily using beginning of period weights, then geometrically linked according to the Carino method to determine the Attribution Effects over a given timeframe.

Attribution at the Sector Level (Brinson Mode): The attribution calculations at the bucket (grouping) level differ from the calculations at the security level. The calculations for a one-day return period are as follows:

- *Allocation Effect*¹⁷⁵ = $(wp - wb) * (rb - Rb)$
- *Selection Effect*¹⁷⁶ = $wb * (rp - rb)$
- *Interaction Effect*¹⁷⁷ = $(wp - wb) * (rp - rb)$
- *Currency Effect*¹⁷⁸ = sum of individual security currency effects within the sector
- Total Attribution = Allocation + Selection + Interaction + Currency Effects

Where:

- wp = sector weight within the portfolio at beginning of period
- wb = sector weight within the benchmark at beginning of period
- rp = return of the sector in the portfolio (in local currency)
- rb = return of the sector in the benchmark (in local currency)
- Rb = return of the overall benchmark (in local currency)

Note: If the portfolio includes a sector that is not in the benchmark, there can be no benchmark return for that sector (rb). In this case, the portfolio sector return is used as a proxy for the benchmark sector return, replacing rb with rp in the above formulas. Similarly, if the benchmark includes a sector that is not in the portfolio, rp is replaced with rb in the above formulas. The net effect for both of those sector cases is that Selection and Interaction Effects are 0, and Total Attribution comes from Allocation and Currency Effects alone.

Attribution at the Security Level (given a Sector Breakdown): The attribution calculations at the security level differ from the calculations at the sector (grouping) level. Only Selection and Currency Effects are defined at the security level; Allocation and Interaction Effects are not. The calculations for a one-day return period are as follows:

- Selection Effect (Interaction combined): $Wps * [(wp / Wps) - (wb / Wbs)] * (r - Rbs)$
- Selection Effect (Interaction not combined): $Wbs * [(wp / Wps) - (wb / Wbs)] * (r - Rbs)$
- Currency Effect: $(wp - wb) * (rp - r)$

¹⁷³ The interaction between the weighting and the selection effects, which does not represent an explicit decision of the investment manager.

¹⁷⁴ The active return attributed to security selection decisions that differ from the benchmark. When the portfolio sector returns exceed the benchmark return, a positive number is posted.

¹⁷⁵ The active return attributed to asset allocation decisions (e.g., sectors, countries, or market caps) that differ from the benchmark. The allocation is generally positive when the fund is overweight for a sector in which the benchmark return exceeds the total benchmark return.

¹⁷⁶ The active return attributed to security selection decisions that differ from the benchmark. When the portfolio sector returns exceed the benchmark return, a positive number is posted.

¹⁷⁷ The interaction between the weighting and the selection effects, which does not represent an explicit decision of the investment manager.

¹⁷⁸ The active return due to currency exposures that differ from the benchmark.

- Total Attribution: Selection Effect + Currency Effect

Where:

- w_p = security weight within the portfolio at beginning of period
- w_b = security weight within the benchmark at beginning of period
- W_{ps} = sector weight within the portfolio at beginning of period
- W_{bs} = sector weight within the benchmark at beginning of period
- r = return of the security in local currency
- r_p = return of the security in portfolio currency
- R_{bs} = return of the sector in the benchmark in local currency

Note: If the portfolio includes a sector that is not in the benchmark, or if the benchmark includes a sector that is not in the portfolio, then Selection Effect for any security in these sectors is set to 0. Total Attribution for such sectors is fully explained by Allocation and Currency Effects, so there can be no Selection Effect for the securities within these sectors.

Attribution at the Security Level (with No Sector Breakdown): If you are analyzing security-level attribution with no sector (grouping) breakdown, attribution boils down to your over/underweight decision for each security and that security's performance relative to the overall benchmark. In this case, calculations for a one-day return period are as follows:

- Selection Effect: $(w_p - w_b) * (r - R_b)$
- Currency Effect: $(w_p - w_b) * (r_p - r)$
- Total Attribution: Selection Effect + Currency Effect

Where:

- w_p = security weight within the portfolio at beginning of period
- w_b = security weight within the benchmark at beginning of period
- r = return of the security in local currency
- r_p = return of the security in portfolio currency
- R_b = return of the overall benchmark in local currency

Active Returns: Active Return is also known as relative return or Alpha, and it may be viewed in the *Attribution* tab of PORT. By default, Active Return is simply the difference between Portfolio Return and Benchmark Return. However, if you have set the Attribution Calculation Method to "Geometric" in the PORT View Manager, then Active Return may not equal the simple difference between Portfolio and Benchmark Returns. (For more information, see [Pricing Source Defaults](#).)

The Geometric Calculation Method causes Active Return to be captured as a ratio of the portfolio return to the benchmark return:

- Active Return = $100 * [(1 + \text{portfolio return} / 100) / (1 + \text{benchmark return} / 100) - 1]$

Active Returns Attributed to Cash: By default, cash is assumed to have zero return, but this can be changed by adjusting your Return on Cash options in the *View Manager*. For instructions on how to set this, see [General Calculations](#).

Even if you leave the default setting of assuming zero return for cash, cash can have a positive or negative Active Return due to the Currency Effect, which is caused by the change in FX rates between the cash position's currency denomination and the base currency of the portfolio.

In addition, cash may have a positive or negative Active Return that is completely due to the Allocation Effect. As described in prior sections, the general formula for Allocation Effect is:

- Allocation Effect = $(w_p - w_b) * (r_b - R_b)$

Since benchmarks typically do not have cash positions, this formula simplifies to:

- Allocation Effect = $w_p * (r_{cash} - R_b)$

Where:

- w_p = cash weight in portfolio at beginning of period
- r_{cash} = cash return (in local currency)
- R_b = return of the overall benchmark (in local currency)

Thus, if the Total Benchmark Return is greater than your cash rate of return, then cash shows a negative Active Return. Conversely, if the Total Benchmark Return is less than cash rate of return, then cash shows a positive Active Return.

Attribution White Paper: The *Bloomberg Performance Attribution Model* white paper reviews how returns relative to a benchmark can be decomposed into attribution effects. Four attribution models are presented in a generic framework: the total return model, which is the classic Brinson style attribution model, and three other models that are specific for fixed income portfolios, which use an extended Brinson framework.

[Hint] To access the *Bloomberg Performance Attribution Model* document in full, click [here](#) .

TAX RATES FOR NET OF TAX RETURNS

From the *View Manager* screen, you can choose if you want to withhold tax from dividends included in return calculations using the *Return Calculation Type* drop-down menu for each portfolio view. When you are using a return calculation type of *Net*, the tax rates used to calculate the net of tax returns is based on a default tax rate table maintained by Bloomberg. Alternatively, you can set your own custom tax rates by creating a custom data field in the *Custom Data Editor* (CDE) function.

Note: For a list of Bloomberg tax rates, see [Default Tax Rates](#). For information on related general calculation fields, see [General Calculations \(Equity\)](#).

To use custom tax rates, you can upload custom country tax rates as a decimal (e.g., 0.30 equals a 30-percent tax rate) using the content type "Country Tax Rate." You must use the private company equity ticker to identify the country as a security. For a list of each country's equity ticker as recognized in the Bloomberg, see [Default Tax Rates](#).

Once you upload custom country tax data, as long as the *Return Calculation Type* field is set to *Net* or *Portfolio Gross / Bench Net*, your custom country tax rates are used to calculate net of tax returns. If the tax rate law changes, as of the change date, PORT reverts to the Bloomberg tax rate until you enter or upload a new tax rate.

Note: You must also ensure that your price waterfall is set so that your custom tax rates in CDE override the other tax rate sources in the waterfall. From the *Portfolio Waterfall* screen, ensure that your custom source is selected from the *Override Calculations With* drop-down. For information on customizing your price waterfall, see [Customizing Price Waterfall](#).

DEFAULT TAX RATES

PORT uses the following tax rates when performing net of tax return calculations. The country-based tax rates are applied to dividends going ex-date between the dates specified. The appropriate country rate to be applied is determined by the Country of Domicile (Bloomberg Field Code **DX113**) of the company issuing the dividend.

PORT supports custom overrides to these standard tax rates by providing the rates to a field created via the *Custom Data Editor* (CDE) function of type *Country Tax Rate*. The tax rates should be associated to the relevant country through the *Country Instrument ID*.

Country	Withholding Rate (%)	Rate Start Date	Rate End Date	Country Instrument ID
ARGENTINA	35	31-May-94	10-Jul-05	1310Z AR Equity

Country	Withholding Rate (%)	Rate Start Date	Rate End Date	Country Instrument ID
ARGENTINA	0	11-Jul-05	21-Oct-13	1310Z AR Equity
ARGENTINA	10	22-Oct-13		1310Z AR Equity
AUSTRALIA	30	31-Dec-69		1525Z AU Equity
AUSTRIA	15	31-Dec-69	31-Dec-81	1480Z AV Equity
AUSTRIA	20	1-Jan-82	30-Nov-88	1480Z AV Equity
AUSTRIA	25	1-Dec-88	31-Dec-93	1480Z AV Equity
AUSTRIA	22	1-Jan-94	30-Jun-97	1480Z AV Equity
AUSTRIA	25	1-Jul-97		1480Z AV Equity
BAHAMAS	0	12-Jan-09		7196Z US Equity
BAHRAIN	0	31-May-02		3343879Z BI Equity
BANGLADESH	20	31-Dec-93		43886Z BD Equity
BELGIUM	20	31-Dec-69	29-Feb-84	111136Z BB Equity
BELGIUM	25	1-Mar-84	31-Dec-93	111136Z BB Equity
BELGIUM	25.75	1-Jan-94	31-Dec-95	111136Z BB Equity
BELGIUM	25	1-Jan-96		111136Z BB Equity
BERMUDA	0	12-Jan-09		3343895Z BH Equity
BOSNIA AND HERZEGOVINA	0	31-Dec-69	23-Jan-14	1004Z BP Equity
BOSNIA AND HERZEGOVINA	5	24-Jan-14		1004Z BP Equity
BOTSWANA	15	31-Dec-69	26-Jul-11	1000Z BG Equity
BOTSWANA	7.5	27-Jul-11		1000Z BG Equity
BRAZIL	0	31-May-94		1323Z BZ Equity

Country	Withholding Rate (%)	Rate Start Date	Rate End Date	Country Instrument ID
BRAZIL	15	1-Jan-01		1323Z BZ Equity
BRITISH VIRGIN ISLANDS	0	12-Jan-09		1010Z VI Equity
BULGARIA	7	31-May-05	31-Dec-07	129225Z BU Equity
BULGARIA	5	1-Jan-08		129225Z BU Equity
BURKINA FASO	12.5	15-Apr-14		32687Z US Equity
CANADA	15	31-Dec-69	31-Dec-81	80710Z CN Equity
CANADA	25	1-Jan-82		80710Z CN Equity
CAYMAN ISLANDS	0	12-Jan-09		1010Z KY Equity
CHILE	35	31-May-94	29-Mar-01	45793Z CIEquity
CHILE	23.53	30-Mar-01	14-Jan-04	45793Z CIEquity
CHILE	22.15	15-Jan-04	31-Dec-05	45793Z CI Equity
CHILE	21.69	1-Jan-06	21-Mar-11	45793Z CIEquity
CHILE	18.75	22-Mar-11	8-Jan-12	45793Z CIEquity
CHILE	20.25	9-Jan-12	13-Jan-13	45793Z CIEquity
CHILE	35	14-Jan-13		45793Z CIEquity
CHINA	20	31-May-94	29-Mar-01	PRCH CHEquity
CHINA	0	30-Mar-01	31-Dec-08	PRCH CHEquity
CHINA	10	1-Jan-09		PRCH CHEquity
COLOMBIA	7	31-May-94	28-Jan-07	1153Z CB Equity
COLOMBIA	0	29-Jan-07		1153Z CB Equity
CROATIA	0	31-May-02	5-Mar-12	40425Z CZEquity
CROATIA	12	6-Mar-12		40425Z CZEquity

Country	Withholding Rate (%)	Rate Start Date	Rate End Date	Country Instrument ID
CURACAO	0	21-Apr-11		0096033Z NT Equity
CYPRUS	0	12-Jan-09		3343903Z CY Equity
CZECH REPUBLIC	25	31-May-94	29-Mar-01	1040Z CP Equity
CZECH REPUBLIC	15	30-Mar-01	13-Jan-13	1040Z CP Equity
CZECH REPUBLIC	35	14-Jan-13		1040Z CP Equity
DENMARK	30	31-Dec-69	31-Dec-95	1271Z DC Equity
DENMARK	25	1-Jan-96	8-Apr-01	1271Z DC Equity
DENMARK	28	9-Apr-01	18-Jan-12	1271Z DC Equity
DENMARK	27	19-Jan-12		1271Z DC Equity
EGYPT	0	31-May-94	15-Jul-14	1083Z EY Equity
EGYPT	10	16-Jul-14		1083Z EY Equity
ESTONIA	21	1-Jan-08	31-Dec-08	1000Z ET Equity
ESTONIA	0	1-Jan-09		1000Z ET Equity
FAROE ISLAND	38	27-Apr-11	16-Apr-14	3487284Z DC Equity
FAROE ISLAND	35	17-Apr-14		3487284Z DC Equity
FINLAND	25	31-Dec-87	30-Sep-96	1306Z FHEquity
FINLAND	28	1-Oct-96	2-Apr-00	1306Z FHEquity
FINLAND	29	3-Apr-00	10-Jul-05	1306Z FHEquity
FINLAND	28	11-Jul-05	5-Jan-12	1306Z FHEquity
FINLAND	24.5	6-Jan-12	26-Jan-12	1306Z FHEquity
FINLAND	30	27-Jan-12		1306Z FHEquity
FRANCE	25	31-Dec-69	2-Jan-12	223727Z FP Equity

Country	Withholding Rate (%)	Rate Start Date	Rate End Date	Country Instrument ID
FRANCE	30	3-Jan-12		223727Z FP Equity
GERMANY	25.75	31-Dec-69	31-Dec-81	3413Z GR Equity
GERMANY	25	1-Jan-82	1-Jan-95	3413Z GR Equity
GERMANY	26.875	2-Jan-95	29-Jan-98	3413Z GR Equity
GERMANY	26.4	30-Jan-98	26-May-02	3413Z GR Equity
GERMANY	21.1	27-May-02	31-Dec-08	3413Z GR Equity
GERMANY	26.375	1-Jan-09		3413Z GR Equity
GHANA	8	31-Dec-69		1084Z GN Equity
GIBRALTAR	0	1-Dec-09		1635Z LN Equity
GREECE	0	31-May-94	31-Dec-08	1004Z GA Equity
GREECE	10	1-Jan-09	26-Jan-11	1004Z GA Equity
GREECE	0	27-Jan-11	20-Apr-11	1004Z GA Equity
GREECE	21	21-Apr-11	8-Jan-12	1004Z GA Equity
GREECE	25	9-Jan-12	31-Dec-13	1004Z GA Equity
GREECE	10	1-Jan-14		1004Z GA Equity
GUERNSEY	0	12-Jan-09		3399922Z GU Equity
HONG KONG	15	31-Dec-69	31-Dec-97	3343935Z HK Equity
HONG KONG	0	1-Jan-98		3343935Z HK Equity
HUNGARY	20	31-May-94	31-Dec-97	1182Z HB Equity
HUNGARY	0	1-Jan-98		1182Z HB Equity
INDIA	20	31-May-94	31-Mar-03	1504Z IN Equity
INDIA	0	1-Apr-03		1504Z IN Equity

Country	Withholding Rate (%)	Rate Start Date	Rate End Date	Country Instrument ID
INDONESIA	20	31-May-94		1133Z IJ Equity
IRELAND	0	31-Dec-87	29-Mar-01	1266Z IDEquity
IRELAND	22	30-Mar-01	5-Apr-01	1266Z IDEquity
IRELAND	20	6-Apr-01	27-Aug-01	1266Z IDEquity
IRELAND	0	28-Aug-01	10-Jul-05	1266Z IDEquity
IRELAND	20	11-Jul-05		1266Z IDEquity
ISLE OF MAN	0	12-Jan-09		1636Z LN Equity
ISRAEL	25	31-May-94	31-Dec-05	3343943Z IT Equity
ISRAEL	20	1-Jan-06	5-Jan-12	3343943Z IT Equity
ISRAEL	25	6-Jan-12		3343943Z IT Equity
ITALY	32.4	1-Jan-82	31-Aug-98	2103Z IMEquity
ITALY	27	1-Sep-98	5-Jan-12	2103Z IMEquity
ITALY	12.5	11-Jul-05	5-Jan-12	2103Z IMEquity
ITALY	20	6-Jan-12	30-Jun-14	2103Z IMEquity
ITALY	26	1-Jul-14		2103Z IMEquity
IVORY COAST	10	3-Jun-13		49815Z IA Equity
JAMAICA	33.33333333	25-Nov-08		1084Z JA Equity
JAPAN	20	31-Dec-69	31-Mar-03	JAPZ JP Equity
JAPAN	10	1-Apr-03	31-Dec-03	JAPZ JP Equity
JAPAN	7	1-Jan-04	31-Dec-12	JAPZ JP Equity
JAPAN	7.147	1-Jan-13	28-Oct-13	JAPZ JP Equity
JAPAN	15.315	29-Oct-13		JAPZ JP Equity

Country	Withholding Rate (%)	Rate Start Date	Rate End Date	Country Instrument ID
JORDAN	10	31-May-94	10-Jul-05	1001Z JR Equity
JORDAN	0	11-Jul-05		1001Z JR Equity
KAZAKHSTAN	15	30-Nov-05	11-Feb-09	56820Z KZ Equity
KAZAKHSTAN	0	12-Feb-09	20-Jun-12	56820Z KZ Equity
KAZAKHSTAN	15	21-Jun-12		56820Z KZ Equity
KENYA	10	3-May-02		1001Z KN Equity
KOREA	25	31-May-94	29-Mar-01	ROKZ KS Equity
KOREA	27.5	30-Mar-01	31-Dec-08	ROKZ KS Equity
KOREA	22	1-Jan-09		ROKZ KS Equity
KUWAIT	0	31-May-02	19-May-09	3343975Z KKEquity
KUWAIT	15	20-May-09		3343975Z KKEquity
LEBANON	10	31-May-02		1007Z LB Equity
LIBERIA	15	1-Dec-09		32711Z US Equity
LIECHTENSTEIN	4	1-Dec-09		3344650Z QD Equity
LITHUANIA	20	12-Mar-09	3-Jan-10	1092Z LH Equity
LITHUANIA	15	4-Jan-10		1092Z LH Equity
LUXEMBOURG	25	31-Dec-98	31-Dec-01	1110Z LX Equity
LUXEMBOURG	20	1-Jan-02	29-Mar-02	1110Z LX Equity
LUXEMBOURG	15	1-Dec-09		1110Z LX Equity
MACEDONIA	10	12-Jan-09		0702260D MS Equity
MALAYSIA	0	31-Dec-87		1124Z MK Equity
MALAYSIA	10	11-Feb-14		1124Z MK Equity

Country	Withholding Rate (%)	Rate Start Date	Rate End Date	Country Instrument ID
MALTA	0	1-Dec-11		5753Z US Equity
MARSHALL ISLANDS	0	12-Jan-09		4623453Z US Equity
MAURITIUS	0	31-May-02		150679Z MP Equity
MEXICO	0	31-Dec-98	29-Mar-01	1426Z MM Equity
MEXICO	7.69	30-Mar-01	31-Dec-01	1426Z MM Equity
MEXICO	0	1-Jan-02	31-Dec-13	1426Z MM Equity
MEXICO	10	1-Jan-14		1426Z MM Equity
MEXICO	30	2-Apr-14		1426Z MM Equity
MOROCCO	10	31-May-94	15-Aug-13	1096Z MC Equity
MOROCCO	15	16-Aug-13		1096Z MC Equity
NETHERLANDS ANTILLES	0	12-Jan-09		556126Z NA Equity
NETHERLANDS	25	31-Dec-69	31-Dec-06	1533Z NA Equity
NETHERLANDS	15	1-Jan-07		1533Z NA Equity
NEW ZEALAND	30	31-Dec-87	31-Dec-99	46443Z NZ Equity
NEW ZEALAND	15	1-Jan-00	29-Mar-01	46443Z NZ Equity
NEW ZEALAND	30	30-Mar-01	10-Jul-05	46443Z NZ Equity
NEW ZEALAND	15	11-Jul-05		46443Z NZ Equity
NIGERIA	10	31-May-02		1119Z NL Equity
NORWAY	25	31-Dec-69		1233Z NO Equity
OMAN	0	31-May-02		3080511Z OM Equity
PAKISTAN	20	31-May-94	29-Mar-01	1106Z PA Equity
PAKISTAN	15	30-Mar-01	10-Jul-05	1106Z PA Equity

Country	Withholding Rate (%)	Rate Start Date	Rate End Date	Country Instrument ID
PAKISTAN	10	11-Jul-05		1106Z PA Equity
PALESTINE	0	12-Oct-09		149038Z PS Equity
PANAMA	10	12-Jan-09		3344634Z PP Equity
PERU	0	31-May-94	31-Dec-02	1131Z PE Equity
PERU	4.2	1-Jan-03	31-Dec-03	1131Z PE Equity
PERU	4.1	1-Jan-04		1131Z PE Equity
PHILIPPINES	32	31-May-94	31-Oct-05	279379Z PM Equity
PHILIPPINES	35	1-Nov-05	31-Dec-08	279379Z PM Equity
PHILIPPINES	30	1-Jan-09		279379Z PM Equity
POLAND	20	31-May-94	29-Mar-01	1084Z PW Equity
POLAND	15	30-Mar-01	31-Dec-03	1084Z PW Equity
POLAND	19	1-Jan-04		1084Z PW Equity
PORTUGAL	17	31-Dec-87	31-Dec-88	1174Z PL Equity
PORTUGAL	25	1-Jan-89	31-Dec-91	1174Z PL Equity
PORTUGAL	20	1-Jan-92	31-Dec-94	1174Z PL Equity
PORTUGAL	17.5	1-Jan-95	29-Mar-01	1174Z PL Equity
PORTUGAL	25	30-Mar-01	31-Dec-05	1174Z PL Equity
PORTUGAL	20	1-Jan-06	9-Jan-11	1174Z PL Equity
PORTUGAL	21.5	10-Jan-11	5-Jan-12	1174Z PL Equity
PORTUGAL	25	6-Jan-12	16-Dec-12	1174Z PL Equity
PORTUGAL	26.5	17-Dec-12	21-Nov-13	1174Z PL Equity
PORTUGAL	25	22-Nov-13		1174Z PL Equity

Country	Withholding Rate (%)	Rate Start Date	Rate End Date	Country Instrument ID
PUERTO RICO	10	1-Dec-09		STOPR1 US Equity
QATAR	0	31-May-02		3344650Z QD Equity
ROMANIA	16	30-Nov-05		1089Z RO Equity
RUSSIA	15	31-May-94		4458Z RU Equity
SAUDI ARABIA	5	31-May-02	29-Sep-10	3344642Z AB Equity
SAUDI ARABIA	5	26-Jun-12		3344642Z AB Equity
SENEGAL	10	3-Jun-13		26376Z US Equity
SERBIA	25	28-Dec-14		1001Z SG Equity
SINGAPORE	15	31-Dec-69	31-Dec-81	1545Z SP Equity
SINGAPORE	0	1-Jan-82		1545Z SP Equity
SINGAPORE	10	11-Jul-05		1545Z SP Equity
SINGAPORE	10	1-May-06		1545Z SP Equity
SLOVENIA	15	31-May-02	13-Jul-10	1091Z SV Equity
SLOVENIA	20	14-Jul-10	31-Dec-12	1091Z SV Equity
SLOVENIA	25	1-Jan-13	5-Jan-14	1091Z SV Equity
SLOVENIA	15	6-Jan-14		1091Z SV Equity
SOUTH AFRICA	0	31-May-94	1-Apr-12	50184Z SJ Equity
SOUTH AFRICA	15	2-Apr-12		50184Z SJ Equity
SPAIN	15	31-Dec-69	30-Jun-75	1841Z SM Equity
SPAIN	16.5	1-Jul-75	30-Jun-83	1841Z SM Equity
SPAIN	16	1-Jul-83	29-Feb-84	1841Z SM Equity
SPAIN	18	1-Mar-84	31-Aug-89	1841Z SM Equity

Country	Withholding Rate (%)	Rate Start Date	Rate End Date	Country Instrument ID
SPAIN	25	1-Sep-89	8-Apr-01	1841Z SM Equity
SPAIN	18	9-Apr-01	31-Dec-02	1841Z SM Equity
SPAIN	15	1-Jan-03	31-Dec-06	1841Z SM Equity
SPAIN	18	1-Jan-07	6-Jan-10	1841Z SM Equity
SPAIN	19	7-Jan-10	2-Jan-12	1841Z SM Equity
SPAIN	20	1-Jan-15		1841Z SM Equity
SRI LANKA	15	31-May-94	31-Mar-02	1005Z SL Equity
SRI LANKA	10	1-Apr-02		1005Z SL Equity
SWEDEN	30	31-Dec-69		1179Z SS Equity
SWITZERLAND	30	31-Dec-69	31-Dec-75	344758Z SW Equity
SWITZERLAND	35	1-Jan-76		344758Z SW Equity
TAIWAN	20	31-May-94	29-Mar-01	116657Z TT Equity
TAIWAN	25	30-Mar-01	10-Jul-05	116657Z TT Equity
TAIWAN	20	11-Jul-05		116657Z TT Equity
THAILAND	10	31-May-94		1179Z TB Equity
TOGO	13	17-Dec-14		32683Z US Equity
TRINIDAD AND TOBAGO	15	25-Nov-08		3239646Z TP Equity
TUNISIA	5	1-Jan-15		1102Z TU Equity
TURKEY	15	31-May-94	29-Mar-01	114144Z TI Equity
TURKEY	16.5	30-Mar-01	10-Jul-05	114144Z TI Equity
TURKEY	10	11-Jul-05	6-Aug-06	114144Z TI Equity
TURKEY	15	7-Aug-06		114144Z TI Equity

Country	Withholding Rate (%)	Rate Start Date	Rate End Date	Country Instrument ID
UKRAINE	15	31-May-06		1089Z UZ Equity
UNITED ARAB EMIRATES	0	31-May-02		3344698Z UH Equity
UNITED KINGDOM	38.75	31-Dec-69	31-Dec-81	6152Z LN Equity
UNITED KINGDOM	30	1-Jan-82	29-Feb-84	6152Z LN Equity
UNITED KINGDOM	0	1-Mar-84		6152Z LN Equity
USA	30	31-Dec-69		3352Z US Equity
VENEZUELA	0	31-Dec-98	10-Oct-07	1069Z VC Equity
VIETNAM	0	30-Nov-06		231715Z VN Equity
ZIMBABWE	15	30-Nov-10	3-Jan-10	1004Z ZH Equity
ZIMBABWE	10	4-Jan-10		1004Z ZH Equity

Note: The table above has been adapted from data provided by MSCI.

RISK ANALYSIS

RISK TRANSPARENCY

Risk transparency is accessed in the *Tracking Error/Volatility - Exposures* sub-tab when you click on any security's exposure number on the screen. Factor Exposures, as well as Descriptors used to calculate Factor Exposures, are standardized.

Bloomberg takes the Original value, subtracts the Average, then divides by the Standard Deviation. This value equals the first row of the Iterations dialog, which you can display by clicking the icon next to the Exposure field or Standardized column.

Bloomberg takes all Values in the universe, subtracts Average, then divides by the standard deviation. Then Bloomberg takes values that are over + / -3 standard deviation and set them to + / -3, respectively. This process is repeated multiple times until the average of the distribution is close to 0, the standard deviation is close to 1, and there are very few observations outside of + / -3 range.

Risk exposures appear in the *Risk Transparency* screen in another window. For more information on analyzing risk exposures, see [Risk Transparency Screen](#).

LIQUIDITY RISK

Liquidity risk is calculated and displayed in the *Characteristics-Liquidity Risk* sub-tab for equity and balanced portfolios. The calculation of liquidity risk is based on three inputs: position size, an average or median daily volume based on some lookback period, and a market participation rate.

For example, suppose you hold a position of 20,000 shares of Tootsie Roll (TR US). In your liquidity analysis, you use a six-month average daily volume of 85,233 and a market *participation rate*¹⁷⁹ of 10%. Multiplying the market participation rate .10 by the six-month average daily volume of 85,233 equals the number of shares you expect to sell each day, 8,523. If you divide your current position by the expected amount of shares to sell daily (8,523), you can determine the number of days it will take to unwind the Tootsie Roll position. In this case, the number of days to unwind is 20,000 / 8,523, which equals 2.35 days to liquidate your holding of Tootsie Roll.

For information on using the *Characteristics-Liquidity Risk* sub-tab, see [Liquidity Risk](#). For information on setting up your liquidity risk defaults, see [Liquidity Risk Defaults](#).

BENCHMARK SCALING

When comparing portfolio P&L to benchmark P&L, the benchmark's market value is scaled to equal the portfolio's market value to allow for a meaningful comparison. This scaling is necessary because a portfolio and a benchmark typically have very different market values, so their P&L magnitudes may be significantly different.

This behavior applies to the *Tracking Error/Volatility*, *VaR*, and *Scenarios* tabs.

STRESS MATRIX PRICING

The following is a brief introduction to Bloomberg's *Equity Derivatives Stress Matrix Valuation*, which is relevant for Value-at-Risk analysis.

Full pricing valuation of equity derivatives generally involves lattice or Monte Carlo methods and are time consuming. However, since the values of these instruments are usually non-linear functions of the pricing inputs, an accurate estimate of the portfolio risk requires simulation methods.

The full pricing simulation method proceeds as the following: for each of the scenarios, the portfolio is priced on the horizon date using full-valuation method. The method accounts for non-linearity of the security prices as a function of the pricing inputs, income payments, or time decay effects. VAR is then computed from the full distribution of the portfolio P&L.

Full-valuation approach is computationally demanding and cannot be realistically implemented for a multi-asset risk system that updates daily. To expedite the computation while faithfully representing the risk profiles of nonlinear instruments, many methods have been developed. A consistent theme of these methods is the recognition of the fact that: the number of times a portfolio has to be priced does not have to be equal to the numbers of scenarios simulated. The stress matrix valuation (commonly known as grid simulation approach) is such a method used by many risk analytic vendors.

The basic idea of stress matrix pricing (SMP) is to compute full valuation on a low dimensional grid. The scenario P&L is then approximated by interpolating on the grid during simulation.

¹⁷⁹ The percentage of the average or median daily volume of your position that you are willing or intending to sell on a given day.

Model Overview: Bloomberg's approach to portfolio risk analytic calculations is based on a mixture of full valuation, stress matrix pricing, and delta-gamma-vega approximation. This mixture of approaches seeks to optimize the trade-off between speed and accuracy. In general, stress tests are processed through full valuation and simulation based Monte Carlo and historical VaR are processed through stress matrix pricing or delta-gamma-vega approximation. In this section, the SMP methodology is explained in detail. The full pricing uses the same data source and model configuration as the construction of the pricing grid and, therefore, does not occupy an independent section.

Note: For more information, see related white papers in [White Papers](#).

STRESS PROPAGATION

In the course of creating scenarios for stress testing, you may want to *propagate* stresses from some variables to others, based on statistical relationships.

Using the Scenario Manager in PORT, you can demonstrate the anticipated move in equity prices when, for example, the price of oil is shocked by a given percentage (say, up 20%).

The variables that are stressed explicitly are referred to as the *independent* variables, while the other variables, to which these explicit stresses are to be propagated, are called *dependent* variables.

The Scenarios tab in PORT (see [Scenarios Tab](#)) is powered by the Bloomberg equity factor models; thus, the dependent variables are the equity factors that drive the prices of individual equities (market, style, industry, country, and currency factors), while the independent variable (in this example) is the price of oil. The idea is that once the stresses to the independent variables are known, the expected (i.e., average) moves in the dependent variables can be calculated and stressed by the expected moves.

SHORT/FUTURE MARGIN

OVERVIEW

Bloomberg enables you to calculate historical performance and attribution on portfolios that include short positions and futures. In order to fairly measure the contribution to performance of these instruments, you must either upload cash margin or make a simplifying assumption about a margin.

Historical performance is calculated by geometrically linking daily returns. The daily return of any security is calculated as the profit or loss on that security divided by the start-of-day investment value, typically based on the previous closing value. While for many securities the previous closing value is straightforward to calculate, futures are marked to zero at the end of each day, and shorts are often considered to have negative values, causing issues when used as the divisor of a return calculation. In order to address these issues, margin is used to represent the daily start-of-day investment you have made on the futures and short securities in your portfolio.

SETTING YOUR MARGIN

Margin can be set as either a percentage or cash value in the *Portfolio Administration* (PRTU) or *Bloomberg Uploader* (BBU) function.

- For information on the margin accounts for futures and shorts, see [Margin Accounts](#).
- For information on using PRTU to set up the margin for futures and shorts in the Advanced tab of the *Portfolio Settings*

window, click [here](#) .

- For information on using BBU to set the margin for futures and shorts, click [here](#) .

MARGIN ACCOUNTS

Margin can be entered either as cash or calculated by Bloomberg on the basis of a percentage assumption. There are separate accounts for futures and shorts.

The *Include cash* checkboxes in the *Advanced* tab of the *Portfolio Settings* window corresponds to the separate accounts available for futures and shorts:

- **Future Margin - Cash:** The total cash amount held in the portfolio that is tagged as future margin.
- **Short Margin - Cash:** The total cash amount held in the portfolio that is tagged as short margin.
- **Future Margin - Percentage:** A value between 0% and 100% used to calculate the futures margin amount. On a daily basis, the specified % is multiplied by the absolute value of the total exposure value (e.g., number of contracts *contract size * futures price) of all futures positions.
- **Short Margin - Percentage:** A value between -100% and 100% used to calculate the short margin amount. On a daily basis, the specified % is multiplied by the absolute value of the total exposure value (e.g., position * price * contract size (for options)).
 - 100% equates to a full investment assumption
 - 0% equates to zero margin for futures and only proceeds for shorts
 - -100% equates to proceeds from shorts being fully available for investment

Calculated as long market value + short market value + abs(short market value) * (100 + short margin%).

For descriptions of the advanced portfolio settings available in PRTU, click [here](#) .

MARGIN EXAMPLE

The correct margin depends on what you are trying to achieve. The margin assumption influences the portfolio market value, hence the portfolio return and how much leverage is assumed.

The table below provides examples of appropriate margin amounts based on desired assumptions:

Desired assumption	Appropriate margin
Net (longs - short)	Set the short margin to 0 or -100% (if you are using a percentage)
Gross (longs + short)	Set Short Margin to 2 * abs(shorts) or 100% (if you are using a percentage)
Actual margin = 20%	1.2 * abs(short) or 20% (if you are using a percentage)

Note: It is possible to set margin as a percentage and assume that some of the short proceeds are used to invest in long securities by entering a negative margin percentage. For example, to assume that \$200k from the proceeds of \$1m short are used to purchase long securities with \$800k remaining in the margin account, enter a margin of -20%.

BROCHURES & VIDEOS

GETTING STARTED

1. BROCHURES

Type	Title
	<i>Portfolio & Risk Analytics</i> 20 pages
	<i>PORT Fixed Income Solutions</i> 20 pages
	<i>Book Value Analytics</i> 8 pages
	<i>Long/Short Portfolios</i> 19 pages

2. FACT SHEETS

Type	Title
	<i>Custom Formulas in PORT</i> 7 pages
	<i>Equity PORT</i> 2 pages
	<i>Fixed Income PORT</i> 2 pages
	<i>AusBond Index in PORT</i> 2 pages
	<i>Customizing Portfolio Value</i> 2 pages
	<i>Factor-Based Attribution</i> 2 pages
	<i>High Yield & Loan Portfolios</i> 2 pages
	<i>Intraday for Balanced Portfolios</i> 2 pages
	<i>Local Pricing in PORT</i> 2 pages

Type	Title
	<i>Multi-Asset Portfolios</i> 2 pages
	<i>Multi-Factor Risk Models</i> 2 pages
	<i>Optimizing Portfolios with User-Expected Returns</i> 2 pages
	<i>PORT Portfolio Optimizer</i> 2 pages
	<i>Scenario Analysis</i> 2 pages
	<i>Value at Risk in PORT</i> 2 pages

3. CASE STUDIES

Type	Title
	<i>Custom Data in PORT</i> 11 pages
	<i>Efficient Frontier Portfolios</i> 11 pages
	<i>Index Replication</i> 13 pages
	<i>Managing Curve Risk</i> 11 pages
	<i>Residential Mortgage-Backed Securities</i> 19 pages
	<i>PORT Nest Case Study</i> 2 pages
	<i>PORT Modeling the Future Case Study</i> 8 pages

VIDEOS

1. EMERGING MARKETS WORKFLOWS

The following videos in the Emerging Market PORT Workflow webinar series address portfolio management, VaR analysis, and reporting needs that are relevant in illiquid or volatile markets.

PORT Workflows

Type	Title (Length)
	Section 1: BVAL Prices in PORT (2:19)
	Section 2: Creation of a Custom Price Field in CDE (2:05)
	Section 3: Adding Prices Using CDE (0:55)
	Section 4: Adjusting the Pricing Waterfall in PORT (2:00)
	Section 5: Populating Custom Prices Using BBU (2:44)
	Section 6: Creating Scheduled Uploads from Excel in BBU (1:01)

VaR Analysis and Reporting in PORT

Type	Title (Length)
	Part 1: Introduction (1:33)
	Part 2: Review of Reporting (2:17)
	Part 3: Order of VaR (3:00)
	Part 4: VaR Tables in PORT (4:30)
	Part 5: VaR Comparison Tab (1:20)
	Part 6: Distribution and Simulation Tabs (2:15)
	Part 7: Reports in RPT (2:21)
	Part 8: Template Creation (4:34)
	Part 9: Report Generation (1:19)

2. UPLOADING PORTFOLIOS

The following videos provide information on getting started with PORT, including uploading your portfolios, sharing portfolios, and fixing upload errors.

Type	Title (Length)
	Uploading Equity Portfolios (3:10)
	Uploading Fixed Income Portfolios (3:41)

Type	Title (Length)
	<i>Sharing Portfolios</i> (1:36)
	<i>Fixing Portfolio Upload Errors</i> (1:58)
	<i>Uploading Transactions to Transactions-Based Attribution</i> (4:13)
	<i>株式ポートフォリオのアップロード (Uploading Equity Portfolios: Japanese)</i> (7:10)

3. CUSTOMIZING PORT

The following videos provide information on customizing your usage of PORT, including creating a custom report, setting up defaults, creating a group of portfolios, customizing sectors, and addressing security exceptions.

Type	Title (Length)
	New! <i>Setting Up Long/Short Mode</i> (4:31)
	<i>Creating a Report Template</i> (2:51)
	<i>Setting Your Default Portfolio, Benchmark, and Grouping Model</i> (3:00)
	<i>Creating a Group of Portfolios</i> (2:18)
	<i>Uploading Custom Sectors and Grouping Models</i> (3:08)
	New! <i>Uploading and Analyzing Custom Data with Your Portfolio</i> (5:57)
	<i>Correcting Notices in PORT for Fixed Income Securities</i> (2:27)

4. CHARACTERISTICS

The following videos provide information on using PORT to analyze the core structure of your portfolio, including valuation measures and other fundamentals for equity portfolios and interest rate sensitivity, cash flow projections, and liabilities for fixed income portfolios.

Type	Title (Length)
	New! <i>Analyzing Liquidity Risk</i> (3:34)
	<i>Overriding Fixed Income Analytics in PORT</i> (3:59)
	<i>Customizing Your Characteristics Fields</i> (2:46)
	<i>Analyzing Historical Trends in Valuation</i> (2:05)

Type	Title (Length)
	<i>Analyzing Fixed Income Portfolio Characteristics</i> (2:24)
	<i>Analyzing Portfolio Interest Rate Exposure</i> (1:43)
	<i>Projecting Future Cash Flows</i> (2:02)
	<i>Uploading Liability Streams in BBU</i> (1:43)
	<i>Analyzing Liabilities in PORT</i> (3:12)

5. PERFORMANCE

The following videos provide information on identifying the sources of your portfolio's historical performance on an absolute basis and relative to a benchmark through PORT's performance and attribution tools.

Type	Title (Length)
	<i>Identifying Top Performing Sectors and Securities Historically</i> (2:36)
	<i>Identifying the Securities Contributing Most to Returns</i> (2:28)
	<i>Comparing Performance using Factor Based Attribution</i> (2:57)
	<i>Equity Attribution: Attributing Active Returns</i> (2:48)
	<i>Fixed Income Attribution: Attributing Active Returns</i> (3:45)
	<i>Identifying Your Risk Adjusted Returns</i> (1:28)
	<i>Return Attribution Models</i> (3:02)

6. RISK

The following videos provide information on measuring, analyzing, and anticipating portfolio risk through the tracking error/volatility, value-at-risk, and scenario analysis tools in PORT.

Type	Title (Length)
	<i>Identifying Securities Contributing the Most Risk to Your Portfolio</i> (2:17)
	<i>Forecasting Tracking Error</i> (3:18)
	<i>Stress Testing Your Portfolio for Different Market Environments</i> (1:59)

Type	Title (Length)
	<i>Determining Value at Risk and the Factors Driving It</i> (2:21)
	<i>Identifying Beta Adjusted Exposure</i> (2:08)

7. PORTFOLIO CONSTRUCTION

The following videos provide information on using the trade simulation and portfolio optimization tools in PORT, which can help you construct your optimal portfolio.

Type	Title (Length)
	<i>Equity Trade Simulation: Evaluating the Impact of a Hypothetical Trade</i> (2:35)
	<i>Fixed Income Trade Simulation: Evaluating the Impact of a Hypothetical Trade</i> (2:34)
	<i>Using the Portfolio Optimizer to Maximize Expected Returns</i> (4:59)

POINT-TO-PORT RESOURCES

As you take steps to change your workflows from POINT to the *Portfolio & Risk Analytics (PORT)* function on the Bloomberg Terminal®, videos and other support material are available. For more information, see [PTP <GO>](#).

WHITE PAPERS

1. PERFORMANCE

Type	Title
	<i>Pure Factor Returns in Real Time</i> 14 pages
	<i>Factor Based Performance Attribution</i> 9 pages
	<i>Nested Attribution</i> 8 pages
	<i>Performance Attribution Model</i> 17 pages
	<i>Performance Measurement and Attribution Case Studies</i> 12 pages
	<i>Transaction-Based Performance Measurement and Attribution</i> 14 pages
	<i>FX Forwards in PORT - Valuation Methodology Change</i> 10 Pages

2. RISK

Type	Title
	<i>PORT Value-at-Risk (VaR)</i> 8 pages
	<i>Sequencing the Strategy Genome: Risk Premia</i> 31 pages
	<i>Shaken, but Unstirred: Risk-Based Asset Allocation</i> 24 pages
	<i>Stress Matrix Pricing in PORT</i> 14 pages
	<i>Pure Factor Returns in Real Time</i> 14 pages
	<i>US Pure Equity Style Factors on the Terminal</i> 2 pages
	<i>Value at Risk White Paper (Spanish) - Investigación sobre análisis de cartera y de riesgos.</i> 10 pages

MULTI-ASSET RISK

Type	Title
	<i>Multi-Asset Class (MAC2) Risk Model</i> 61 pages
	New! <i>MAC2 Risk Model Changes</i> 9 pages
	New! <i>Comparing MAC2 & MAC1</i> 9 pages

EQUITY RISK

Type	Title
	<i>Anomaly or Capital Structure Efficient? Low Volatility Equity Strategies</i> 24 pages
	<i>Asia Equity Fundamental Factor Model</i> 36 pages
	<i>Australia Equity Fundamental Factor Model</i> 33 pages
	<i>Canada Equity Fundamental Factor Model</i> 33 pages
	<i>Chinese Equity Fundamental Factor Model</i> 34 pages
	<i>Emerging Europe, Middle East, and Africa Equity Fundamental Factor Model</i> 37 pages
	<i>Emerging Markets Equity Risk Models</i> 36 pages
	<i>Equity Portfolio Factor Model: Non-Factor Risk Forecasting</i> 5 pages
	<i>European Equity Fundamental Factor Model</i> 36 pages
	<i>Global Equity Fundamental Factor Model</i> 36 pages
	<i>Japan Equity Fundamental Factor Model</i> 34 pages
	<i>Latin America Equity Fundamental Factor Model</i> 36 pages
	<i>U.S. Equity Fundamental Factor Model</i> 33 pages

FIXED INCOME RISK

Type	Title
	<i>CDS Fundamental Factor Model</i> 18 pages
	<i>Convertible Bonds Fundamental Factor Model</i> 10 pages
	<i>Currency Risk Management in Bond Portfolios: Quantitative Currency Management</i> 26 pages
	<i>Diversifying Risks in Fixed Income Portfolios: Risk-Balanced Index Construction</i> 32 pages
	<i>Emerging Markets Fixed Income Fundamental Factor Model</i> 18 pages
	<i>Fixed Income Fundamental Factor Model</i> 43 pages
	<i>Inflation Linked Bonds Fundamental Factor Model</i> 18 pages
	New! <i>Non-Agency CMO Risk Model</i> 20 pages
	<i>Securitized Products Fundamental Factor Model</i> 19 pages
	<i>Swiss Franc Fixed Income Fundamental Factor Model</i> 15 pages
	<i>Synthetic Access to the EM Local Bond Market: Replicating EM Risk Premia</i> 19 pages
	<i>U.S. Agency Stripped MBS and CMO Products Fundamental Factor Model</i> 18 pages
	<i>U.S. Municipal Fundamental Factor Model</i> 20 pages

COMMODITY RISK

Type	Title
	<i>Commodities Factor Model</i> 62 pages
	<i>Structural Sources of Excess Return: Commodity Markets Investment Insight</i> 36 pages

DERIVATIVES RISK

Type	Title
	<i>Currencies and Currency Derivatives in PORT <GO> White Paper</i> 28 pages

Type	Title
	<i>Currencies and Currency Derivatives in PORT <GO> Summary</i> 12 pages
	<i>Currency Exposure EM Investment Insight</i> 24 pages
	<i>Efficient Access to Local Debt Markets: EM Investment Insight</i> 14 pages
	<i>Equity Options & VIX Futures Support</i> 7 pages
	<i>Swaptions, Caps, and Floors in PORT Summary</i> 6 pages
	<i>Risk Free Rates: Definitions of the Need for a Risk Free Historical Value for Each Currency</i> 7 pages

ALTERNATIVE ASSET RISK

Type	Title
	New! <i>Private Equity Risk Model</i> 50 pages
	New! <i>Hedge Fund Risk Model</i> 49 pages
	<i>Fund Risk Model</i> 36 pages

SCENARIO ANALYSIS

Type	Title
	<i>Building Factor-Based Scenarios</i> 8 pages
	<i>Scenario Analysis</i> 5 pages

3. PORTFOLIO CONSTRUCTION

Type	Title
	<i>Portfolio Optimization with Noisy Covariance Matrices</i> 31 pages
	<i>Portfolio Optimizer Frequently Asked Questions and Best Practices</i> 8 pages
	<i>White Paper: Portfolio Optimizer</i> 44 pages

Type	Title
	<i>Portfolio Optimizer Infeasibility Transparency</i> 4 pages

4. ANALYTICS

Type	Title
	<i>Correlation Shrinkage: Implications for Risk Forecasting</i> 36 Pages
	<i>Impact from MBS Prepayment Model Update</i> 4 pages

EXCEL INTEGRATION

You can analyze your portfolio in a Microsoft® Excel spreadsheet in two ways: you can use a pre-built BLOOMBERG PROFESSIONAL® service spreadsheet that extends PORT's functionality or create your own API formulas to customize your analysis.

ASSET ALLOCATION OPTIMIZER

SPREADSHEET DESCRIPTION

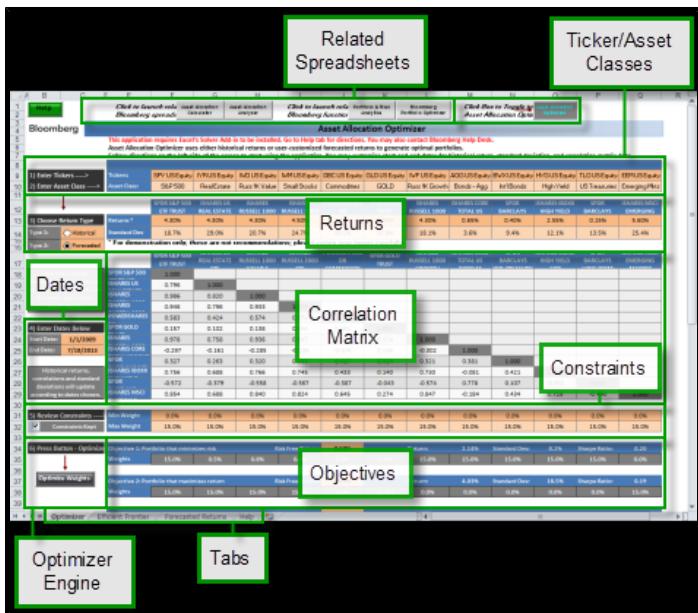
The *Asset Allocation Optimizer* spreadsheet uses historical returns or user-customized forecasted returns to generate optimal portfolios, assigning weights to specific security groups based on the following objectives: minimize risk, maximize return, maximize the Sharpe ratio, maximize return given a volatility, and minimize volatility given a return. The spreadsheet also builds an efficient frontier showcasing optimal portfolios of varying risk-return tradeoffs. The efficient frontier approaches the same optimization problem over a range of return possibilities, seeking the minimum standard deviation for each unit of iterated return.

Spreadsheet:  [Asset Allocation Optimizer](#)

- For more information on using the *Asset Allocation Optimizer* spreadsheet, see [Features](#).
- For an example on using the spreadsheet, see [Example: Optimal Portfolio](#).

FEATURES

The *Asset Allocation Optimizer* spreadsheet uses historical returns or user-customized forecasted returns to generate optimal portfolios. The tab is divided into nine sections. You can customize your analysis in the ETF format, ticker/asset classes, returns, dates, and constraints sections, run the optimizer in the optimizer engine section, analyze the results in the correlation matrix and objectives sections, and access additional spreadsheets in the related spreadsheets section.



- **ETF Format:** Allows you to switch the spreadsheet template to accommodate exchange-traded funds (ETF).
- **Related Spreadsheets:** Provides links you can use to launch other related spreadsheets to enhance your analysis. For example, you can launch the *Asset Allocation Calculator* spreadsheet, which is used to illustrate the annual returns for a variety of user-defined asset classes and rank them each year from best to worst based on their total return.
- **Ticker/Asset Classes:** Allows you to enter the securities and asset classes you want to analyze.
- **Returns:** Allows you to customize the return and standard deviation for specific security groups.
- **Dates:** Allows you to enter the dates between which the optimization is calculated.
- **Correlation Matrix:** Displays the correlation between different security groups. Correlation ranges between -1 and +1, and perfect positive correlation (+1) implies that as one security moves, either up or down, the other security will move in lockstep, in the same direction. Perfect negative (-1) correlation implies the opposite.
- **Constraints:** Allows you to customize the weight constraints based on your analysis. The default constraints are 15%.
- **Objectives:** Displays the objective measures and allows you to customize specific measures, such as the risk-free return, to generate the most accurate optimization.
- **Optimizer Engine:** Allows you to run the optimizer, so you can see the optimal weights for your portfolio.

The other tabs at the bottom of the spreadsheet are:

- **Efficient Frontier:** Allows you to build an efficient frontier, showcasing optimal portfolios that are dependent on the returns, standard deviations, correlations, and constraints chosen on the *Optimizer* tab.
- **Forecasted Returns:** Allows you to input forecasted returns based on various scenarios and probabilities of these scenarios.
- **Help:** Displays instructions and hints on how to use the *Asset Allocation Optimizer* spreadsheet.

EXAMPLE: OPTIMAL PORTFOLIO

This topic provides an example of how to use your own expectations of equity and fixed income asset performance on the *Asset Allocation Optimizer* spreadsheet to generate optimal portfolios that take historical returns into consideration.

Steps:

- In the ticker/asset classes section, enter the following tickers and asset classes for equities and fixed income, respectively: S PTR Index (S&P 500 Total Return Index) and LUTLTRUU Index (US Treasuries).

Asset Allocation Optimizer uses either historical returns or user-defined returns.
Follow directions on the left side of the screen to start using.

1) Enter Tickers ---->	Tickers: <table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <tr><td>S PTR Index</td><td>LUTLTRUU Index</td></tr> </table>	S PTR Index	LUTLTRUU Index						
S PTR Index	LUTLTRUU Index								
2) Enter Asset Class ---->	Asset Class: <table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <tr><td>S&P 500</td><td>US Treasuries</td></tr> </table>	S&P 500	US Treasuries						
S&P 500	US Treasuries								
									
3) Choose Return Type	<table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <tr> <td rowspan="2" style="width: 20%;">Returns *</td> <td>S&P United States 500</td> <td>Barclays US Agg Long</td> </tr> <tr> <td>4.30%</td> <td>4.30%</td> </tr> <tr> <td>Standard Dev</td> <td>15.0%</td> <td>#DIV/0!</td> </tr> </table>	Returns *	S&P United States 500	Barclays US Agg Long	4.30%	4.30%	Standard Dev	15.0%	#DIV/0!
Returns *	S&P United States 500		Barclays US Agg Long						
	4.30%	4.30%							
Standard Dev	15.0%	#DIV/0!							
<small>* For demonstration only; these are not recommendations; please review.</small>									

Note: The most important reason for using these two asset classes is the negative correlation between them. The less the correlation between the asset classes indicates a better diversification, hence a better optimization.

- In the Choose Return Type step, select **Historical**.

1) Enter Tickers ---->	Tickers: <table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <tr><td>S PTR Index</td><td>LUTLTRUU Index</td></tr> </table>	S PTR Index	LUTLTRUU Index						
S PTR Index	LUTLTRUU Index								
2) Enter Asset Class ---->	Asset Class: <table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <tr><td>S&P 500</td><td>US Treasuries</td></tr> </table>	S&P 500	US Treasuries						
S&P 500	US Treasuries								
									
3) Choose Return Type	<table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <tr> <td rowspan="2" style="width: 20%;">Returns *</td> <td>S&P United States 500</td> <td>Barclays US Agg Long</td> </tr> <tr> <td>7.81%</td> <td>8.72%</td> </tr> <tr> <td>Standard Dev</td> <td>15.0%</td> <td>#DIV/0!</td> </tr> </table>	Returns *	S&P United States 500	Barclays US Agg Long	7.81%	8.72%	Standard Dev	15.0%	#DIV/0!
Returns *	S&P United States 500		Barclays US Agg Long						
	7.81%	8.72%							
Standard Dev	15.0%	#DIV/0!							
<small>* For demonstration only; these are not recommendations; please review.</small>									

The spreadsheet populates with historical returns between the default dates, which are 1/1/1992 and 1/1/2012.

- In the Enter Dates Below fields, change the Start Date to 1/1/2002, then press <GO>.

3) Choose Return Type	>Returns *	4.30%	4.30%
Type 1: <input type="radio"/> Historical	Standard Dev	15.0%	20.1%
Type 2: <input checked="" type="radio"/> Forecasted	* For demonstration only; these are not recommended.		
You have chosen forecasted rates. Please go to the Forecasted Rates Tab to review your return assumptions.	S&P United States 500	FTSE E/N All Eqty ReitTR	
	1.000		
	0.560	1.000	
	0.997	0.573	
	0.804	0.646	
	0.245	0.216	
	0.786	0.542	
	0.019	-0.064	
	Barclays US Agg	0.063	0.140
4) Enter Dates Below	Start Date: 1/1/2002	End Date: 1/1/2012	

The spreadsheet updates based on the date range.

- In the Review Constraints step, deselect **Constraints Kept**.

Historical returns, correlations and standard deviations will update according to dates chosen.	Barclays US	0.613	0.613
	Barclays US Agg	-0.140	-0.140
	MSCI Daily TR	0.677	0.677
5) Review Constraints ---->	Min Weight	0.0%	0.0%
<input checked="" type="checkbox"/> Constraints Kept	Max Weight	15.0%	15.0%
6) Press Button - Optimize	Objective 1: Portfolio that minimizes risk		
	Weights	15.0%	0.0%
Optimize Weights	Objective 2: Portfolio that maximizes return		

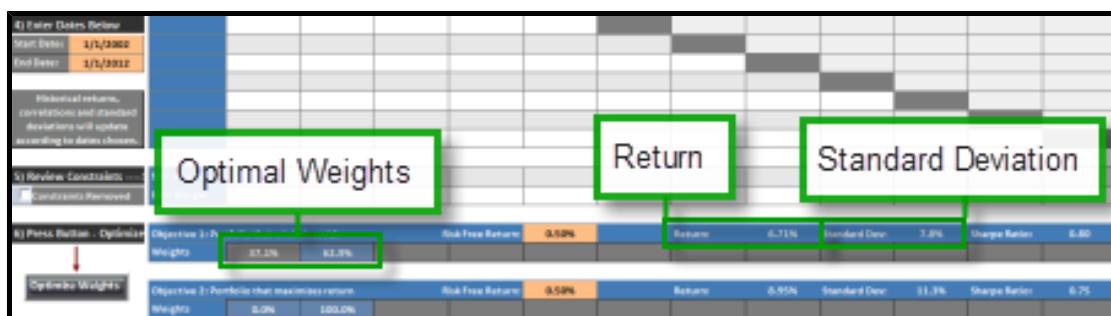
Note: The default constraints for a 12-asset portfolio are capped at 15% per each asset class, but for this example, only two assets are used, so the portfolio is split evenly between them.

- Note the risk and return statistics for the assets fed into the optimizer. During the period between 1/1/2002 and 1/1/2012, equities had an annualized return of 2.9% with a standard deviation of 16%, whereas the fixed income portion has gained roughly 9% with a standard deviation of 11.3%.

1) Enter Tickers --->	Tickers:	SPTR Index	LUTLTRUU Index
2) Enter Asset Class --->	Asset Class:	S&P 500	US Treasuries
			
3) Choose Return Type	Returns *	2.92%	8.95%
Type 1: <input checked="" type="radio"/> Historical	Standard Dev	16.0%	11.3%
Type 2: <input type="radio"/> Forecasted	* For demonstration only, these are not recommended.		
You have chosen historical rates. Please review the start and end dates below to determine return range.	S&P United States 500	Barclays US Agg Long	
	1.000		
	Barclays US Agg	-0.301	1.000

6. Click the **Optimize Weights button.**

After calculations are finished, the optimizer recommends a 37% allocation to equities and 63% allocation to fixed income, which outperformed equities significantly. This allocation achieves a return value of 6.7%, which is the weighted average of the returns of the two assets according to the allocation above. More interestingly, this allocation achieves a standard deviation of 7.8%, which is considerably smaller than the standard deviation of each individual asset at 16% and 11.3%, respectively. This reduction is due to the negative correlation between the two assets, which works to cancel out some of the volatility observed by both. The optimizer validates the theory that when assets are negatively correlated, optimal allocation not only reduces risk, but reduces it to levels that are less than the individual risks of both assets.



7. If you want to review the risk and return characteristics of these asset classes observed throughout 2012, in the *Enter Dates Below* section, change the dates to 1/1/2012 (*Start Date*) and 1/1/2013 (*End Date*). During this period, equities returned roughly 16% with a standard deviation of 12.7%, whereas fixed income returned roughly 3.5% with a standard deviation of 12.4%.

2) Enter Asset Class ---->	Asset Class:	S&P 500	US Treasuries
		S&P United States 500	Barclays US Agg Long
		15.96%	3.55%
3) Choose Return Type	>Returns *	Standard Dev	
Type 1: <input checked="" type="radio"/> Historical		12.7%	12.4%
Type 2: <input type="radio"/> Forecasted		* For demonstration only; these are not recommended	
You have chosen historical rates. Please review the	S&P United	S&P United States 500	Barclays US Agg Long
	Barclays US Agg	1.000	-0.632

8. Click the **Optimize Weights** button.

The optimizer allocates roughly 50% to each portfolio to achieve minimum risk. The return observed by this allocation turns out to be roughly 9.7%, which is the weighted average return of these asset classes. However, despite the fact that both assets had roughly 12-13% risk levels, combining these asset classes based on this allocation suggestion has dropped the portfolio risk level to 5.4%, which is significantly less than the risk observed by either asset.



TECHNICAL REQUIREMENTS

To use the *Asset Allocation Optimizer* spreadsheet, the Microsoft® Excel Solver Add-in is required. For more information on how to enable the Solver Add-in for different versions of Excel, click the *Help* tab.

PORTFOLIO CLASSIFICATION (S&P500)



SPREADSHEET DESCRIPTION

The *Portfolio Classification by S&P 500 Sectors (GICS)* spreadsheet breaks down portfolios, equity indices, and custom security lists by Global Industry Classification Standards (GICS) sectors, so you can analyze key performance data within specific area, such as energy and financials. Sector averages are displayed, which you can use to determine if you should adjust your investment in that sector. For example, you can see the percentage contribution of consumer discretionary stocks

to the overall portfolio, then determine how your portfolio is performing relative to the S&P based on the difference in weighting for the same sector.



Spreadsheet: [Portfolio Classification by S&P 500 Sectors](#)

- For more information on how to use the *Portfolio Classification by S&P 500 Sectors* spreadsheet, see [Features](#).
- For an example of comparing stock profitability within multiple portfolios, see [Example: Stock Profitability](#).

FEATURES

The *Portfolio Classification by S&P 500 Sectors (GICS)* spreadsheet breaks down portfolios, equity indices, and custom security lists by Global Industry Classification Standards (GICS) sectors, so you can analyze key performance data within specific areas, such as energy and financials. The tab is divided into three sections that allow you to analyze the sector breakdown of the ticker symbols you specify on the *Input Portfolio* tab.

XPC - Portfolio Classification by S&P 500 Sectors (GICS)															
Portfolio Data					Stock Performance Data										
Company Name	Ticker Symbol	# of Shares	Brokerage Firm	Recent Value	% Chg	Portfolio Value	% Over/Under SPX	Currency	31 Week Low	31 Week High	SPX Value Return	GICS Yield Return	YTD Yield Return	SPX Price Change	Mkt
Consumer Discretion								USD	46.55	47.89	2.87%	2.87%	30.43%	37.88%	31.29%
Walt Disney Co/The	DIS	3	44.84	\$80	3.22%			USD	47.77	47.36	2.87%	2.87%	30.15%	35.99%	32.84%
Bank of America Corp	BAC	2	79.65	280	1.17%			USD	83.52	105.70	0.58%	0.58%	14.45%	14.58%	30.88%
McDonald's Corp	MCD	3	99.58	\$130	5.56%			-	59.88	64.58	2.08%	2.08%	25.00%	35.94%	31.00%
Sector Average		3	81.35	\$144	10.20%	-2.08%									
SPX Sector	SPXIND	463.42													
Consumer Staples								USD	-	-	-	-	-	-	
Mondelez International Inc	MNZL	2	40.87	\$42	2.28%			USD	35.58	43.43	2.12%	2.12%	14.60%	8.00%	5.05%
Kroger Co	KR	1	40.87	\$42	4.58%			USD	60.89	71.12	1.77%	1.77%	29.20%	29.20%	0.00%
WMT	WMT	1	40.87	\$42	2.28%			USD	67.27	71.12	1.77%	1.77%	29.20%	29.20%	0.00%
Sector Average		2	367.73	\$215	11.20%	0.81%		-	81.75	110.50	3.38%	3.38%	13.82%	17.57%	34.15%
SPX Sector	SPXIND	597.34													
Financials								USD	100.66	127.40	2.87%	2.87%	19.21%	21.28%	27.39%
American Express Co	AAP	3	77.53	\$78	5.23%			USD	55.92	78.60	4.92%	4.92%	56.17%	54.47%	32.73%
Bank of America Corp	BAC	1	15.29	\$13	0.54%			USD	6.98	15.99	5.54%	5.54%	14.75%	76.47%	75.79%
JPMorgan Chase & Co	JPM	2	54.28	\$54	2.45%			USD	33.18	55.90	3.89%	3.89%	26.02%	64.58%	59.89%
Travaasa Cos Inc/The	TRV	1	82.21	282	3.50%			USD	60.62	88.57	2.88%	2.88%	13.83%	33.67%	30.36%
Sector Average		4	56.83	\$127	9.52%	-7.23%		-	38.41	59.27	3.46%	3.46%	23.35%	32.24%	49.79%
SPX Sector	SPXIND	269.25													
Health Care								USD	66.88	89.89	3.28%	3.28%	28.87%	35.13%	30.72%
Johnson & Johnson	JNJ	88.80	189	4.28%				USD	80.02	90.38	2.89%	2.89%	18.89%	27.88%	28.82%
Merck & Co Inc	MRK	47.82	148	2.34%				USD	22.18	31.34	3.21%	3.21%	18.95%	29.18%	23.08%
Pfizer Inc	PFE	28.81	128	1.21%				-							
Sector Average		54.83	\$127	9.52%	-7.23%										
SPX Sector	SPXIND	269.25													
Input Portfolio	Industry Classification	1	1	1	1	1	1	1	1	1	1	1	1	1	
Help															

- Company Name:** Displays the company names and corresponding sectors in the universe of securities that you specify.
- Portfolio Data:** Displays data regarding the relationship of each security to the list, index, or portfolio in which it resides, so you can assess high-level performance.
- Stock Data:** Displays stock-specific data, so you can assess more granular performance data.

The other tabs at the bottom of the spreadsheet are:

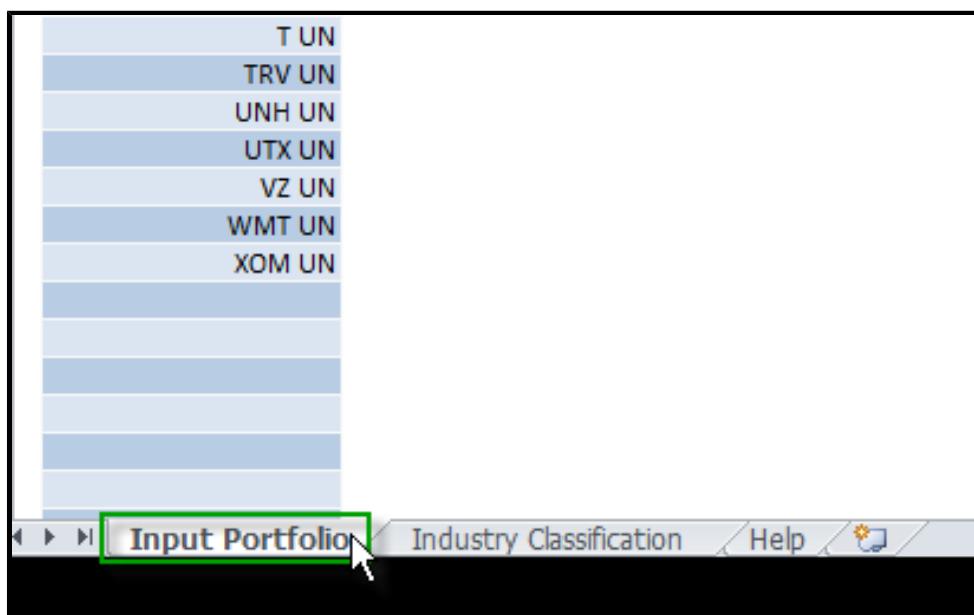
- Input Portfolio:** Allows you to select your universe of securities, which can be from a portfolio, custom list, or equity index.
- Help:** Displays instructions and hints on how to use the *Portfolio Classification by S&P 500 Sectors (GICS)* spreadsheet.

EXAMPLE: STOCK PROFITABILITY

This topic provides an example for using the *Portfolio Classification by S&P 500 Sectors (GICS)* spreadsheet to determine the profitability of an index's members, then determine how much those stocks contribute in terms of profitability indicators.

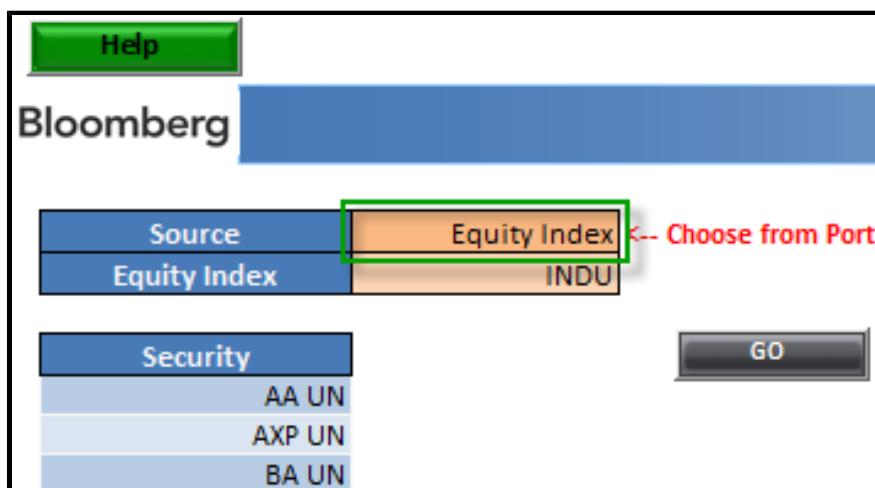
Steps:

1. At the bottom of the spreadsheet, click the *Input Portfolio* tab.

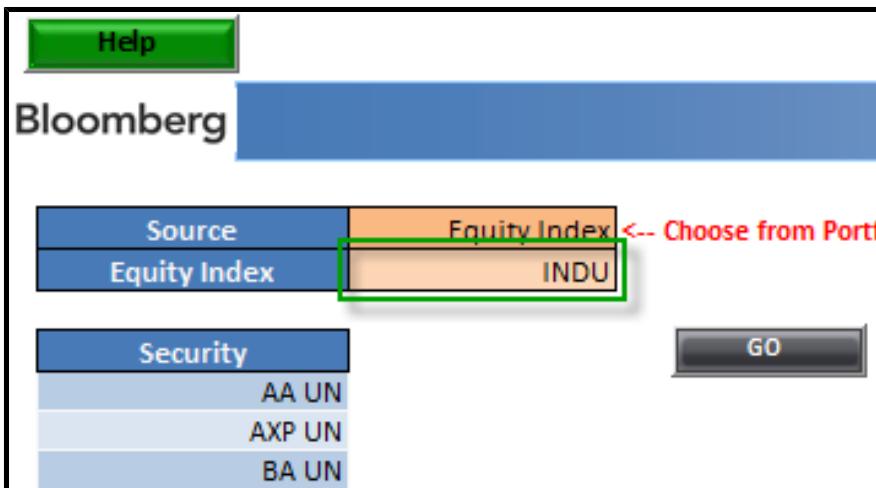


The spreadsheet displays the data source selections.

2. In the Source field, choose **Equity Index**.



3. In the *Equity Index* field, select the index ticker you want to analyze.



The Security column populates with the index members.

Note: *The full names for the indices appear at the right of the spreadsheet.*

4. In the *Portfolios* column, enter the portfolio IDs you want to analyze.

XPC - Portfolio Classification by S&P 500 Sector	
<i>Portfolios, Equity Indices, or Custom Lists</i>	
Portfolios	
u6473440-52	CDO TEST
u6473440-39	EUROPE SMALL CAP (GENERALIST)
u6473440-12	GROWTH PICKS
u6473440-14	PRTU FOR IN-DEPTH

Note: *You can find your portfolios by running the Portfolio Administration (PRTU) function. For more information, see the PRTU Help Page. For information on locating the portfolio IDs for your portfolios, see the Portfolio ID section of the DAPI Help Page.*

5. Click the **GO** button.

The data generates and appears on the Industry Classification tab.

6. Scroll to the right of the spreadsheet until you reach the *Profitability (Last FY)* columns, such as *EBITDA (M)*.

The stocks in your selected portfolios are listed and by scrolling down, you can compare any one stock's indicator value to the universe average, so you can determine over- and under-performance.

Bloomberg								
Double-click any Title in row 7 to Sort data								
Company Name	Profitability (Last FY)							
	EBITDA (M)	EBIT (M)	Operating Margin	Gross Margin	Return on Assets	Return on Common Equity	Return on Capital	Asset Turnover
Information Technology								
Cisco Systems Inc	13,652.00	11,301.00	23.25%	23.10%	10.35%	18.08%	14.69%	0.50
Hewlett-Packard Co	14,384.00	9,289.00	7.72%	-9.91%	-10.62%	-41.43%	-	1.01
International Business Mach	25,119.00	20,443.00	19.56%	20.96%	14.09%	85.15%	32.66%	0.89
Intel Corp	22,160.00	14,638.00	27.44%	27.88%	14.16%	22.66%	18.78%	0.69
Microsoft Corp	30,519.00	26,764.00						
Sector Average	21,166.80	16,487.00						
SPX Sector								
Materials								
Alcoa Inc	2,022.00	560.00	2.36%	1.37%	0.48%	1.40%	1.57%	0.59
El du Pont de Nemours & Co	4,794.00	3,081.00	8.85%	8.95%	5.68%	30.52%	14.63%	0.71
Sector Average	3,408.00	1,820.50	5.61%	5.16%	3.08%	15.96%	8.10%	0.65
SPX Sector								
Telecommunication Services								
AT&T Inc	31,140.00	12,997.00	10.20%	8.19%	2.68%	7.34%	6.02%	0.47
Verizon Communications Inc	29,620.00	13,160.00	11.36%	8.54%	0.38%	2.53%	-	0.51
Sector Average								
SPX Sector								
TOTAL Portfolio Value								
Universe AVERAGE	19,785.15	14,524.91	17.36%	15.69%	7.07%	21.37%	14.04%	0.75
Stock Averages								

INTRADAY PORTFOLIOS MONITOR

SPREADSHEET DESCRIPTION

The *Intraday Portfolios Monitor* spreadsheet (*Master* tab) allows you to track the intraday performance of multiple equity portfolios against multiple equity benchmarks, so you can simultaneously track the performance of your portfolios in real time. The spreadsheet also shows the best and worst stock performers out of all portfolios, which allows you to assess which individuals are contributing the most to performance. Different sort options appear as buttons (e.g., Positive Impact) across the top of the tab.

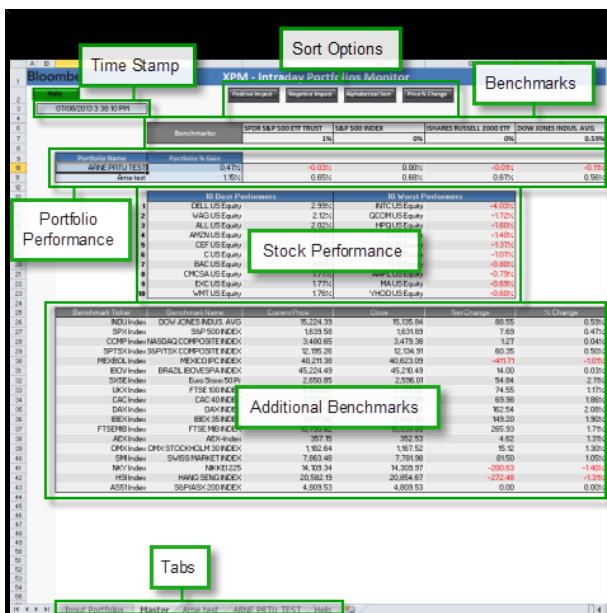


Spreadsheet: [Intraday Portfolios Monitor](#)

- For more information on how to use the *Intraday Portfolios Monitor* spreadsheet, see [Features](#).
- For an example of comparing multiple portfolio returns against several benchmarks, see [Example: Returns Against Benchmarks](#).

FEATURES

The *Master* tab of the *Intraday Portfolios Monitor* spreadsheet is divided into six sections that allow you to track the real-time performance of multiple equity portfolios and their benchmarks (that you specify on the *Input Portfolios* tab).



- Time Stamp:** Displays the date and time.
- Sort Options:** Allows you to select a sort option, so you can display the data most critical to your portfolio analysis.
- Benchmarks:** Displays the selected benchmarks against which your portfolios are being measured.
- Portfolio Performance:** Displays each portfolio's performance relative to each benchmark, so you can determine where a more favorable return exists.
- Stock Performance:** Displays the 10 best and worst stock performers from all portfolios, which allows you to maximize outperforming investments and reassess underperforming investments.
- Additional Benchmarks:** Displays key data for additional benchmarks, so you can quickly determine the performance of other closely related indices.

The other tabs at the bottom of the spreadsheet are:

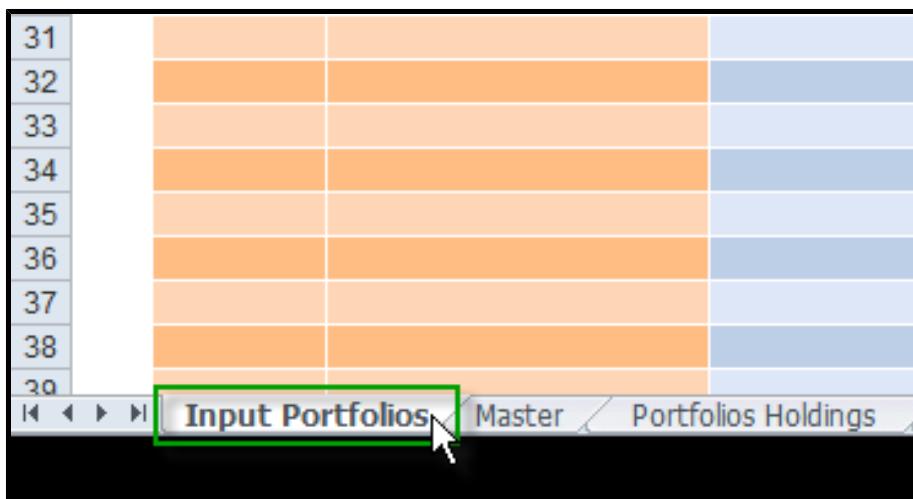
- Input Portfolios:** Allows you to select the portfolios that you want to monitor, up to four benchmarks against which you are measuring your portfolios, and a list of other key indices against which you may want to measure your portfolios.
- (Portfolio name):** Displays key performance data for an individual portfolio you are analyzing. Using these tabs, you can drill into more granular details, so you can assess where you may need to make adjustments to maximize profits.
- Help:** Displays instructions and hints on how to use the *Intraday Portfolios Monitor* spreadsheet.

EXAMPLE: RETURNS AGAINST BENCHMARKS

This topic provides an example for monitoring and comparing multiple portfolios against several different benchmarks using the *Intraday Portfolios Monitor* spreadsheet.

Steps:

- At the bottom of the spreadsheet, click the *Input Portfolios* tab.



The spreadsheet displays the portfolio and benchmark update fields.

2. At the top of the spreadsheet, input up to four primary indices you want to use as benchmarks.

3. At the right of the spreadsheet, input any additional indices you want to use as benchmarks.

4. In the *Portfolio ID* column, enter the portfolios you want to analyze.

Note: You can find your portfolios by running the Portfolio Administration (PRTU) function. For more information, see the PRTU Help Page. For information on locating the portfolio IDs for your portfolios, see the [Portfolio ID](#) section of the DAPI Help Page.

5. If you want to include a portfolio in the 10 best/worst performers list, in the corresponding *Include in 10 Best/Worst Performers* field, enter an "X".

- 6.** Click the **GO** button.

The data generates and appears on the Master tab. At the top of the spreadsheet, you can quickly gauge how your portfolios are performing against the selected benchmarks. Using this information, you can determine if you need to mix the securities in your portfolios differently.

The screenshot shows a Microsoft Excel spreadsheet titled "Bloomberg XPM - Intraday Portfolios Monitor". The top section displays performance metrics for four benchmarks: SPDR S&P 500 ETF TRUST (-1.46%), S&P 500 INDEX (-1.45%), ISHARES RUSSELL 2000 ETF (-2.28%), and DOW JONES INDUS. AVG (-0.94%). Below this, a table lists portfolio names and their percentage gains: EUROPE SMALL CAP (GENERALIST) at 0.01%, GROWTH PICKS at -1.69%, and Total Portfolios % Gain at 0.01%. A green box highlights the "Total Portfolios % Gain" row. The next section, "10 Best Performers", lists 10 stocks with their percentage gains: 1. EVOV US Equity (42.80%), 2. ALYE US Equity (22.04%), 3. IWBGP US Equity (20.00%), 4. HITK US Equity (22.21%), 5. PTO LN Equity (14.50%), 6. ISIN US Equity (13.46%), 7. SAAA US Equity (12.73%), 8. PSTX US Equity (10.40%), 9. ISOC US Equity (10.00%), and 10. TRUU US Equity (9.23%). The "10 Worst Performers" section lists 10 stocks with their percentage losses: 1. AERN US Equity (-50.00%), 2. SPBL US Equity (-25.53%), 3. PWBB US Equity (-27.71%), 4. SPDR US Equity (-18.87%), 5. NEWN US Equity (-14.29%), 6. ODFP US Equity (-13.38%), 7. CNRM US Equity (-12.82%), 8. MBDI US Equity (-10.00%), 9. ECTE US Equity (-9.13%), and 10. UCI US Equity (-8.92%). The bottom section, "Benchmark Ticker", shows two entries: "Additional Benchmarks" and "IS/A Invalid Security". The "IS/A Invalid Security" entry has "#N/A Invalid Security" in all columns except the last one, which has "#VALUE!".

API FORMULAS

FORMULA CONSTRUCTION

You can create custom API formulas within Microsoft® Excel to download data about the portfolios you create in the *Portfolio Administration* (PRTU) function. Custom formulas allow you to tailor the data to only the most relevant information for your analysis.

You can use the following formula types to import portfolio data into Excel:

- BDP
- BDS

For more information on constructing API formulas, see the [Bloomberg API - Tutorial with Examples](#).

For an example of a formula you can create, see [Example: Base Currency](#).

For more information on obtaining the ticker symbol for a portfolio for use in API formulas, see the [Portfolio ID](#) section in the [DAPI Help Page](#).

For a list of the data fields you can use to download portfolio data, see the [Portfolio Fields](#) topic in the [DAPI Help Page](#).

EXAMPLE: BASE CURRENCY

This topic provides a practical example on how to display a portfolio's base currency in Microsoft® Excel.

Steps:

1. Locate the portfolio ticker symbol of the portfolio you want to analyze.

Note: For more information on obtaining the ticker symbol for a portfolio for use in API formulas, see the Portfolio ID section in the [DAPI Help Page](#).

2. Click [here](#) to display the list of portfolio data fields that you can use.

In the table, you see PORTFOLIO_BASE_CURRENCY.

3. In a cell on your spreadsheet, use the ticker symbol and field to create a BDP formula:

=BDP("U6473440-9 Client","PORTFOLIO_BASE_CURRENCY")

The data is imported to your spreadsheet.

Note: You are not enabled to access the above portfolio. You must use an ID for a portfolio that you either created or which was shared with you.

LEARN MORE

GETTING STARTED

SUPPORTED ASSET TYPES

PORT may be used to analyze portfolios containing up to 30,000 instruments. The tables below list the equity, fixed income, and derivative asset types supported by PORT.

Equities

Closed End Funds	Common Stocks	Exchange Traded Funds
Investment Funds	Limited Partnerships	Mutual Funds
Off-Shore Funds	Preference Shares (not same as Preferreds [PFD])	Private Equities (EQPL)
REITs	Rights	Royalty Trusts
Total Return Swaps	Tracking Stocks	UK Unit Trusts
Unit Investment Trusts		

Fixed Income

Agency Debentures	Agency-backed Pool-Specific Mortgages (fixed rate and hybrid ARM)	Asset Backed Securities (ABS)
Commercial Mortgage Backed Securities (CMBS)	Convertible Bonds	Corporate Bonds
Custom Bond Securities (PPCR)	Custom Money Market Securities (MMPL)	Fixed Rate Pools (Agency Backed)
Government Debt	Hybrid Adjustable Rate Mortgages (Agency Backed)	Inflation Linked Bonds
Loans	Money Market Instruments	Municipal Bonds

Plain Vanilla Interest Rate Swaps (IRS) (fixed-to-float)	Preferred Shares (PFD)	Receipts
Sovereigns	Supranationals	Term Loans
Unit-Traded Bonds	Collateralized Mortgage Obligations (CMOs)	

Derivatives

Bond Futures and Options on Bond Futures	Caps & Floors	Commodity Futures
Commodity Spots	Contracts for Difference (CFD)	Corporate Credit Default Swap Indices (CDX, ITRAXX)
Cross Currency Swaps	Currency Futures	Equity Index Futures
FX Forwards	Inflation Swaps	Listed Equity Options
Listed Index Options	Listed Options on Bond Futures	Listed Options on Commodities
Listed Options on FX Futures	Listed Options on Spot FX	OTC Commodity Options
OTC Currency Options	OTC Equity Options	OTC FX Options
OTC Index Options	Short Term Interest Rate (STIR) Futures	Single Name Corporate Credit Default Swaps (CDS)
Single Stock Futures and Options	Spot Currencies	Swaptions
VIX ETFs, Options, and Futures		

Note: For additional information on CFDs, EQPLs, and Total Return Swaps in PORT, see [Notes on Specific Types](#).

Alternative Assets

Private Equity Funds	Hedge Funds	

Note: For additional information on uploading and analyzing private equity portfolios, see [Private Equity Funds](#). For additional information on uploading hedge fund portfolios, see [Hedge Funds](#).

All securities in your portfolio that are not covered by PORT are placed in the "Exceptions" bucket and the remaining securities in the portfolio are re-weighted to add up to 100%. For more information, see [Displaying Exceptions](#).

If pricing data is missing, PORT lists the security as an exception. The security is omitted from the portfolio calculation and the weight of the remaining securities is rebalanced to 100%. For more information on exceptions, see [Displaying Exceptions](#).

SUPPORTED INDEX PROVIDERS

PORT supports analysis on indices from the source providers listed in the following table. The index source providers are available either as part of the standard BLOOMBERG PROFESSIONAL® service offering, or as a separate license required by the provider. For more details on the special licensing required to access indices from specific providers, contact your Bloomberg account representative.

Note: The following table is sorted by *Provider*, starting with the largest number of indices provided and supported in PORT <GO>. For information on gaining access to permission-based indices or for details on an index provider that doesn't appear on this list, contact your PORT Sales Representative.

Provider	Asset Class	Region	Permission-Based
S&P Dow Jones	Equity / Fixed Income	Global	Yes
FTSE	Equity / Fixed Income	Global	Yes
Russell	Equity	Global	Yes
MSCI	Equity	Global	Yes
Merrill Lynch/Bank of America	Fixed Income	Global	Yes
Bloomberg Index	Fixed Income	Global	No
Nomura	Fixed Income	Japan	Yes
NASDAQ	Equity	Global	Yes
Barclays Capital	Fixed Income	Global	Yes
Swiss Bond Indices	Fixed Income	Switzerland	Yes
STOXX	Equity / Fixed Income	Europe	Yes
KAP	Fixed Income	South Korea	No
Markit/iBoxx	Fixed Income	Global	Yes
KOSPI Stock Market	Equity	South Korea	Yes
New York Stock Exchange (NYSE)	Equity	US	Yes
WisdomTree	Equity	Global	Yes

Provider	Asset Class	Region	Permission-Based
Tokyo Stock Exchange	Equity	Japan	Yes
Thai Bond Indices	Fixed Income	Thailand	No
MICEX	Fixed Income	Russia	Yes
Deutsche Borse	Equity	Germany	Yes
CBONDS	Fixed Income	Russia	No
China Securities Index	Equity	China	Yes
Hang Seng Bank Ltd	Equity	Hong Kong	Yes
South African Bond Indices (JSE)	Fixed Income	South Africa	No
ChinaBond	Fixed Income	China	No
CRISIL	Fixed Income	India	Yes
Anbima	Fixed Income	Brazil	Yes
FTSE DEX	Fixed Income	Canada	Yes

SUPPORTED FI PRICING SOURCES

PORT provides access to prices for fixed income securities from the source providers listed in the following table. The pricing source providers listed are generally available to all standard BLOOMBERG PROFESSIONAL® service clients.

You can set up your pricing source preferences using a custom price waterfall, which is configured in the pricing source defaults on your view. For complete information on setting up a price waterfall, see [Customizing Price Waterfall](#).

Index Source	PCS Code	FI Securities	Country
ANDIMA Brazil	ANBE	Corporate and local government bonds	Brazil
CFETS Trade Price	CHBK	Corporate and local government bonds	China
Chinabond Val SHSE	CSOP	Corporate and local government bonds	China
Chinabond Val SZSE	CZOP	Corporate and local government bonds	China

Index Source	PCS Code	FI Securities	Country
ISE Large Market	ISEL	Corporate and local government bonds	Turkey
Korean Exch Prices	KCMP	Local exchange bonds	South Korea
MICEX Exch Corps	MICB	Corporate and local government bonds	Russia
MICEX Exch Sovereign	MICX	Sovereign bond prices	Russia
PDEX Corp Summary	PDGS	Corporate and local government bonds	Philippines
PDEX Even Done Trade	PDSS	Corporate and local government bonds	Philippines
JSE/BESA Exch	BMA	Corporate and local government bonds	South Africa
Shanghai Exch	SHNG	Corporate and local government bonds	China
Shenzhen Stock Exchange	SHEN	Corporate and local government bonds	China
TBSP via WSE	WMTS	Corporate and local government bonds	Poland
Valmer	VALP	Corporate and local government bonds	Mexico
Warsaw Stock Exchange	WSE	Corporate and local government bonds	Poland

NOTES ON SPECIFIC TYPES

This topic provides additional information on PORT support for CDS contracts, securities and indices that trade on Saturday and Sunday, privately held instruments (EQPL), contracts for difference (CFD), and total return swaps (TRS).

CDS Contracts: To model a CDS contract, use the *Credit Default Swap Valuation* (CDSW) function. To model a plain-vanilla IRS, use the *Swap Manager* (SWPM) function. All CDS and IRS should be added to the portfolio in thousands, not actual. For example, if you own an IRS with a notional of 1 million, enter 1,000 in the portfolio in PRTU.

- For more information on CDSW, see the [CDSW Help Page](#).
- For more information on SWPM, see the [SWPM Help Page](#).

Note: The market value of a swap/CDS in PORT may differ from the value in SWPM/CDSW because PORT takes a snapshot of the curve at 4PM New York, London, and Tokyo time, which may differ from the closing curve used in SWPM/CDSW.

Securities and Indices that Trade on Saturday and Sunday: Prices, dividends, and changes to the portfolio that occur on Saturday and Sunday are included in calculations. For more information on setting a seven-day trading week for your portfolio, see [General Calculations](#).

Privately Held Instruments (EQPLs): PORT supports private equity instruments (EQPLs) for historical performance analysis, so these instruments are not dropped as exceptions. The *Holdings*, *Performance*, and *Attribution* tabs in PORT provide the most value, as you can analyze weights, returns, and contributions to return of these private instruments. For more information on these tabs, see [Intraday Tab](#), [Holdings Tab](#), [Performance Tab](#), and [Attribution Tab](#). EQPLs also appear in all other tabs, such as *Intraday*, *Characteristics*, and *Tracking Error/Volatility*, but these instruments do not tick and are not covered by any risk model.

To analyze EQPLs in PORT, the securities must be created via the *Equity Custom Security* (EQPL) function, and their historical prices must be uploaded via BBU and saved with the portfolio in PRTU. For more information on creating EQPLs and saving historical prices, see the [EQPL Help Page](#), the [PRTU Help Page](#), and the [BBU Help Page](#).

[Hint] For AIM Analytics users, prices saved in AIM accounts flow through to PRTU and PORT automatically.

Note: When you first create the EQPLs and load prices, the *Intraday* tab does not immediately recognize them. There is a 24 hour lag between when an EQPL is first created and when it will be recognized in the PORT *Intraday* tab. This lag only affects intraday analysis.

Contracts for Difference (CFDs): PORT supports analyzing CFDs in all PORT tabs. You can create a CFD in the *Option Valuation* (OVME) function by entering OVME CFD <GO>, then you can book the position in your portfolio using PRTU or BBU. Note that, in order to analyze the CFD in PORT, the underlying instrument must be an equity, fund, bond, or index. For more information on option valuation, see the [OVME Help Page](#).

The initial contract price for a CFD can be modified over time by changing the cost price in your position file uploaded via the *Bloomberg Uploader* (BBU) function. Setting a non-zero margin percentage for the CFD implies that a daily cash amount equal to the exposure value of the contract times the percentage will be injected into the portfolio. For more information on uploading positions via BBU, see the [BBU Help Page](#).

Total Return Swaps: PORT supports analyzing total return swaps defined in the *Swap Manager* (SWPM) function within all PORT tabs. Once you create the total return swap in SWPM, you can add the security identifier to your portfolio via PRTU,

then load the portfolio in PORT. For information on setting up a total return swap in SWPM, click [here](#) .

PORT SHORTCUTS

You can access specific tabs, sub-tabs, and windows in PORT using the following command line shortcuts.

Enter	To display
PORT IP <GO>	Intraday > Main View
PORT HD <GO>	Holdings > Main View
PORT CH <GO>	Characteristics > Summary

Enter	To display
PORT KR <GO>	Characteristics > Key Rates
PORT CF <GO>	Characteristics > Cash Flows
PORT TE <GO>	Tracking Error/Volatility > Summary
PORT VR <GO>	VaR > VaR Comparison
PORT SS <GO>	Scenario > Scenario Summary
PORT HP <GO>	Performance > Total Return
PORT PA <GO>	Attribution > Summary
PORT TS <GO>	PORT with Trade Simulation enabled
PORT OP <GO>	Portfolio Optimization window
PORT V <VIEW_NAME> <GO>	PORT using the selected view

ACCESSING NEWS & RESEARCH

PORT allows you to access real-time, comprehensive news for your portfolios and holdings, so you can stay on top of information that may affect your investments. PORT also integrates access to the *Research* (RES) function, so you can quickly display in-depth research related to your portfolio holdings.

When you load your portfolio, the *Main View* of all tabs displays a column on the left of the table that contains *News Heat*¹⁸⁰ icons. These icons represent the level of news story flow for the securities and sectors in your portfolio.

¹⁸⁰ A measure of the amount of stories currently being published on a company relative to the flow over the previous 45 days. The data is updated in realtime. The greater the number of bars, the more news that is being generated for that instrument.

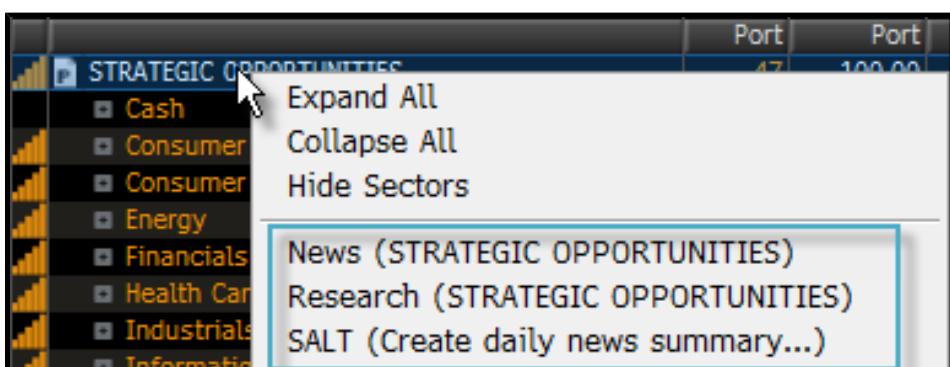


News heat is a measure of the amount of stories currently being published on a company relative to the flow over the previous 45 days. The data is updated in real time. The greater the number of bars, the more news that is being generated for that instrument.



You can click any news icon to display relevant information for that sector/bucket level (as opposed to the entire portfolio) in another window. For example, *News & Research Headlines* (NPH) appears at the sector levels, while *Company News* (CN) appears at the security level. For more information, see the [NPH Help Page](#) and the [CN Help Page](#).

You can also right-click the portfolio name and select a news and research option:



- **News:** Displays a window of news and research at portfolio and sector levels.

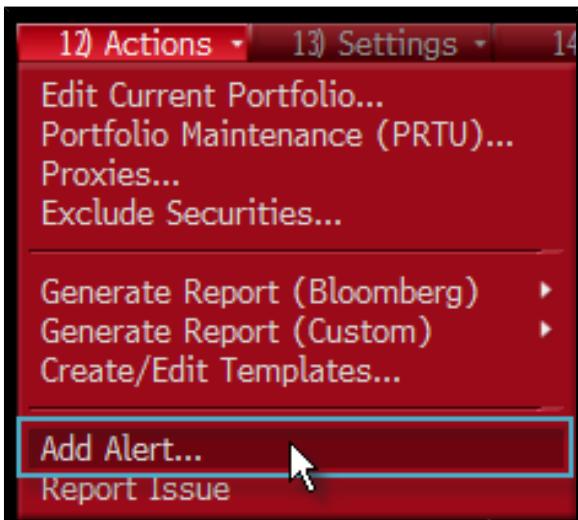
- **Research:** Displays the *Research Portal* (RES) function in another window. The portfolio is loaded and research related to holdings appear in alphabetical order (or based on your previously set preference). For more information on how to set up and use RES to aggregate and customize views for all research on a single screen, see the [RES Help Page](#).
- **SALT (Create daily news summary):** Displays the *Suggested Alerts* (SALT) function in another window. SALT suggests real-time and daily news alerts to which you can subscribe for a daily delivery of top news on your portfolio. For more information, see the [SALT Help Page](#).

ADDING ALERTS

You can create and manage news, trading, and/or corresponding alerts for the securities in your portfolio. You can set alerts for certain trading conditions, manage their delivery, and include colleagues in the alert. Typically, alerts are sent to your MSG inbox, but you can change this option.

To add an alert for the securities in your portfolio:

1. From the toolbar, select **Actions > Add Alert**.



The Alert window appears.

2. In the Step 1. Select/Securities section, click the *Securities>List* drop-down menu and choose whether to set an alert for an individual security (Security) or for multiple securities, shared list, or portfolio (List).



- If you select *List*, click the corresponding drop-down menus and choose from the portfolio source, and then the portfolio options.
 - If you want to create an individual alert for your list, select the *Create Individual Alert* checkbox.
 - Click the *Positions* drop-down menu and choose All, Long, or Short.

3. In the Step 2. Select Conditions section, set the alert conditions:

Step 2. Select Conditions		<input checked="" type="radio"/> Any	<input type="radio"/> All
Field			
Last Trade	>		

- **Any:** Sends your alert when any of your conditions are true.
 - **All:** Sends your alert when all of your conditions are true.
 - Click the *Field* drop-down menus to set your alert conditions. Your subsequent options vary with each option you choose.

4. In the *Step 3. Select Settings* section, select the additional settings (where applicable):

Step 3. Select Settings

Notification Frequency	Once Per Day	<input checked="" type="checkbox"/>
Time Range	<input type="text"/> : <input type="text"/> to <input type="text"/> : <input type="text"/>	<input checked="" type="checkbox"/> include Pre/Post session
Expires	60 Day(s) Max 720	
Notes		
Alert Group	Ungrouped	Last Modified
Override Delivery	Launchpad & Audio	Contacts

Update Create New Send Delete Close

- **Notification of Frequency:** Determines how often the alert is sent.
 - **Time Range:** Allows you to set a specific time of day by which alerts are sent. Leave unchecked if you do not want to set a timeframe.
 - **Expires:** Allows you to choose the number of days when the alert will expire.
 - **Notes:** Enter notes about the alert, if needed.
 - **Alert Group:** Allows you to choose to which group of alerts you want to combine the alert.
 - **Override Delivery:** Allows you to choose alternative methods by which your alert is delivered.
 - **Contacts:** Enter SPDL or other contact information for colleagues with whom you want to share the alert.

5. Click the **Update** button.

The alert is created and can be managed in the future by selecting, from the toolbar, **Actions > Add Alert**.

ANALYZING ONE INSTRUMENT

You can display single-instrument analytics from most tabs within PORT. You can display these analytics by right-clicking the individual instrument to display a menu of options:

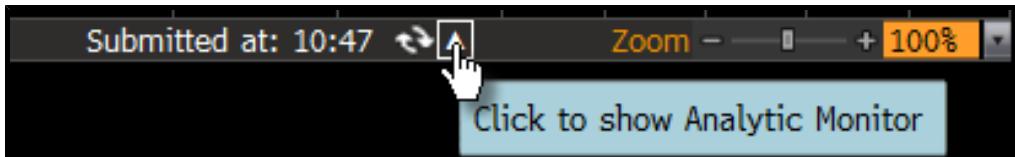
Select	To display
BQ (Bloomberg Quote)	A composite overview of key price and trade data.
CN (Company News and Research)	News stories and research reports.
CU (One Security Menu)	A quote line and related menu for the security.
DES (Description)	A detailed description of the commodity.
EE (Earnings Estimate)	Earnings estimates.
FA (Financial Analysis)	The financial history for a specific company.
GIP (Intraday Price Graph)	An intraday price chart.
GPO (Price Bar Graph with Moving Average)	A price bar chart.
HP (Historical Price)	Historical prices, yields and values.
QR (Trade Recap)	All price ticks for a selected exchange listed security.
SPLC (Supply Chain)	The supply chain relationships for a selected company.

For more information, see the corresponding Help Page for each of the above functions. For example, the [EE Help Page](#).

ANALYTIC RESULTS MONITOR

In the *Main View* sub-tabs for each tab, you can monitor the status of analysis calculations and quickly re-run previous calculations via the analytic results monitor.

The monitor appears at the bottom of the screen and can be displayed or hidden by clicking the arrow next to the *Submitted at: (last update time)* label.



The *Stored Results* section appears and displays recently run *Main View* sub-tab calculations. The *Status* column indicates whether the calculation is complete, still processing, or failed.



Stored Results							
Portfolio	Benchmark	Breakdown By	Curren	Start Date	End Date	Submit Time	Status
MYPORTFOLIO	SPX Index	Asset Type > Se...	USD	05/12/2014	05/12/2014	05/13/2014 10:56:46	Processing
MYPORTFOLIO		Asset Type > Se...	USD	05/12/2014	05/12/2014	05/13/2014 10:44:56	Completed
MYPORTFOLIO		Asset Type > Se...	USD	05/07/2014	05/07/2014	05/08/2014 08:55:39	Completed
BBDEX - BBG ...	B310	None	USD	05/05/2014	05/05/2014	05/06/2014 15:28:41	Completed
MYPORTFOLIO		Asset Type > Se...	USD	05/05/2014	05/05/2014	05/06/2014 14:15:11	Completed

Submitted at: 10:56   + 100% 

You can update the list of stored results:

- To search for calculation results, enter keywords in the fields below the column headers and pressing <GO>.
- To re-run a calculation, simply click the row. The screen updates automatically.
- To clear the list of results, click the **Clear Stored Results** icon () in the top right.

USING CUSTOM DATA (CDE)

You can leverage your proprietary information within PORT by uploading or entering data in the *Custom Data Editor* (CDE) function, so you can tailor the presentation of portfolio analytics to match your firm's structure and model your portfolio analytics according to your own metrics. For example, you can use custom data for any of the following goals:

- Compare the cost price of your holdings versus your firm's target prices.
- Create a historical custom classification such as coverage analyst.
- Feed analytics from one of your firm's licensed data vendors.
- Aggregate your portfolio and benchmark by a custom number field such as quantitative factor.
- Optimize your portfolio using a custom factor as either a goal or a constraint.

[Hint] For information on uploading or entering data in CDE, see the [CDE Help Page](#).

Custom data is supported on any tab in PORT by adding the desired field to your display. Numeric fields generally can be aggregated to group and portfolio levels by configuring an aggregation methodology for the field. For information on adding and configuring fields, see [Adding/Removing Fields](#).

Note: Numeric custom data fields do not aggregate on the *Performance* and *Attribution* tabs because these tabs display multiple states of the portfolio at the same time, reflecting all holdings (even if subsequently sold) during the analysis period. The *Attribution* and *Performance* tabs display the custom data values for each instrument held at the *End Date* of the analysis and the *As Of* date, respectively.

You can find more information on using custom data in PORT:

- For information on overriding fixed income data to analyze in the *Characteristics* tab, see [Overriding Fixed Income Analytics](#).
- For information on generating return on cash for currencies in your portfolio using custom data, see [Return on Cash](#).
- For information on customizing the country tax rates used to calculate how tax is withheld from dividends included in return calculations, see [Tax Rates for Net of Tax Returns](#).
- For information on uploading custom target prices so you can monitor your positions versus your target price, see [Custom Target Prices](#).

- For information on creating new classifications using custom data, see [Creating New Classifications](#).

PRIVATE EQUITY FUNDS

You can upload private equity (PE) portfolios to compare and analyze their holdings in the *Portfolio & Risk Analytics* (PORT) function. Once your PE portfolio is uploaded, terminal functionality such as the *Security Description* (DES), *Private Equity Fund Search* (PEFS), and *Private Equity Returns Analysis* (PEBM) functions will **seamlessly and privately** integrate your detailed private equity fund holdings.

Used together, the *Bloomberg Uploader* (BBU) and *Private Equity Overview* (PE) functions allow you to upload your private equity holdings to a portfolio and permission users within your firm to access the data. Once that is complete, private data may override public data for permissioned users.

Steps:

- Add your private equity positions to a portfolio:

- BBU:** Upload all your positions from a Microsoft® Excel spreadsheet. You can use the *Private Equity Upload* sample file located in the *Bloomberg Uploader* (BBU) function on the *Sample Files* tab. You can also find a sample private equity upload file in the *Private Equity Overview* (PE) function under the *More Resources* section. For instructions on using



BBU to upload your private equity positions, click [here](#) . For more information on using PE, click [here](#) .

The main BBU screen appears, showing the uploaded file with a status of *Pending*. Then, once the process is completed, a status of *Completed* appears in green. Processing should take a short amount of time, but could vary based on the size of the document uploaded.

- PRTU:** Add single positions to your portfolio using the *Portfolio Administration* (PRTU) function. For instructions on



using PRTU to add your private equity positions, [here](#) .

Your private equity positions appear in your portfolio.

- PE:** To permission users to see private equity data for a given firm, from the *Private Equity* (PE) function, click the **Settings**



toolbar button and then add users you want to permission. For instructions on permissioning users, click [here](#) .

When enabled in PE, permissioned users see the uploaded data anywhere where fund performance data is displayed.

- Analyze your private equity portfolio:

- DES:** Display private equity data for your permissioned firms on the *PE Portfolio* tab of the *Security Description* (DES) function. For information on DES, see the the [DES Help Page](#).

- PHD:** Display holdings for your permissioned firms in the *Private Equity Holdings* (PHD) function. For information on



using PHD to display private equity holdings, click [here](#) .

- PEBM:** Compare private equity fund characteristics, such as net IRR and multiple of invested capital, by analyzing fund performance within the context of funds from the same vintage year or strategy in the *Private Equity Returns Analysis* (PEBM) function. For information on PEBM, see the the [PEBM Help Page](#).

- PFRV:** Benchmark the fund performance against comparable private equity funds in the *Private Equity Fund Relative Valuation* (PFRV) function. For information on PFRV, see the the [PFRV Help Page](#).

- PEFS:** Get a sense of fund activity within a specific industry or region in the *Private Equity Fund Search* (PEFS) function. For information on PEFS, see the the [PEFS Help Page](#).

- **PEXP:** Compare the portfolio exposure of your peers and evaluate investment opportunities in the *Private Equity Portfolio Exposure* (PEXP) function. For information on PEFS, see the the [PEXP Help Page](#).

HEDGE FUNDS

You can upload hedge fund portfolios to compare and analyze their holdings in the *Portfolio & Risk Analytics* (PORT).

Used together, the *Custom Data Editor* (CDE) and PORT functions allow you to upload your custom return data for a hedge fund and then set your pricing defaults, so that your custom return data overrides the data on the BLOOMBERG PROFESSIONAL® service.

Note: If you hold a hedge fund that does not have a ticker listed on the Bloomberg, you can use the *Equity Custom Security* (EQPL) function to create a ticker for it and then add corresponding return data to CDE.

Steps:

1. **EQPL:** If the fund you are trying to add does not have a ticker listed on the Bloomberg, you can create one. For instructions

on using EQPL to create a ticker for your private fund, click [here](#) .

Be sure to use the following characteristics for your fund:

- **Security Type:** Mutual Fund
- **Fund Type:** Open End Fund
- **Asset Class Focus:** Alternative

The security saves and you are assigned as the owner.

2. **CDE:** Create a custom data field to utilize your own, unique return data as a pricing source in PORT. Be sure to use the

following characteristics for your custom field. For information on using CDE to create custom data fields, click [here](#) .

- **Content Type:** Return
- **Data Source:** Note the data source for your custom field as this will match the source that you select in PORT.

Note: Be sure that returns for the day when you first invested in the fund are equal to 0. This ensures that the Bloomberg understands all subsequent returns relative to the date you initiated your investment.

3. **PORT:** From the view manager, create an *Equity & Fund Historical Data* price waterfall that sets the default pricing source to your custom return data. For information on using the view manager to customize your price waterfall, see [Customizing Price Waterfall](#).

- a) From the *Pricing Source* drop-down menu, select **Create New**.

The Create Waterfall window appears.

- b) Follow the instructions in [Customizing Price Waterfall](#) to create a new waterfall.

- c) Select a data source from the *Hedge Fund returns* drop-down menu (e.g., CDE:My Source).



Note: The source that you select should match the *Data Source* type that you selected in CDE in step 2.

Your *Pricing Source* defaults appear.

SETTINGS

GROUP-LEVEL ANALYTICS

You can analyze a group of up to twenty-five (25) equity portfolios in PORT in a group-level aggregation. You can also choose to analyze the portfolio grouping against a benchmark.

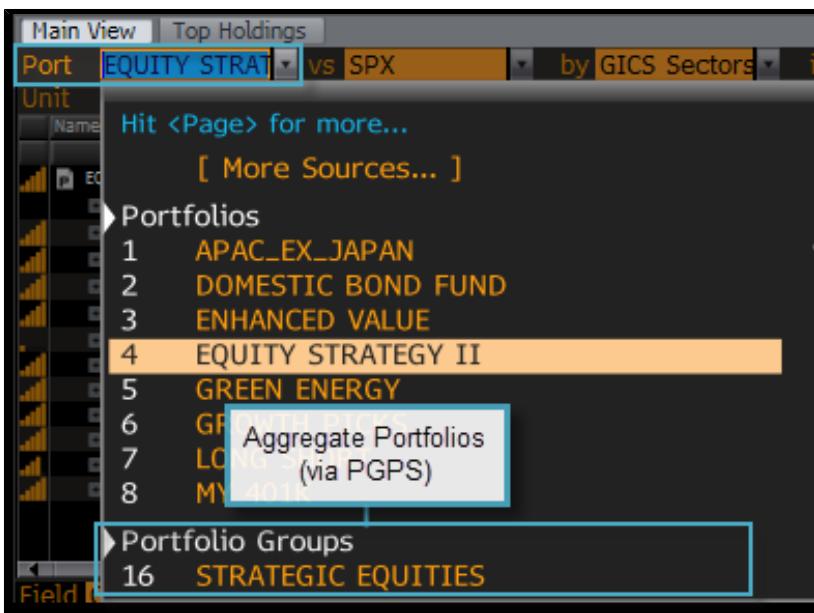
To analyze a portfolio group, you must first create the group in the *Portfolio Administration* (PRTU) function and select the **Enable group-level aggregated analytics in PORT** option. In PRTU you can also determine the benchmark against which

to analyze the grouping, as well as the currency for the analysis. For more information, click [here](#).

To analyze a portfolio group:

1. From any *Main View* sub-tab, click the *Port*¹⁸¹ (portfolio) drop-down menu in the control area and select the aggregated option from the *Portfolio Groups* section of the drop-down list, then press <GO>.

¹⁸¹ In general, *Port* indicates the portfolio being analyzed. The portfolios are created and maintained in PRTU and BBU. For more information, see the [PRTU Help Page](#) and the [BBU Help Page](#). In the *Characteristics - Characteristics Summary* sub-tab, however, *Port* indicates the weight value of the portfolio.



[Hint] If you want, you can also select a benchmark from the *Bmrk*¹⁸² field.

Your aggregated portfolio group appears. The top-level of your aggregation appears in white and your sub-portfolios appear in amber and display a "P" icon. The top-level data is a computation of the analytics of the aggregate of sub-portfolios.

Name	Wgt	Port	Bmrk
STRATEGIC EQUITIES [Aggregated Group]	Aggregated Group	100.00	100.00
P ENHANCED VALUE	100.00	100.00	0.00
P EQUITY STRATEGY II	100.00	100.00	0.00
P GROWTH PICKS	100.00	100.00	0.00
P STRATEGIC OPPORTUNITIES	100.00	100.00	0.00
	Sub-Portfolios	0.00	3.00

2. If you want, conduct further analysis:

- To analyze the constituents of the aggregate portfolio, double-click the aggregate level (white).

Name	Wgt	Port	Bmrk
STRATEGIC EQUITIES [Aggregated Group]	100.00	100.00	
Cash	1.36		
Consumer Discretionary	12.49		8.67
Consumer Staples	10.59		1.59
Energy	1.80		
Financials	1.16		
Health Care	18.23		11.57

¹⁸² Indicates the benchmark against which you are comparing your portfolio, which can be an index, portfolio, or fund.

- In the Characteristics - Characteristics Summary sub-tab, the benchmark indicator value.
- In the View Manager, allows you to choose which fields appear in the benchmark column (for each tab).

- To analyze the constituents of a single portfolio, double-click the portfolio name (amber).

The screenshot shows a hierarchical tree view on the left under the heading 'STRATEGIC EQUITIES [Aggregated Group]'. Below it is a table with columns 'Name', 'Wgt', 'Port', and 'Bmrk'. The table lists several categories and their weights:

Name	Wgt	Port	Bmrk
STRATEGIC EQUITIES [Aggregated Group]		100.00	100.00
EQUITY STRATEGY II		100.00	100.00
Cash	5.13		
Consumer Discretionary	12.66		8.67
Consumer Staples	22.94		3.59
Energy	2.80		
Financials	2.16		
Health Care	7.96		11.57

[Hint] You can return to the aggregate level by clicking the aggregate title, which now appears blue.

In the Intraday tab, the intraday monitor chart at the bottom of the screen tracks whichever level you have selected, either multiple portfolios or a single portfolio.



CONFIGURING TAB ORDER

Once you have created a view, you can add, remove, and re-order tabs, so the display matches your portfolio analysis workflow.

Note: These instructions assume you have created a view and are in the *View Manager* screen. For more information on creating a view, see [Creating a View](#).

You can also drag and drop the tabs in PORT to change their order. Your order changes automatically save. The first tab will always be your default.

To further configure the tabs in your view:

- From the sidebar, click **General Settings > Tab Order**.

The Available Tabs, Selected Tabs, and Description sections appear in the Tab Order section.

[Hint] You can click any tab name in the Available Tabs or Selected Tabs sections to see information about the tab in the Description section below.

- Modify the order of the tabs:

- To add a tab to your view, select the tab name in the Available Tabs section, then click the **Add ->** button. The tab appears in the Selected Tabs section.

- To remove a tab from your view, click the tab name in the *Selected Tabs* section, then click the **Remove**  button. The tab is removed from your view.
 - To re-order your tabs, click the tab you want to move, then click the **Move Up** or **Move Down** buttons until your order is achieved. At anytime using PORT, you can drag and drop the tabs into a new order. Your order changes automatically save. The first tab will always be your default.
- 3.** From the toolbar, click the **Save** button.
Your view settings are saved.

*If you want to see your view in PORT, from the toolbar, click the **Run** button. The view and its related settings appear.*

ADVANCED VIEW DEFAULTS

Once you have created a view, you can set advanced view defaults, so PORT accurately matches your workflow needs.

These instructions assume you have created a view and are in the *View Manager* screen. For more information on creating a view, see [Creating a View](#).

To set advanced view defaults:

1. From the sidebar, click **General Settings > View Defaults**.
The View Defaults section appears.
2. Update your view settings:



- **Display Securities Fully Expanded:** Choose to display your securities fully expanded in the data grid each time you access the view.
- **Show Benchmark Securities:** Choose to see benchmark securities (when comparing your portfolio to a benchmark).

- **Enable Portfolio / Benchmark Look-through:** If your portfolio or benchmark contains funds or ETFs, choose to "look-through"¹⁸³ these funds or ETFs to their underlying holdings.
 - **Sub-Portfolio Look-through:** If you are analyzing a *tickerized portfolio*¹⁸⁴ that contains sub-portfolios, choose to "look-through"¹⁸⁵ these sub-portfolios to their underlying holdings.
- Note:** This option is only available to users enabled to create tickerized portfolios. For more information on tickerized portfolios, which are created in the *Portfolio Administration* (PRTU) function, click [here](#).
- **Enable Position Analytics:** See individual positions that are part of different sub-portfolios, or see aggregates at the security level.
- Note:** This option is selected automatically when *Sub-Portfolio Look-through* is enabled.
- **Default As Of Date:** Select the default date of analysis when starting PORT. If set to *Today*, the analysis is based on current positions, but still uses the previous day's closing prices. This feature applies to all tabs except *Intraday* and *Attribution*.
 - **Default Historical Date Range:** Select the default timeframe for analysis in the *Performance Total Return* and *Period Analysis* sub-tabs and the *Attribution* tab, such as one day (*1D*), week-to-date (*WTD*), or month-to-date (*MTD*).
 - **Instrument Description:** Choose the description that appears under the *Name* column of the *Main View* sub-tab, either a long form name (*Long Name*) or the ticker symbol (*Ticker*).
 - **Exclusion:** Select to exclude a portion of your portfolio and benchmark from the analysis. You can exclude cash, a sector, or even a specific instrument. For more information on this feature, see [Excluding Securities](#).
 - **Wake-up Mode for Aggregated Group:** Choose the default aggregation mode, either *Portfolios* or *Aggregation*.
- Note:** For desktop users, an aggregation of groups is set in the *Portfolio Administration* (PRTU) function. For more information, click [here](#).

¹⁸³ The concept of evaluating each underlying holding in an index or exchange-traded fund (ETF) individually when looking at portfolio exposure or return, rather than evaluating the index or ETF as a whole. Enabling portfolio or benchmark look-through temporarily replaces the funds or ETFs in your portfolio with their underlying securities, while maintaining the same total market values and weights relative to the rest of your portfolio. This allows you to see a complete picture of the sectors where you have exposure, because indexes and ETFS are comprised of instruments that vary in sector or industry.

¹⁸⁴ A portfolio to which a ticker has been assigned in the *Portfolio Administration* (PRTU) function. You can load the portfolio in the command line similar to a security and analyze risk, characteristics, and performance analytics throughout the Bloomberg. You can create "positions" on the tickerized portfolio in other portfolios, thereby creating a *portfolio of portfolios*. For complete information on tickerized portfolios, click [here](#)



¹⁸⁵ The concept of evaluating each underlying holding in an index or exchange-traded fund (ETF) individually when looking at portfolio exposure or return, rather than evaluating the index or ETF as a whole. Enabling portfolio or benchmark look-through temporarily replaces the funds or ETFs in your portfolio with their underlying securities, while maintaining the same total market values and weights relative to the rest of your portfolio. This allows you to see a complete picture of the sectors where you have exposure, because indexes and ETFS are comprised of instruments that vary in sector or industry.

- **Look-through Depth:** Select the maximum depth of portfolio multi-level *look-through*¹⁸⁶ for your view. For more information on setting up multi-level lookthrough for your portfolios, see [Multi-Level Lookthrough](#).
3. Update your *Display Units* options, which allow you to set how performance-related fields (e.g., Total Return, Attribution Effects) appear in PORT. The options are Basis Points, Percentage, and P&L.



Note: Not all tabs support all options.

4. From the toolbar, click the **Save** button.
Your view settings are saved.

*If you want to see your view in PORT, from the toolbar, click the **Run** button. The view and its related settings appear.*

SETTING COLUMN DEFAULTS

Once you have created a view, you can select the columns (fields) that appear in the tabs as well as attribute benchmark and difference data. You can also choose the number of decimal places, arrange column order, and other options for each tab.

These instructions apply to setting defaults for all tabs (rather than a specific tab) and assume that you have created a view and are in the *View Manager* screen. For more information on creating a view, see [Creating a View](#).

To set column defaults:

1. From the sidebar, click **Tabs & Columns > (Tab Name)**.
The corresponding default options appear, including the currently selected columns (i.e., the columns that currently appear in the tab).
2. Update your column defaults:

¹⁸⁶ The concept of evaluating each underlying holding in an index or exchange-traded fund (ETF) individually when looking at portfolio exposure or return, rather than evaluating the index or ETF as a whole. Enabling portfolio or benchmark look-through temporarily replaces the funds or ETFs in your portfolio with their underlying securities, while maintaining the same total market values and weights relative to the rest of your portfolio. This allows you to see a complete picture of the sectors where you have exposure, because indexes and ETFS are comprised of instruments that vary in sector or industry.



- Available Fields:** To add a field to the selected tab, from the **Available Fields** section, browse for the field and click the corresponding add () icon. The field appears in the Field Order & Grouping section.
[Hint] To learn more about a particular field, click the button. Depending on the selected tab, you can also search for more fields by clicking the **More (Asset Class) Fields** button and entering keywords in the search field that appears.
- Field Order & Grouping:** To display/hide benchmark and/or difference data for a field, de/select the **Bmrk** or **+/-** checkboxes.

To re-order your columns in the tab, click the drag and drop icon () on the left and move the column to the desired order.

To remove a column from the tab, select the field name, then click the delete icon () to the right of the column.

- If you want to adjust the number of decimals that appear for a column, among other parameters, click the pencil icon next to the column name.

Selected Fields	Bmrk	+/-	
Wgt	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Position	<input type="checkbox"/>	<input type="checkbox"/>	
Dividend Yield	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Price to Earnings Ratio	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Yield to Worst	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Total Debt to Common...	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Option Adjusted Duration	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Bloomberg Composite...	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Beta	<input type="checkbox"/>	<input type="checkbox"/>	

The corresponding field options appear in another window, where you can update the relevant criteria. The options vary depending on the selected tab and field. For information on any of the options, position your cursor over the field name.

- From the toolbar, click the **Save** button.

Your view settings are saved.

If you want to see your view in PORT, from the toolbar, click the **Run** button. The view and its related settings appears.

GENERAL CALCULATIONS

You can set your portfolio's trading week options, which can reflect your portfolio default settings (set in PRTU) or five or seven day trading calendar settings. You can also customize return on cash settings, which allow you to determine the value of cash returns in your portfolio analysis, as well as enable proxies for securities.

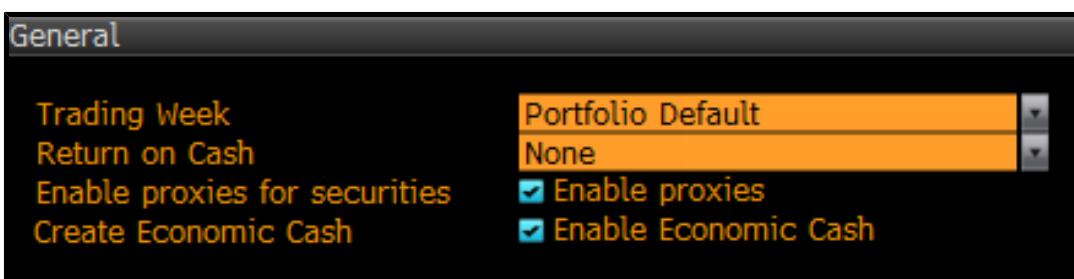
These instructions assume that you have created a view and are in the *View Manager* screen. For more information on creating a view, see [Creating a View](#).

To set your general calculations:

- From the sidebar, select **Calculation Settings > General**.

General calculation options appear at the top of the screen.

- Update your settings:



- Trading Week:** Choose the calendar settings for default trading week setup.
 - **5 Day (M-F):** The conventional trading week setting for portfolios, which does not include trading activity that occurs on Saturday or Sunday.

- *7 Day*: The seven day setting includes securities that trade on Saturday and Sunday. This selection ensures that prices, dividends, and changes to the portfolio that occur on Saturday and Sunday are included in calculations.
- *Portfolio Default*: This option is tied directly to the portfolio settings you established in the *Portfolio Administration* (PRTU) function. For the Trading Week option, Portfolio Default is the default setting in PORT.
- **Return on Cash**: Choose how to calculate the value of your cash returns in the *Performance* and *Attribution* tabs.
 - *None*: There is no return on cash in the portfolio.
 - *Portfolio Fixed Rate*: Allows you to use a fixed rate of return for your cash positions associated with a specific portfolio. The fixed rate of return comes from the *Return on Cash* field on the PRTU *Portfolio Display* screen. For more information on setting up this cash return, see [Return on Cash](#).
 - *Pre-Defined Money Market Program*: Allows you to simulate an investment in a money market instrument to see a return on cash in your portfolio analysis. PORT uses a pre-defined money market program to define the return associated with your currency. For more information on these options, see [Return on Cash](#).
 - *Custom*: Allows you to use a set of custom cash returns for any currency cash you have in your portfolio, rather than just at the portfolio level. You can upload or enter custom cash returns through the *Custom Data Editor* (CDE) function. From the *Return on Cash* drop-down menu, you can select the source you associated with the custom data. For more information on uploading custom data via CDE, see the [CDE Help Page](#).
- **Enable Proxies for Securities**: When selected, proxied assets are used for security exceptions, allowing you to effectively evaluate your portfolio as a whole. PORT allows you to proxy the risk attributes and security level characteristics of one security to another. Once proxied, the security is no longer considered an exception and is included in your risk and characteristic analysis and reporting. Proxied securities apply across all tabs. Descriptive data and classifications of the original security are maintained for more accurate reporting. For information on setting up proxy assets, see [Setting Up Proxy Assets](#).
- **Create Economic Cash**: Allows you to enable or disable the calculation of economic cash for positions on futures. Economic cash is generated synthetically in order to cancel out the leverage of the position so the portfolio weight adds up to 100%. For long/short portfolios, the portfolio weight does not need to be 100%, in which case you can choose to disable economic cash.

3. From the toolbar, click the **Save** button.

Your trading week settings are saved.

*If you want to see your view in PORT, from the toolbar, click the **Run** button. The view and its related settings appear.*

GENERAL CALCULATIONS (EQUITY)

Once you have created a view, you can customize general equity defaults, including the return on calculation type.

These instructions assume that you have created a view and are in the *View Manager* screen. For more information, see [Creating a View](#).

To set your equity general settings:

1. From the sidebar, select **Calculation Settings > General**.
Options for general equity settings appear.
2. Update your settings:



- **Depository Receipts Pricing:** If selected, the underlying equivalent price is calculated by multiplying the price of the underlying ticker by the receipt ratio. The receipt ratio represents the number of underlying shares represented by one receipt. If the underlying share is unlisted, not actively traded, or a receipt ratio is unavailable, the receipt price continues to be used. If the underlying is not trading on a particular day due to a holiday (for example), the underlying price from the previous day is carried forward.

If the underlying pricing is used, the currency of the receipt will be in the underlying share currency.

Note: By default, the *Depository Receipts Pricing* option is not checked.

- **Foreign Share Pricing:** Enabled by default. If selected, the price for the foreign share is taken from the equivalent local share. Foreign shares are issued in Thailand and India as equivalent shares to the local market share, but legally can be owned by foreign investors. Foreign shares are usually identified with /F at the end of the ticker (e.g., THAI/F TB <Equity>, as opposed to THAI TB <Equity> for the local share). Typically, there is very little, if any, trading activity reported by the exchange on Foreign Shares, and hence the fair market price is much more closely aligned to the equivalent local share price.

- **Return Calculation Type:** Choose your taxation calculation method.

— **Gross:** No tax is taken out of dividends included in return calculations.

— **Net:** The withholding tax is based on the country of domicile of the company, and is taken out of the dividend in the return.

Note: By default, the withholding tax for each country is based on a Bloomberg-maintained tax rate. You can override a specific country's tax rate by uploading custom country tax rates using the *Custom Data Editor* (CDE) function. For more information on using custom tax rates, see [Tax Rates for Net of Tax Returns](#).

— **Portfolio Gross / Bench Net:** Calculates gross returns for the portfolio versus net of tax returns for the benchmark.

- **Country of Jurisdiction:** Choose the tax status to be used when determining the dividend to be included in the total return calculation. Net dividend calculations reduce this dividend by $(1 - \text{country tax rate})$.

For more information on these options, see [Definitions](#).

Note: Country-based tax rates are applied to dividends going ex-date between specified dates. The appropriate country rate to be applied is determined by the Country of Domicile (Bloomberg Field Code DX113) of the company issuing the dividend. To see a table of default tax rates utilized by PORT when performing net of tax return calculations, see [Default Tax Rates](#).

3. From the toolbar, click the **Save** button.

Your equity pricing settings are saved.

*If you want to see your view in PORT, from the toolbar, click the **Run** button. The view and its related settings appear.*

GENERAL CALCULATIONS (FI)

Once you have created a view, you can customize general fixed income defaults.

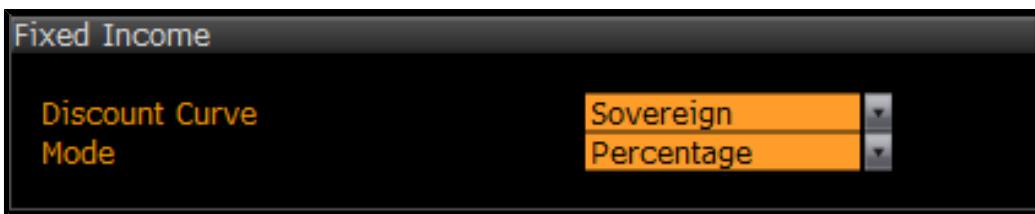
These instructions assume that you have created a view and are in the *View Manager* screen. For more information, see [Creating a View](#).

To set your equity general settings:

1. From the sidebar, select **Calculation Settings > General**.

Options for general fixed income settings appear.

2. Update your settings:



- **Discount Curve:** Choose the curve you want to use for your discount factor (swap or sovereign).

Note: For both swap and sovereign, the curve is based on Option Adjusted Duration (OAD) and Option Adjusted Spread (OAS).

- **Mode:** Choose how to display XXXX value, either as a percentage or as dollar value of one basis point (DV01).

3. From the toolbar, click the **Save** button.

Your fixed income settings are saved.

*If you want to see your view in PORT, from the toolbar, click the **Run** button. The view and its related settings appears.*

PRICING SOURCE DEFAULTS

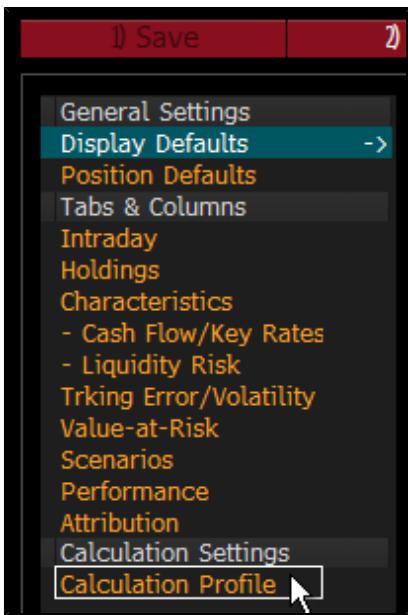
Once you have created a view, you can customize pricing sources and historical return defaults.

You can see the prices and resolved sources used for each specific instrument in the analysis by drilling into the *Attribution* tab. To access this information, right-click the name of the portfolio in the *Attribution* tab and select **Explain Return Calculation**. The *Performance Data Dashboard* appears in another window, which allows you to access portfolio performance by historical date and drill into each date to analyze return, weight, pricing source, and more for each position.

These instructions assume that you have created a view and are in the *View Manager* screen. For more information, see [Creating a View](#).

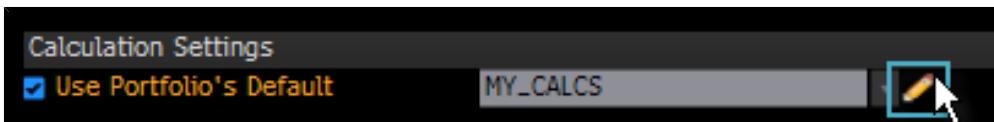
To set your historical return pricing sources:

1. From the *Calculation Settings*, click **Calculation Profile**.



The general calculation settings appear.

- Under *Calculation Settings*, click the Edit icon.



The calculation profile editor appears.

- On the *Other* tab, update your settings:

- Equity Intraday Pricing Source:** Choose the source for the live market prices on the *Intraday* tab.
 - Primary Exchange:* Uses price data from the security's primary exchange.
 - Composite:* Uses Bloomberg composite prices, which are aggregated data from local exchanges.
- FI Intraday Pricing Source:** Choose the source for the live market prices for fixed income and balanced portfolios for *Intraday* tab analysis. BVAL is the default price if a security is not priced in your waterfall selection.
- FI Intraday Live Pricing:** Choose the side of the market (Bid or Ask) from which prices are sourced.
- Reference Price Source:** Choose the source for closing prices that are used as a reference for intraday performance calculations.
 - Latest Historical Source:* The closing price is determined by your historical pricing settings.
 - Intraday Data Source:* The closing price is determined by your intraday pricing settings.

- Click the **Update** button.

Your pricing source defaults are saved.

If you want to see your view in PORT, from the toolbar, click the **Run** button. The view and its related settings appears.

Note: Your portfolio may show a different total return between PORT and the Historical Fund Analysis (HFA) function. For more information on HFA, see the [the HFA Help Page](#).

CUSTOMIZING PRICE WATERFALL

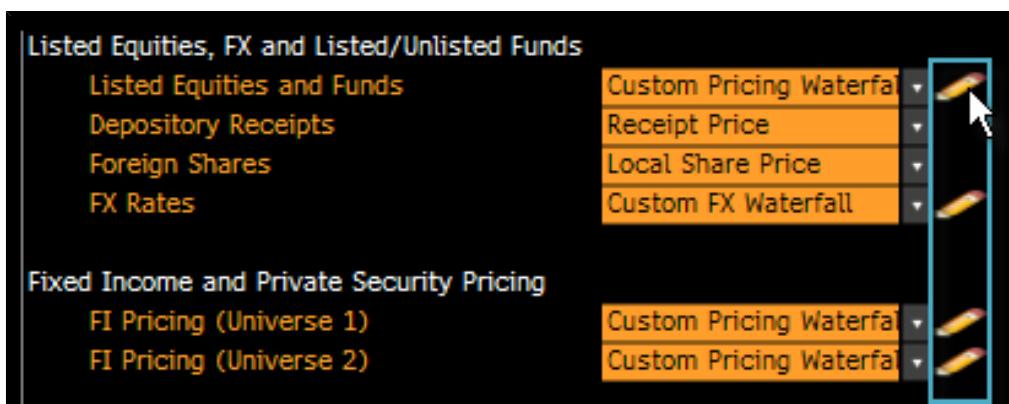
When setting up your price source defaults for *Listed Equities and Funds*, *FX Rates*, or *FI Pricing (Universe 1 or Universe 2)*, you can create a custom pricing source waterfall, so you can leverage all the sources you are licensed to see and understand the exact ordering of the pricing sources. You can also enable your custom analytic data to be used in place of BLOOMBERG PROFESSIONAL® service analytics, which are derived from bond prices.

Your pricing [waterfall](#)¹⁸⁷ may include a variety of sources, so PORT allows you to see the prices and sources actually used on each historical date by drilling into the *Attribution* tab. To access this information, right-click the name of the portfolio in the *Attribution* tab and select **Explain Return Calculation**. The *Performance Data Dashboard* appears in another window, where you can access portfolio performance by historical date and drill into each date to analyze return, weight, pricing source, and more for each position.

The steps below demonstrate customizing your fixed income and equity pricing source waterfall, and assume you are already in the *Basic* tab of the calculation profiles editor screen. For more information on setting up your Pricing Source defaults for equities, see [Using Custom Equity Pricing](#).

Steps:

- From the *Listed Equities and Funds*, *FX Rates*, or *FI Pricing (Universe 1 or Universe 2)* fields, select **Custom Pricing Waterfall**, then click the adjacent Edit icon.



The Waterfall Source Picker window appears.

- From the *Available Price Sources* section on the left side of the window, click the add (+) icon next to the sources you want to add.

Note: For information on each available source, position your mouse over the source name.

¹⁸⁷ A hierarchy of sources used to specify the priority of pricing sources you want to use. For each day in the analysis, instruments are priced by checking for a price from the first source in the hierarchy. If not found, the next price source on the list is checked. The process continues until a price is found. For historical analysis such as performance attribution, PORT looks back up to 10 business days to find prices for the start date of the analysis. From that day forward, if the price source hierarchy fails to find a price for a given day, the last known price is carried forward.

3. If you want to reorganize the pricing sources, in the *Available Price Sources* section on the right side of the screen, drag and drop the sources into your preferred order.

Note: Portfolio and benchmark price sources must always include *Bbg Valuation (BVAL)* above the *Portfolio (PRTU/BBU)* or *CDE* custom price source. This indicates that your custom prices are only used if Bloomberg's BVAL service does not price the bond on a given day. Special licensing is available that allows you to prioritize your custom pricing over BVAL in a custom waterfall. Contact your account representative for more information.

4. If you want to override specific fixed income analytics with your custom data, select a data source from the *Override Calculations With* drop-down menu (e.g., *CDE:My Source*).

Note: You are only able to choose from data sources associated with custom fields that support analytic overrides. For a list of available fields, see [Overriding Fixed Income Analytics](#).

5. Save the custom pricing waterfall for use in your portfolio:

- If you created an entirely new waterfall, from the toolbar, click the **Save** button.

6. Click the **Update** button.

Your Pricing Source settings are saved.

Customizing your FX rate source and equity pricing source waterfalls is similar to the process described above. For FX, in the *Available Sources* section of the *Portfolio Waterfall* screen, you can choose from a variety of snap times consolidated by Bloomberg from dealer sources, which you can see in the *Bloomberg FX Fixings (BFIX)* function, several index vendor provider sources, and the dynamic Index Provider source. The Index Provider source maps to an index vendor source dynamically at the time of analysis, as long as the chosen benchmark is a single index and the vendor provides FX rates to Bloomberg. In addition, you can also set up a custom FX rate source that you and your colleagues maintain. For more information on custom FX rates, see [Using Custom FX Rates](#). For more information on custom equity pricing, see [Using Custom Equity Pricing](#).

ATTRIBUTION CALCULATION DEFAULTS

Once you have created a view, you can customize the attribution defaults for both equity and fixed income portfolios, including the attribution model, interaction effect, and whether the currency effect is embedded.

These instructions assume that you have created a view and are in the *View Manager* screen. For more information, see [Creating a View](#).

To set your attribution calculations defaults:

1. From the sidebar, select **Calculation Settings > Attribution**.

Options for the attribution calculation appear, with one column for equity portfolios and one column for fixed income/balanced portfolios.

2. Update any of the attribution calculation settings:



- **Attribution Model:** Choose which attribution model to use, either based on sector return (Brinson-Fachler) or factor return (the others).
- **Aggregation Mode:** Choose the aggregation method used to calculate Allocation Effect and Selection Effect.
 - *Single-Level:* A bottom-up approach where all aggregations are flattened first for the Allocation and Selection Effect calculations. The aggregation ordering does not impact the attribution results (e.g., Sector by Duration = Duration by Sector).
 - *Multi-Level:* A top-down approach where Allocation and Selection Effect calculations are conditional on aggregation ordering (e.g., Sector by Duration yields different results than Duration by Sector).

For more information on the top-down versus bottom-up approach, see the [Nested Attribution White Paper](#).

- **Annualization:** If you want to annualize attribution results, select the *Annualize Returns and Contributions* checkbox. 365 days is used as the base for the annualization calculation.
- Note:** Annualization is only available for the Brinson-Fachler Total Return Attribution model.
- **Benchmark Hurdle Rate:** Depending on your attribution model selection, this field is automatically set as relative or absolute. Relative is your portfolio performance minus the benchmark performance.
- **Interaction Effect:** Choose how the interaction effect of attribution is exposed.
 - *Show Interaction:* Exposes the *Interaction Effect*¹⁸⁸.
 - *Combine with Selection:* Combines the Interaction Effect with the *Selection Effect*¹⁸⁹. This is the default selection.

¹⁸⁸ The interaction between the weighting and the selection effects, which does not represent an explicit decision of the investment manager.

¹⁸⁹ The active return attributed to security selection decisions that differ from the benchmark. When the portfolio sector returns exceed the benchmark return, a positive number is posted.

— *Combine with Allocation*: Combines the Interaction Effect with the *Allocation Effect*¹⁹⁰.

Note: When you attempt to outperform a benchmark based on sector bets and stock picking, Return Attribution quantifies the effectiveness of this strategy relative to the benchmark in terms of Allocation and Security Selection, respectively. *Interaction Effect*¹⁹¹ occurs when you pick a security on which you are simultaneously making a bet on the sector in which that security belongs. For this reason, the interaction term is difficult to interpret because it is a combination of sector allocation and security selection. Most portfolio managers add this interaction term to Security Selection, which is the default in PORT.

- **Linking Method:** Choose how attribution is calculated.
 - *Arithmetic*: The portfolio's performance is captured as return differences relative to the benchmark. Arithmetic returns imply that each of the attribution factors must add up to the total.
 - *Geometric*: The portfolio's total return is captured as a ratio to the benchmark. In this case, $\text{Alpha} = 100 * [(1+\text{portfolio return} / 100) / (1+\text{benchmark return} / 100) - 1]$. Geometric attribution remains consistent with the idea that sub-period returns must be multiplied together to calculate overall return. However, it is less intuitive because the attribution factors do not add up.
- **Embed Currency Effect:** Select to embed (add) the currency effect into both the selection effect and allocation effect in attribution calculations. Currency effect is the active return due to currency exposures that differ from the benchmark.
- **Parallel Shift:** If you want to utilize a parallel shift, select the timeframe for which you want the shift to apply (3, 5, or 10 years). You can also choose to use a bench weighted average instead of a specific timeframe.

Note: The *Parallel Shift* utilizes the change in yield of the maturity point, calculating the relative performance due to an overall mismatch versus the index over a given duration. The resulting calculations can be seen in the *Attribution Curve Return* sub-tab.

- **FI Derivative Excess Return:** Choose how a fixed income interest rate derivative's return is determined:
 - *Include in Curve*: Combines the portion of a fixed income interest rate derivative's return not explicitly explained by the curve change into the overall Curve Return.
 - *Include in Excess*: Exposes the portion of a fixed income interest rate derivative's return not explicitly explained by the curve change in the Excess Return.
- **Performance Calc:** Choose whether historical returns and performance attribution are calculated using *Holdings-based* returns or *Transactions-based* returns. For more information on historical returns, see [Historical Returns](#). For more information on transactions-based attribution, see [Transactions-Based Method](#).
- **Cashflow Weights:** Displays how cash flows are weighted when *Transactions-based* is selected for the *Performance Calc*. Defaults to *Inflow (begin); Outflow (end)* (IBOE), meaning Bloomberg includes all inflows (buy long and short sales) at the start of the day and all outflows (sell long, buy to cover) at the end of the day.

3. From the toolbar, click the **Save** button.

Your attribution calculation settings are saved.

If you want to see your view in PORT, from the toolbar, click the **Run** button. The view and its related settings appears.

¹⁹⁰ The active return attributed to asset allocation decisions (e.g., sectors, countries, or market caps) that differ from the benchmark. The allocation is generally positive when the fund is overweight for a sector in which the benchmark return exceeds the total benchmark return.

¹⁹¹ The interaction between the weighting and the selection effects, which does not represent an explicit decision of the investment manager.

RISK FACTOR CALCULATION DEFAULTS

Once you have created a view, you can customize risk factor calculation defaults, including a default risk model.

These instructions assume that you have created a view and are in the *View Manager* screen. For more information, see [Creating a View](#).

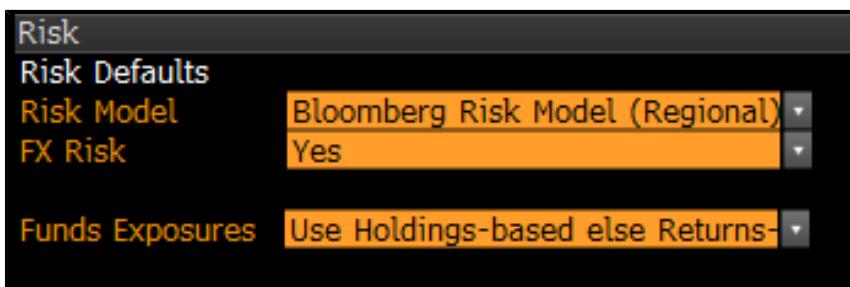
To set your risk factor calculation defaults:

1. From the sidebar, click **Calculation Settings > Risk**.

Options for risk factor calculations appear. Depending on the tabs in your view, the VaR, Scenarios, and/or Tracking Error/Volatility tabs at the bottom of the screen let you set risk factor defaults for those tabs.

2. Update any of the risk factor settings:

- **Risk Defaults:** Set defaults that apply across the *Tracking Error*, *VaR*, and *Scenarios* tabs.

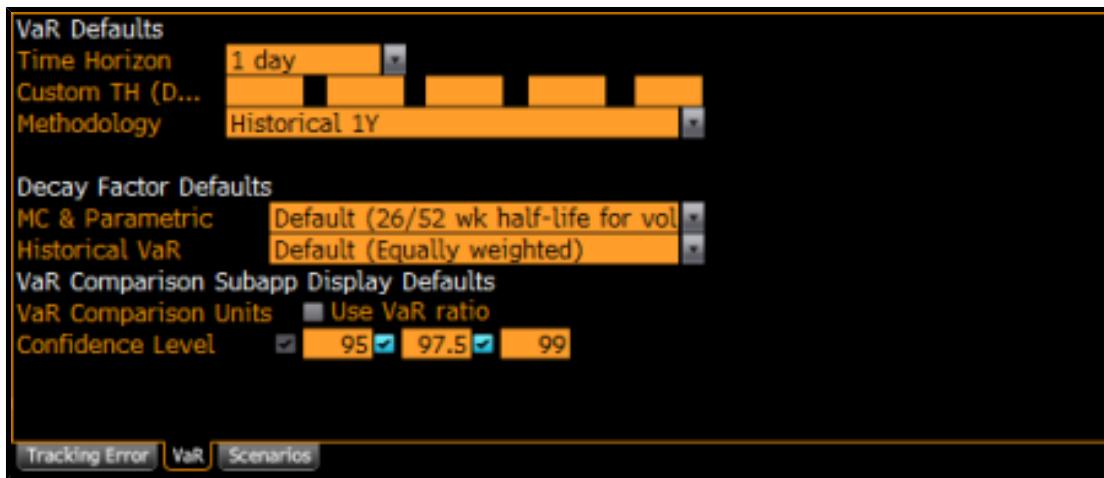


- **Risk Model:** Allows you to choose which multi-factor risk model is used to estimate the portfolio, benchmark, and active risk values (if applicable). For more information on the available risk models, see [Equity Risk](#) and [Fixed Income Risk](#).
- **FX Risk:** Allows you to disable foreign exchange risk in risk tabs, excluding the *Trends* and *Factor P&L* sub-tabs.
- **Funds Exposures:** Allows you to choose how exposures are calculated for funds, using either holdings-based or returns-based analysis by default. If a fund does not report recent holdings to Bloomberg within a timeframe of 150 days, the return factor is used.
- **Tracking Error:** Set the risk defaults that apply to the *Tracking Error/Volatility* tab.

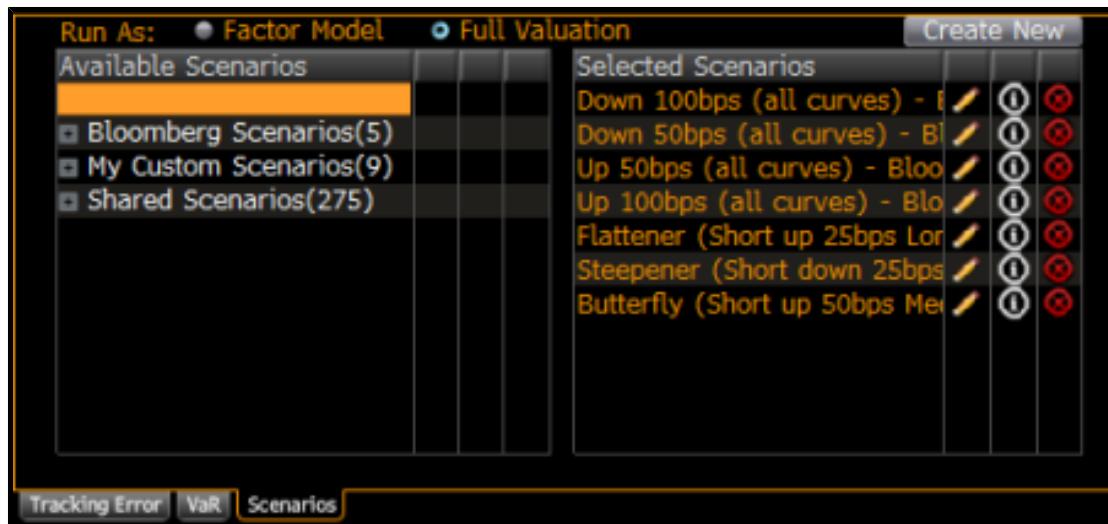


- **Use Auto Selected Regional Risk Model:** When selected, PORT automatically uses a risk model based on your region. This option overrides the common risk model.
- **Version:** Allows you to choose the date on which the model was generated. If you select *Use Latest Version*, the latest model version available prior to the *As Of*¹⁹² date.
- **Time Horizon:** The length of time by which the risk factors are scaled.
- **Marginal Risk:** Allows you to determine the funding assumption for marginal risk calculations: cash (default), portfolio, or benchmark. When calculating marginal risk, PORT assumes you are selling cash, portfolio, or benchmark, depending on your selection.
- **VaR:** Set the risk defaults that apply to the VaR tab.

¹⁹² The date for analysis. If the date is set to today, the analysis is based on current position's with the previous day's closing prices. Analysis may be backdated up to 90 days.



- **Time Horizon:** The risk forecast period in number of business days. Bloomberg calculates a one day VaR and scales that number by multiplying it by the square root of the number of business days to include additional timeframes.
- **Custom TH (Days):** Displays either the percentage return (Returns %) with respect to portfolio market value or the return value (P&L) displayed in the reporting currency.
- **Methodology:** The default simulation methodology. Your choice affects the default selection in the *VaR - VaR Comparison* sub-tab and the selected methodology used in *Distribution* and *Simulations* sub-tabs.
- **Decay Factor Default for MC & Parametric:** The default decay factor for Monte Carlo (MC) and Parametric VaR. The decay factor sets the weight applied to the historical return time series necessary to calculate the factor volatility and correlation. The lower the decay factor the greater the weight applied to the most recent data. For information on comparing Monte Carlo, Historical, and Parametric VaR methodologies, see [VaR Comparison](#).
- **Decay Factor Default for Historical VaR:** The default decay factor for Historical VaR. For information on comparing Monte Carlo, Historical, and Parametric VaR methodologies, see [VaR Comparison](#).
- **VaR Comparison Units:** Allows you to select whether to use the VaR Ratio (if a benchmark is available) instead of the default value in the VaR Summary section of the *VaR Comparison* sub-tab.
- **Confidence Level:** You can choose up to three confidence levels used in reports, especially in the VaR Summary section of the *VaR Comparison* sub-tab as well as the *VaR Main View* sub-tab.
- **Scenarios:** Set the default scenarios you want to see as part of your factor model or full valuation scenarios on the *Scenarios* tab.



- **Run As:** Choose whether you want the view to run the factor model or full valuation scenarios by default.
 - **Available Scenarios** and **Selected Scenarios:** Customize the scenarios you want to appear in each grouping, selecting from the list of pre-defined Bloomberg scenarios, custom scenarios you created, or scenarios shared with you from other users or your firm. For more information on equity factor model scenarios, see [Equity/Balanced Portfolio Scenarios](#). For more information on fixed income full valuation scenarios, see [Fixed Income Portfolio Scenarios](#).
3. From the toolbar, click the **Save** button.
Your risk factor settings are saved.

*If you want to see your view in PORT, from the toolbar, click the **Run** button. The view and its related settings appears.*

CASH FLOW CALCULATION DEFAULTS

Once you have created a view, you can customize the cash flow summary defaults that control your cash flow projection view.

These instructions assume that you have created a view and are in the *View Manager* screen. For more information, see [Creating a View](#).

To set your cash flow projection defaults:

1. From the sidebar, select **Calculation Settings > Cash Flows**.
Options for cash flow projections appear.
2. Update any of the cash flow summary settings:



- **Time Horizon:** Set the default time horizon for the cash flow projection summary as a specific number of days, months, quarters, or years.
 - **Cash Flow Periodicity:** Choose whether the summary displays daily, monthly, quarterly, semi-annual, or annual cash flow payments.
 - **Workout Convention:** Select the default *Workout Conv*¹⁹³ for the cash flow projection.
 - **Startup Mode:** Choose whether the cash flow summary appears as a chart or a table.
3. From the toolbar, click the **Save** button.
Your cash flow calculation settings are saved.

*If you want to see your view in PORT, from the toolbar, click the **Run** button. The view and its related settings appear.*

LIQUIDITY RISK DEFAULTS

Once you have created a view, you can customize the liquidity risk defaults that control the calculation of liquidity risk in the *Characteristics-Liquidity Risk* sub-tab.

These instructions assume that you have created a view and are in the *View Manager* screen. For more information, see [Creating a View](#).

To set your liquidity risk defaults:

1. From the sidebar, select **Calculation Settings > Liquidity Risk**.
Default options for liquidity risk analysis appear.
2. Update any of the liquidity risk settings:

¹⁹³ In the *Cash Flow Summary* sub-tab, allows you to choose the cash flow projection methodology, which provides an assumption as to when you are going to recover your principal. The options are:

- **To Worst:** Selects a workout date that produces the worst yield based on the price of the bond. The date may be a maturity or call date.
- **To Next Call:** Assumes the bond is called at its next call date.
- **To Maturity:** Assumes the bond is called on its maturity.



- **Default View:** Select the default *analytic*¹⁹⁴ view to appear when you access the *Liquidity Risk* sub-tab.
 - **Default Participation %:** Select the participation rate you want to analyze on the *Liquidity Risk* sub-tab by default. The participation rate is the maximum percentage of the average market volume you are willing or intending to sell on a given day.
 - **Default Volume History:** Select the amount of trade history you want to use when calculating the days to liquidate. This defines the cell in the *Liquidity Summary* table to which the *Liquidity Risk* sub-tab defaults if multiple volume histories are displayed.
 - **Volume Indicator:** Determine whether you want to calculate the average or median number of days to liquidate based on daily price volume or VWAP volume.
 - **Use Any Available Trade History:** Select **Yes** to ensure that all securities are included in the analysis despite the amount of trade history. If you select **No**, securities with limited trade history may be excluded from the analysis if the volume history selected is too long.
 - **Volume Gauge:** Select whether you want to measure volume using the average volume or the median volume.
 - **Include Off-Exchange Volume:** Select **Yes** to include trade volume from Tier 2 (OTC markets) in addition to your Tier 1 (Listed Exchange) volume for European equities.
 - **Use Volume from Composite Ticker:** If set to **Yes**, the BLOOMBERG PROFESSIONAL® service uses the trade volume associated with a security's composite ticker.
- Note:** Bloomberg sets this option by default; you cannot edit this setting.
- **Use Underlying Volume for Receipts:** If set to **Yes**, Bloomberg uses the trade volume associated with the security underlying the receipt. If set to **No**, Bloomberg uses the volume associated with the local shares of the receipt, which may trade more actively.

¹⁹⁴ The liquidity risk calculation selected for your portfolio analysis within the Characteristics-Liquidity Risk sub-tab. For descriptions of each available view, see [Liquidity Risk](#).

Note: Bloomberg sets this option by default; you cannot edit this setting.

- **Select Up To 6 Liquidity Buckets:** Set up your liquidity buckets to categorize your positions by degree of liquidity, from highly liquid to illiquid, based on the number of days needed to liquidate the position. You can enter any exclusive range and select the default bucket that appears in the *Breakdown* section of the *Liquidity Risk* sub-tab.
 - **Liquidity Horizon(%MV):** Select the percentage of the portfolio's total market value you want to liquidate over a specified timeframe when analyzing the liquidity horizon.
3. From the toolbar, click the **Save** button.
Your liquidity risk settings are saved.

If you want to see your view in PORT, from the toolbar, click the **Run** button. The view and its related settings appear.

Note: For information on analyzing the *Liquidity Risk* sub-tab, see *Liquidity Risk*.

SHARING VIEWS/WATERFALLS

If you license AIM Analytics, you are permitted to share views with other users. If the view is configured to point to a custom waterfall for *Fixed Income Historical Data* or *FX Historical Data*, the shared view also points to the same waterfall. If you create a copy of the shared view, a local copy of the referenced waterfall is also created upon saving the view. At this point, while the original waterfall and the new copy have the same name, they are no longer linked. If there is a name conflict between any existing custom waterfall you have created and the waterfall created as a result of copying the shared view, a number is appended to the new waterfall name (e.g., Waterfall1) to distinguish the waterfalls.

For more information setting up custom pricing source waterfalls, see [Customizing Price Waterfall](#).

ADDING/REMOVING FIELDS

In any *Main View* sub-tab you can easily add or remove fields (columns) to the display, so you can narrow your portfolio and risk analysis.

To add or remove a field:

1. Right-click any of the column headers and select **Add/Remove Fields**.



Name	Wgt	Add/Remove Fields
DODGE & COX STOCK FUND (DODGX...)	100.00	100.00
Consumer Discretionary	15.35	11.84
Consumer Staples	2.95	9.79
Energy	6.94	8.54
		-6.84
		-1.60

The Edit Template window appears with all available fields on the left in the Available Fields section and all currently selected fields on the right in the Selected Fields section.

2. Choose your columns:



- To add a field to the selected tab, in the *Available Fields* section, browse the menu tree and select a field.

The field appears in the *Selected Fields* section. To learn more about a particular field, click the information () icon.

- To access more fields, click the **More (Asset Class) Fields** button. For information on using this window, see *Additional Fields (Characteristics)*.

Note: Additional asset class fields are not available on all tabs.

- To hide or display data for the benchmark and/or the difference between the benchmark and the portfolio, in the *Selected Fields* section, select or deselect the *Bmrk* or *+/-* checkboxes.
 - To rearrange the order of the columns in the tab, in the *Selected Fields* section, click the drag and drop () icon on the left and move the column to the desired placement.
 - To remove a column from the tab, in the *Selected Fields* section, click the delete () icon next to the field you want to delete.
- If you want to adjust the parameters of a selected field, such as the number of decimals that appear for the column data, in the *Selected Fields* section, click the pencil () icon. Depending on the field, various options appear. For a description of each option, see *Definitions*. When you are finished modifying the field parameters, click the **Update** button.
 - Repeat step 4 with any other fields you want to modify.
 - From the *Edit Template* window, click the **Update** button. The view appears and reflects your field (column) changes.

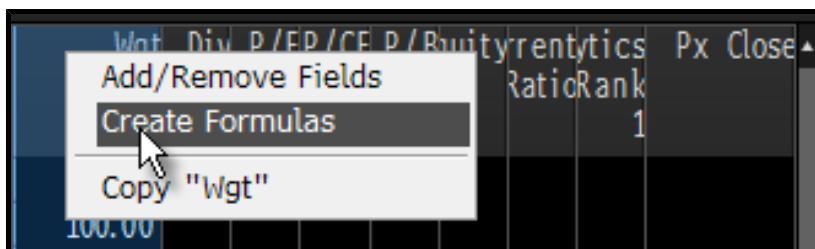
CREATING CUSTOM FORMULAS

You can use the available PORT fields to create new fields based on your own custom formulas. For example, you may want fields that automatically convert values into your local currency or give a clearer picture of your position for a given security relative to the broader market.

[Hint] For a list of all supported mathematical, logical, and conditional operators available for custom formula creation, refer to the [Custom Formulas in PORT <GO>](#) document.

Steps:

- From the *Characteristics* tab, right-click any of the column headers and select **Create Formulas**.



The *Portfolio & Risk Analytics: Custom Formula* screen appears.

- From the toolbar, click **Add new Formula**.



The *Portfolio & Risk Analytics: Formula Editor* screen appears.

- Modify your formula:

- To find fields you want to include in your formula, in the *Available Fields* field, enter the name of a value you want to use (e.g., *position*), then press <GO>.



The *Available Fields* update to show matching fields.

- To add the field to your formula, click the + icon for the value you want to use in your formula (e.g., *Position*).



In the *Enter Formula* field, the value appears.

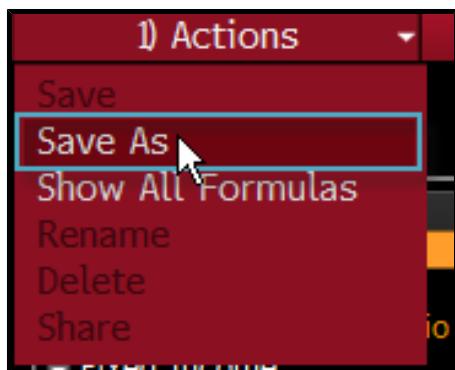
- To simplify your formula by creating variables that represent complex expressions, enter your expression in the *Expression* field (e.g., *POSITION/AMT_OUTSTANDING*).

Formula Variables (Optional)	
Name	Expression
EXP1	POSITION/AMT_OUTSTANDING
EXP2	

- To complete your formula, in the *Enter Formula* field, enter your variables, values, and operators (e.g., EXP1*100).

[Hint] For a list of all supported mathematical, logical, and conditional operators available for custom formula creation, refer to the [Custom Formulas in PORT <GO>](#) document.

- From the toolbar, select **Actions > Save As**.



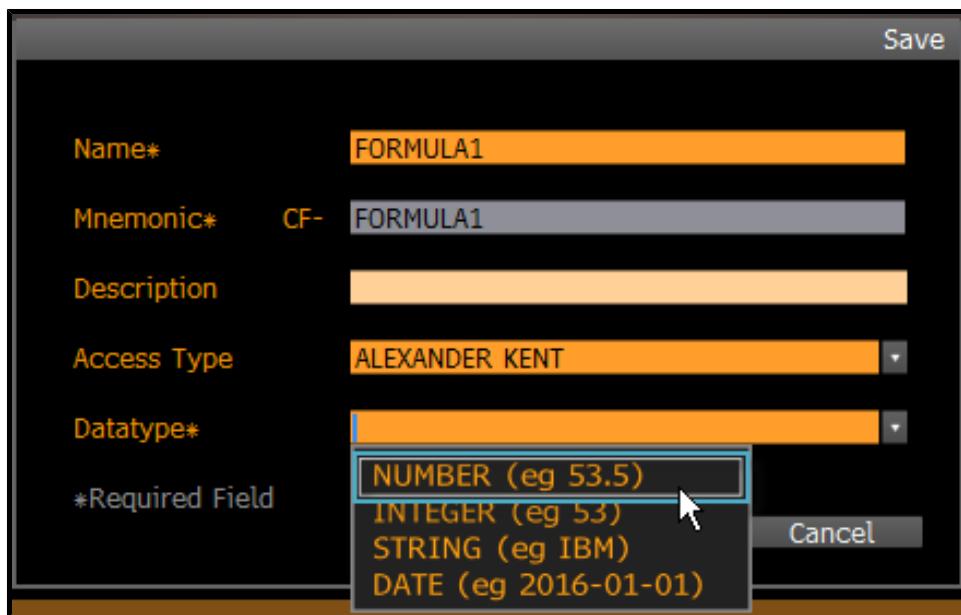
The Save window appears.

5. In the name field, enter a name for your formula (e.g., FORMULA1), then press <GO>.

Name*	FORMULA1
Mnemonic*	CF-
Description	
Access Type	ALEXANDER KENT
Datatype*	
*Required Field	
Save Cancel	

In the Mnemonic field, your name appears, providing a shortcut, so you can quickly run the formula from the command line.

6. Enter identifying and configuration data for your field:
 - To add a description that more clearly describes your formula, enter it in the Description field.
 - To restrict who can access the formula, from the Access Type drop-down menu, choose whether it should be available to you, to your firm, or to a specific pricing number.
7. From the Datatype drop-down menu, select a format for the formula result (e.g., NUMBER).



8. Click the **Save** button.

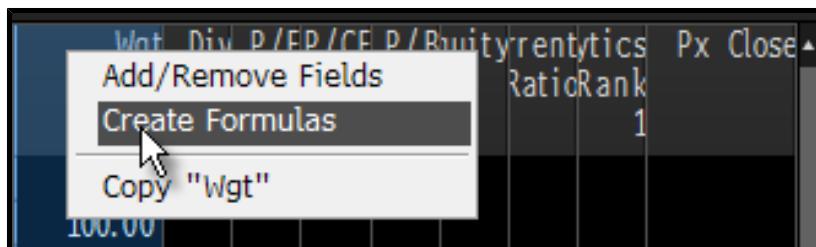
Your formula saves. You can access your formula from the Available Fields section of the Edit Template window, under Custom Formulas.

MAINTAINING CUSTOM FORMULAS

You can organize all of your custom formulas on a single screen.

Steps:

- From the *Characteristics* tab, right-click any of the column headers and select **Create Formulas**.



The Portfolio & Risk Analytics: Custom Formula screen appears.

- Select the tab for the type of formula you want to manage:

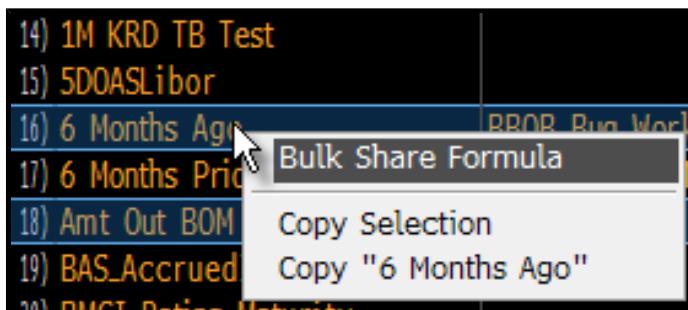
Formula Type Tabs		
Add New Formula	Bulk Import	Portfolio
All Formulas	Personal Formulas	Shared Formulas
Name	Description	Datatype
11) Custom customer		INTEGER
12) % of par that was paid down		DOUBLE

- **All Formulas:** Select to display all custom formulas.
- **Personal Formulas:** Select to display only custom formulas that you created.
- **Shared Formulas:** Select to display only formulas created by others and shared with you.
- **Example Formulas:** Select to display example formulas created by Bloomberg.

The corresponding formulas appear.

3. Take an action on the formula:

- To edit the formula, select the formula. For information on editing custom formulas, see [Creating Custom Formulas](#).
 - To share the formula with another Bloomberg user, click the share () icon.
- [Hint]** If you want to share multiple formulas at once, hold the **<SHIFT>** or **<CTRL>** keys while you multi-select formulas, then right-click and select **Bulk Share Formula**.



The *Formula Sharing* window appears. When you are finished entering recipients for your formula, click the **Update** button.

- To delete the formula, click the delete () icon next to the formula you want to delete.

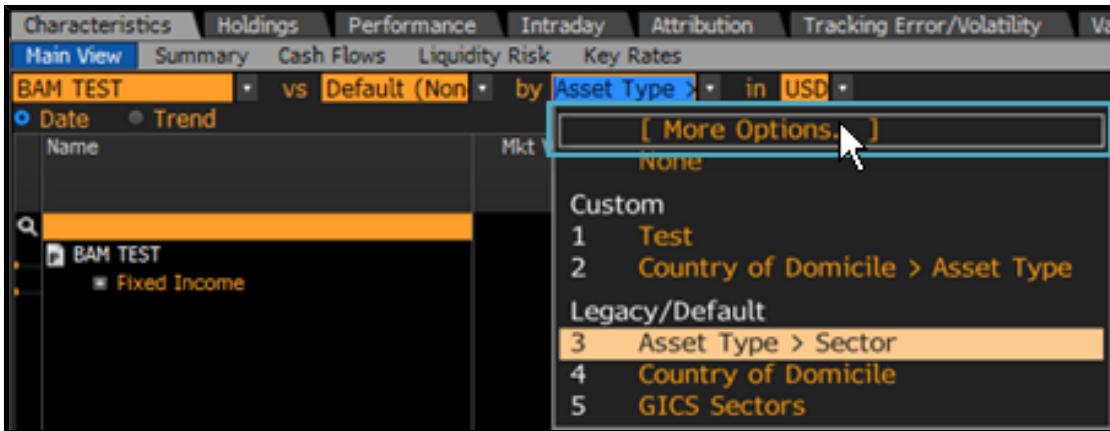
Your formulas update based on your selection.

CREATING NEW CLASSIFICATIONS

If one of the standard Bloomberg classifications models does not provide the breakdown you need, you can create and customize a new classification.

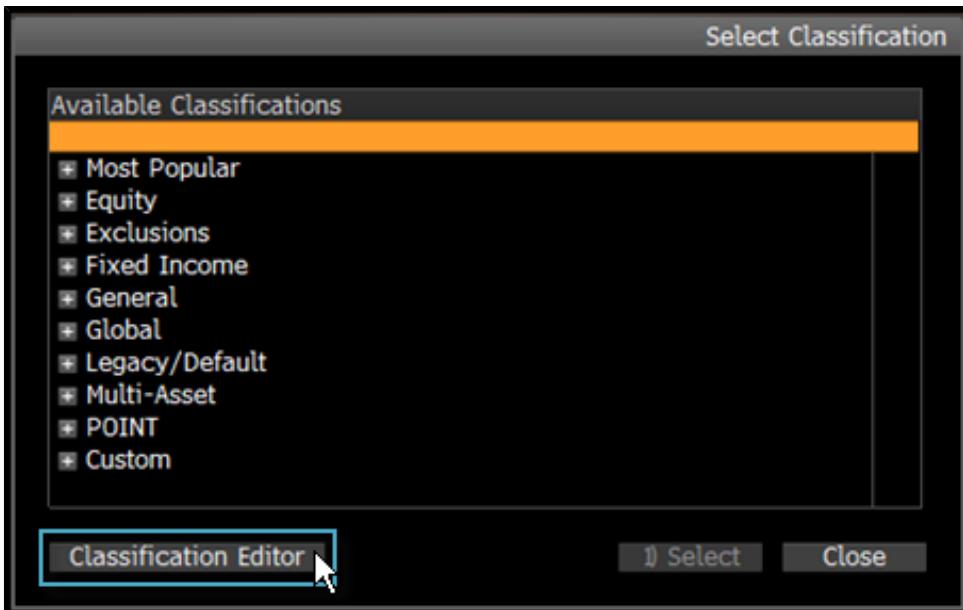
To create a new classification from PORT:

1. From any *Main View* sub-tab, from the *by* drop-down menu, select **[More Options...]**.



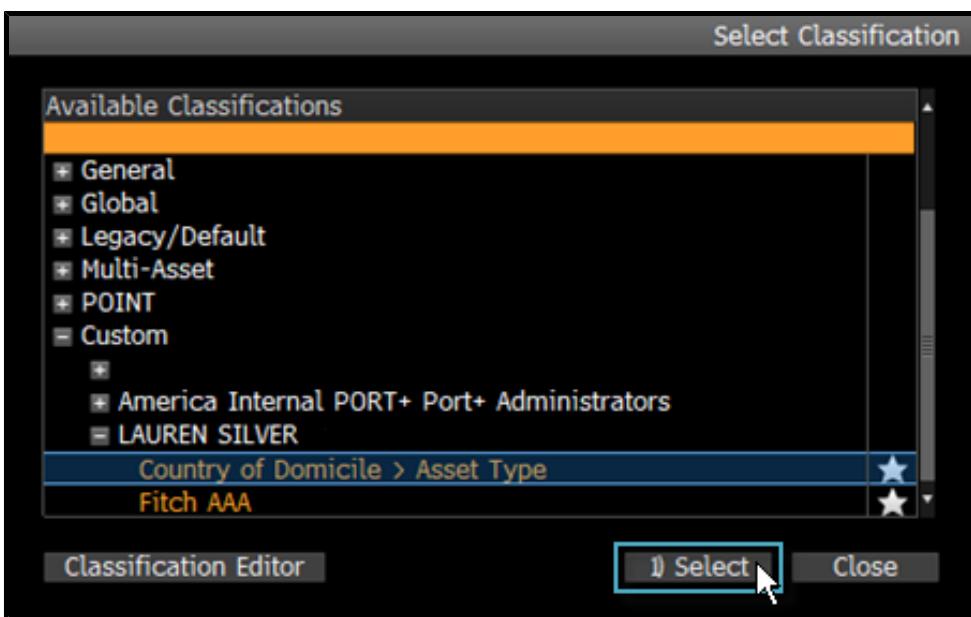
The *Select Classification* window appears.

2. Click the **Classification Editor** button.



The *Unified Classification (UNCL)* function appears.

3. In UNCL, create your classification(s). For more information, see the [UNCL Help Page > Creating Classifications](#).
 4. If you want to use the new classification in your portfolio analysis, in PORT, from the *by* drop-down menu, select [**More Options...**] again.
- The *Select Classification* window appears.
5. Navigate to the *Custom* category, click on your classification, then click the **Select** button.



The classification is added to your analysis.

USING CUSTOM FX RATES

PORT allows you to upload and access custom FX rates for use in customizing your FX rate source waterfall. Setting up your custom FX rate source requires that you create a field in the *Custom Data Editor* (CDE) function and populate the field with custom FX rates using CDE or the *Bloomberg Uploader* (BBU) function.

For more information on CDE and BBU, see the [CDE Help Page](#) and the [BBU Help Page](#).

To set up your custom FX rate source:

1. Using the *Custom Data Editor* (CDE) function, create a custom field with a *Content Type* of *Price*, then choose a specific *Data Source* intended for your custom FX rates. For more information on using CDE to create custom fields, click [here](#)



Note: By default, new custom data fields are configured to carry forward the currencies from the last date on which a rate is specified until a new rate is provided. To ensure that FX rates fall through to an alternative source in your waterfall when a rate is not provided for a particular date, change the *Carry Forward Days* setting in the field's Advanced Options to **None** or **Custom**.

2. Add currency tickers to the custom fields:

- Using CDE, select the *Price* field you created, then add currency securities and custom rates for specific as of dates.



For more information on using CDE to update custom fields, click [here](#)

- Using the *Bloomberg Uploader* (BBU) function, upload currency tickers and rates, then map your bespoke FX rates to



the custom *Price* field. For more information on using BBU to upload data to a custom data field, click [here](#).

Note: All currency rates must be represented relative to USD, either as units per USD or USD per unit based on the related currency convention.

3. Add the data source to your FX rate source custom waterfall by applying the instructions in [Customizing Price Waterfall](#) to the *FX source* field in your Pricing Source defaults.

Note: Custom data sources are denoted by "CDE" in the source name.

Your FX rate waterfall is saved and your custom FX rates are referenced in your portfolio when using this view. After each upload of FX rates to the custom data field, once you launch your portfolio in PORT, your portfolio positions recalculate using the updated FX rates.

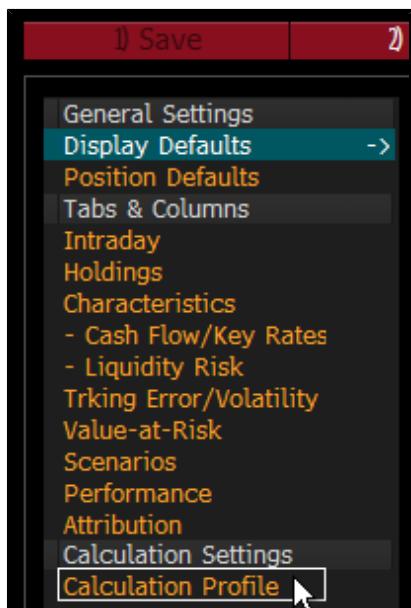
USING CUSTOM EQUITY PRICING

The *Custom Waterfall* enables custom equity prices assigned to a portfolio (defined in the *Portfolio Administration* (PRTU) and *Bloomberg Uploader* (BBU) functions) as well as prices submitted via the *Custom Data Editor* (CDE) function to be configured in an equity price waterfall. The waterfall also includes existing Bloomberg provided sources, MSCI, Primary, and Composite.

Note: For a list of the asset types impacted by custom equity pricing, see [Assets Impacted by Custom Equity Pricing](#).

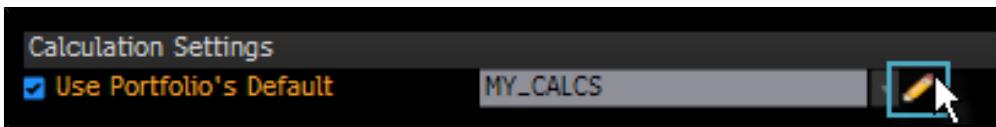
To set up your custom equity pricing:

1. From the *Calculation Settings*, click **Calculation Profile**.



The general calculation settings appear.

2. Under *Calculation Settings*, click the Edit icon.



The calculation profile editor appears.

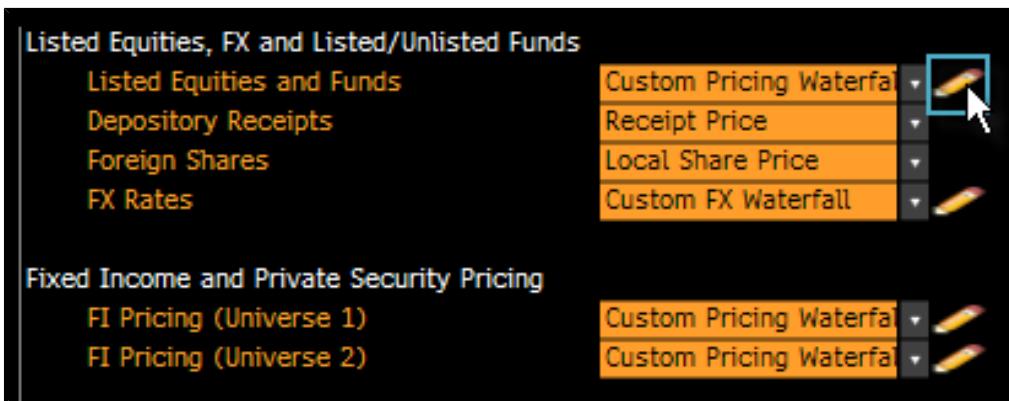
3. Create your custom pricing:

- If you want to create custom pricing for a private company that has a Bloomberg ticker, see step 4 of this procedure.
- If you want to create custom pricing for a private company that does not have a Bloomberg ticker, use the *Equity Custom Security (EQPL)* function. For information on using EQPL to create custom equity securities, click [here](#) 

4. Add equity tickers to the custom fields:

- Using CDE, select the *Price* field you created, then add custom equity securities for specific as of dates. For more information on using CDE to update custom fields, click [here](#) .
- Using the *Bloomberg Uploader (BBU)* function, upload equity tickers, then map your bespoke tickers to the custom *Price* field. For more information on using BBU to upload data to a custom data field, click [here](#) .

5. From the *Listed Equities and Funds* field, select **Custom Pricing Waterfall**, then click the adjacent Edit icon.



The Waterfall Source Picker window appears.

6. Add the data source to your equity custom waterfall by following the instructions in [Customizing Price Waterfall](#).

Note: Custom data sources are denoted by "CDE" in the source name.

Your custom equity pricing waterfall is saved and your custom pricing is referenced in your portfolio when using this view. After each upload of custom pricing to the custom data field, once you launch your portfolio in PORT, your portfolio positions recalculate using the updated pricing. From the Holdings tab, you can display the source of your pricing by adding the Price Source column. For information on the Holdings tab, see [Holdings Tab](#).

ASSETS IMPACTED BY CUSTOM EQUITY PRICING

The following asset types are impacted when you change the pricing waterfall for equities in PORT:

Common Stocks	Depository Receipts	Units
Rights	Other Equity	Royalty Trusts
REITs	Preference	Limited Partnership
Tracking Stocks	Private Companies	Open-End Funds
Closed-End Funds	ETFs	

INTRADAY TAB

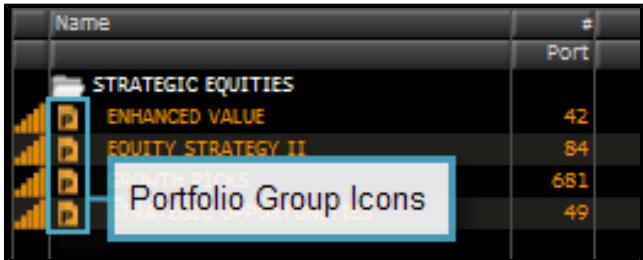
MULTIPLE PORTFOLIOS IN INTRADAY CHART

You can monitor multiple portfolios in the intraday monitor chart. This graphical feature can be used to supplement the monitoring of multiple portfolios in the main part of the *Intraday Main View* sub-tab.

For a general introduction to the intraday monitor chart, see [Intraday Monitor Chart](#).

To see a group of portfolios in the intraday monitor chart:

1. Click the *Port* drop-down menu and select your portfolio group.
The group of portfolios appears. "P" icons indicate each portfolio.



Note: If you have not created a portfolio group, you can do so using the Portfolio Administration (PRTU) function. For more information, click [here](#).

2. If the intraday monitor chart is not open, from the toolbar, select **Settings > Show Intraday Chart**.
The intraday monitor chart at the bottom of the screen tracks your portfolio performances throughout the day.



PERCENTAGE GROSS WEIGHT

In the *Intraday Main View* sub-tab, you can monitor % Gross Weight¹⁹⁵ exposures, with weights displayed as positive numbers. Along with this option, you can display an intraday heat map or similar chart to see short positions.

To monitor percentage gross weight exposures:

1. Right-click any column header and select **Add/Remove Fields**.
The *Edit Template* window appears.
2. In the *Available Fields* section, under the *Position / Price* category, click the add button (+) next to % Gross Weight.



¹⁹⁵ The current gross exposure of the instrument or grouping divided by the total current gross exposure of the portfolio, expressed as a percentage.

Your selection is shaded blue and appears in the Selected Fields section. You can adjust the column order by dragging and dropping the selected columns, as well as assign the field to the benchmark (*Bmrk*¹⁹⁶) and difference (*+/-*¹⁹⁷) applications.

- Click the **Update** button.

The % Gross Weight columns appear in your intraday monitoring table.

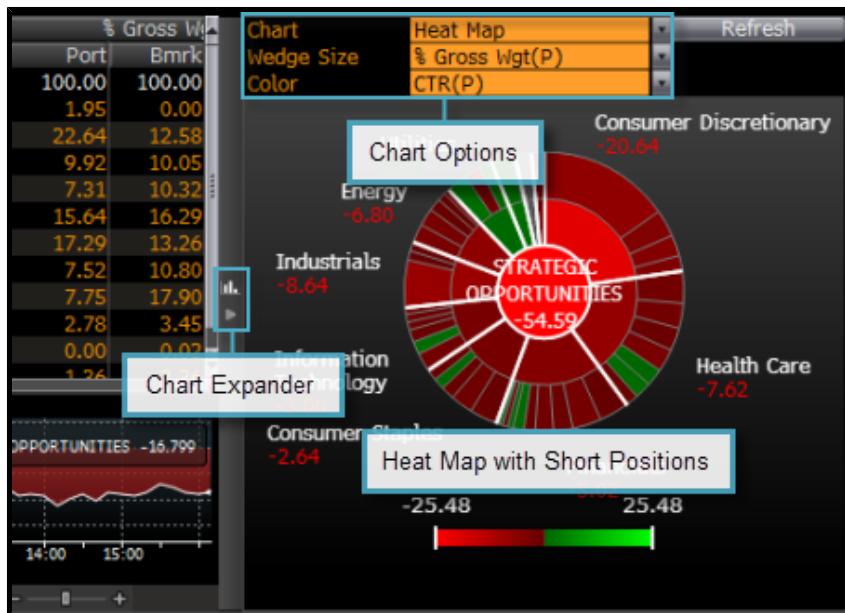
Name	#	% Gross Wgt			
		Port	Port	Bmrk	+/-
STRATEGIC OPPORTUNITIES	47	100.00	100.00	0.00	
Cash	1	1.95	0.00	1.95	
Consumer Discretionary	4	22.65	12.58	10.08	
Consumer Staples	5	9.91	10.04	-0.13	
Energy	5	7.31	10.32	-3.01	
Financials	10	15.64	16.29	-0.65	
Health Care	7	17.30	13.26	4.03	
Industrials	3	7.52	10.80	-3.28	
Information Technology	6	7.75	17.90	-10.15	
Materials	2	2.78	3.45	-0.68	
Stocks	0	0.00	0.00	0.00	

- To display the corresponding heat map, click the expander bar to see the chart options and map.

¹⁹⁶ Indicates the benchmark against which you are comparing your portfolio, which can be an index, portfolio, or fund.

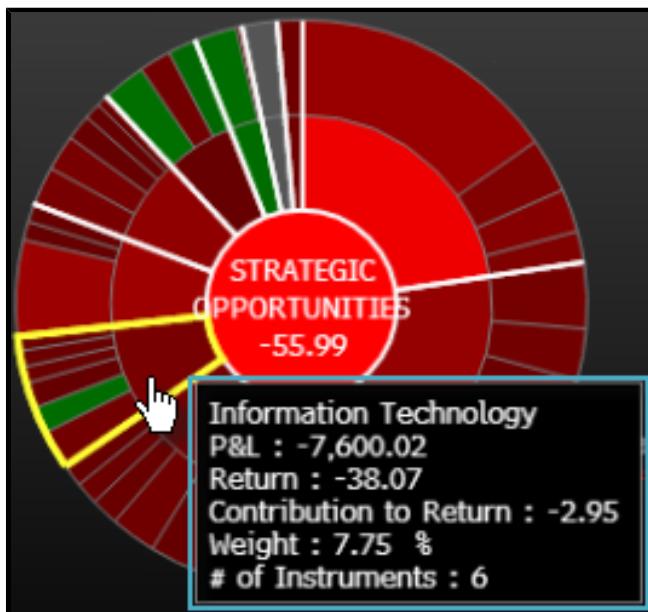
- In the Characteristics - Characteristics Summary sub-tab, the benchmark indicator value.
- In the View Manager, allows you to choose which fields appear in the benchmark column (for each tab).

¹⁹⁷ The difference between the portfolio and the benchmark.



5. Analyze the heat map:

- To see descriptive information about each sector or position (including total return, contribution to return, P&L, number of instruments, weight, and price), position your cursor over a section of the heat map.



- To analyze intraday short position data in a different chart format, choose an option from the *Chart* field:



The chart updates based on your selection.

Note: When you leave the *Intraday* tab and then return to it, the chart defaults to the heat map.

ATTRIBUTION CALCULATION ASSUMPTIONS

The *Intraday* tab supports the calculation of attribution effects for equity and fixed income portfolios. The *Allocation Effect*¹⁹⁸, *Selection Effect*¹⁹⁹, and *Currency Effect*²⁰⁰ values are calculated using the same approach utilized in the *Attribution* tab. However, the time horizon is one day, using live market prices, relative to yesterday's close of market. As in the *Attribution* tab, *Interaction Effect*²⁰¹ is embedded within *Selection Effect*²⁰².

For complete information on the calculation assumptions for attribution effects, see [Return Attribution](#).

Note: For multiple levels of aggregation (e.g., Country by Sector), multi-level attribution logic is assumed. For more information on nested attribution, see the [Nested Attribution White Paper](#).

SWAPTONS IN PORT

In PORT, long swaption positions appear as a positive number of swaption contracts, while short swaption positions appear as a negative number of swaption contracts. However, if the swaption itself represents a short position, such as a *Long Payer* swaption, and the security is added to PORT as a short (negative) position, PORT displays the position as a long position. The table below demonstrates the logic for displaying long and short SWPM swaption positions in PORT.

¹⁹⁸ The active return attributed to asset allocation decisions (e.g., sectors, countries, or market caps) that differ from the benchmark. The allocation is generally positive when the fund is overweight for a sector in which the benchmark return exceeds the total benchmark return.

¹⁹⁹ The active return attributed to security selection decisions that differ from the benchmark. When the portfolio sector returns exceed the benchmark return, a positive number is posted.

²⁰⁰ The active return due to currency exposures that differ from the benchmark.

²⁰¹ The interaction between the weighting and the selection effects, which does not represent an explicit decision of the investment manager.

²⁰² The active return attributed to security selection decisions that differ from the benchmark. When the portfolio sector returns exceed the benchmark return, a positive number is posted.

For information on using the *Swap Manager* (SWPM) function to create a swaption, click [here](#) . For information on using the *Portfolio Administration* (PRTU) function to add securities to your portfolio, click [here](#) .

Position in SWPM	Position in PRTU	Exposure in PORT
<i>Long Payer</i> (short position)	Long (positive value)	Short (negative value)
	Short (negative value)	Long (positive value)
<i>Long Receiver</i> (long position)	Long (positive value)	Long (positive value)
	Short (negative value)	Short (negative value)
<i>Short Payer</i> (long position)	Long (positive value)	Long (positive value)
	Short (negative value)	Short (negative value)
<i>Short Receiver</i> (short position)	Long (positive value)	Short (negative value)
	Short (negative value)	Long (positive value)

CHARACTERISTICS TAB

ADDITIONAL FIELDS (CHARACTERISTICS)

In the *Characteristics Main View* sub-tab, you can choose many other fields from Bloomberg's vast fundamental database or select custom fields you upload and maintain in the *Custom Data Editor* (CDE) function.

Additionally, in the *Characteristics* tab (as well as the *Holdings* tab), you can add a field (*# of Instruments*²⁰³) that displays a count of the number of instruments in the portfolio and benchmark. You can use this field as a quick check to ensure that all of your holdings are properly uploaded in the portfolio and represented in PORT.

To add additional fields in the *Characteristics Main View* tab:

1. Right-click any of the column headers and choose **Add/Remove Fields**.

²⁰³ In the *Characteristics* and *Holdings* tabs, displays a count of the number of instruments in the portfolio and benchmark. You can use this field as a quick check to ensure that all of your holdings are properly uploaded in the portfolio and represented in PORT.

Name	Wgt			
DODGE & COX STOCK FUND (DODGX...)	100.00	100.00	0.00	
+ Consumer Discretionary	15.35	11.84	3.51	
+ Consumer Staples	2.95	9.79	-6.84	
+ Energy	6.94	8.54	-1.60	

The *Edit Template* window appears with all available fields on the left in the *Available Fields* section and all currently selected fields on the right in the *Selected Fields* section.

- Click the **More (Asset Class) Fields** button.

The *Select Field* window appears.

- Select the field you want to add:

- To search for a field, enter a search term in the text field, then select an option from the menu that appears.
- To browse the available fields, click the **Fields** button. In the *Browse Fields* window that appears, find the field you want to use, then click the **Select** button.

The field name appears in the *Select Field* window. Depending on your selection, the date drop-down menu, Growth button, Revision button, and/or Info button appear.

- Customize the field or find more information:

- From the drop-down menu to the right of the selected field, select a time period (e.g., Latest Filing, Latest Calendar Year) for the field calculation.
- Click the **Growth** button to access the *Criteria Wizard* window, where you can add specific equity screening growth criteria.

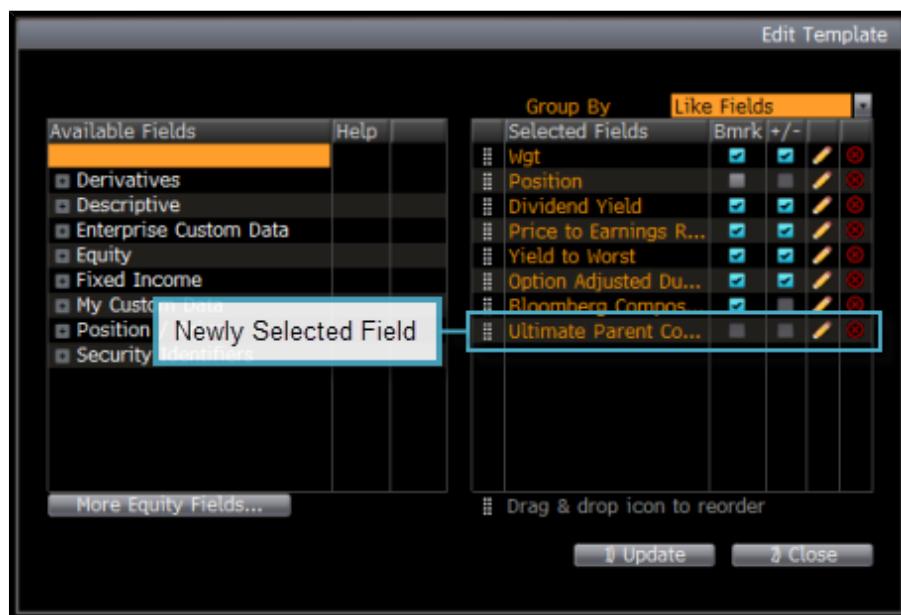
Note: The *Criteria Wizard* is also available in the *Equity Screening (EQS)* function. For more information on setting up growth analysis through the EQS *Criteria Wizard*, click [here](#).

- Click the **Revision** button to access the *Configure Estimates Revision Consensus* window, where you can customize the fiscal period and analysis type for fields that display revised data.
- Click the **Info** button to access the *Browse Fields* window, where you can find more information on the selected field.

5. Click the **Select** button.

The field is added to the Selected Fields list in the Edit Template window.

6. Modify the field by following the instructions in [Adding/Removing Fields](#).



7. Click the **Update** button.

The Characteristics Main View appears and reflects your field (column) changes.

CUSTOM TARGET PRICES

You can upload or enter custom target prices for your positions using the *Custom Data Editor (CDE)* function, so you can monitor when the price of an instrument you hold approaches the target price at which you want to sell.

To set up your custom target price analysis:

- In CDE, create a custom data field using the content type *Target Price* and enter or upload the securities, your custom target prices, and as of dates.



For complete instructions on creating a custom data field in CDE, click [here](#)

Note: You can associate the CDE *Target Price* field with any of your CDE data sources.

2. In PORT, select the *Characteristics* tab, then right-click a column header and select **Add/Remove Fields**.

Name	Wgt
DODGE & COX STOCK FUND (DODGX...)	100.00
Consumer Discretionary	15.35
Consumer Staples	2.95
Energy	6.94
	100.00
	11.84
	-6.84
	-1.60

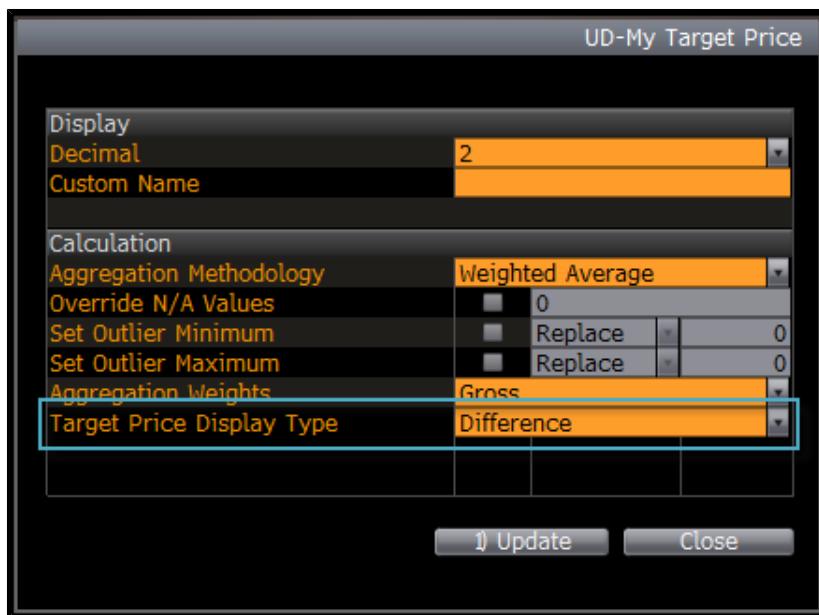
The *Edit Template* window appears.

3. From the *Available Fields* list, search for the custom data field you created in CDE, then click the add (+) icon to add it to your *Selected Fields*.
4. Next to the custom target price field, click the pencil icon.

Available Fields	Selected Fields
target	Wgt
Enterprise Custom Data	Dividend Yield
UD-DEMO_TARGET_PRICE	Price to Earnings Ratio...
Equity	Price to Cash Flow Rat...
Analyst Recommendations	Price to Book Ratio (P...
BEst High Target Price	Total Debt to Common ...
BEst Median Target Price	Current Ratio
BEst Target Price	UD-My Target Price
BEst Target Price Differen...	
BEst Target Price Differen...	
My Custom Data	
UD-MyNewTargetPrice	
UD-My Target Price	

The field customization window appears.

5. From the *Target Price Display Type* field, select how you want the custom data to appear:



- **Price:** Displays the custom target price you entered in CDE.
 - **Difference:** Displays the difference between the custom target price and the most recent closing price (Target Price - Close Price). The value displayed can be positive or negative.
 - **Percentage Difference:** Displays the percentage difference between your custom target price and the most recent closing price $[(\text{Target Price} - \text{Close Price}) / \text{Close Price}]$. The percentage displayed can be positive or negative.
6. To use a different display name for the field in the portfolio, enter a *Custom Name*²⁰⁴ for the field (e.g., *Target Upside Diff* for a field using the *Difference* display type).
- [Hint]** It is recommended that you assign a custom display name for the field, which allows you to add and differentiate multiple instances of the same custom target price column representing different *Target Price Display Type*²⁰⁵ options.

²⁰⁴ Allows you to override the name of a column that appears in your portfolio.

²⁰⁵ Allows you to select how you want the target price data for your custom field to appear. If you select *Price*, the field displays the target price you entered in or uploaded to the custom data field. If you select *Difference*, the field displays the difference between your custom target price and the most recent closing price for the instrument, i.e., custom target price - last close. If you select *Percentage Difference*, the field displays the percentage difference between your custom target price and the most recent closing price.



- If you want to customize the field further, update the other options.

For descriptions of the fields that appear, see [Definitions](#).

- Click the **Update** button.

The Edit Template window appears. If you modified the field's custom name, the field name updates in the Selected Fields list.

- Click the **Update** button.

The fields appear in the Characteristics tab.

ADDING FIELD VARIATIONS

In the *Characteristics* tab, you can add multiple versions of the same field, so you can apply different aggregation methods for side-by-side comparison. You can also rename the duplicate field.

To add multiple versions of a field:

- Add a new field by right-clicking a column header and selecting **Add/Remove** fields.

Name	Wgt			
DODGE & COX STOCK FUND (DODGX...)	100.00	100.00	0.00	
Consumer Discretionary	15.35	11.84	3.51	
Consumer Staples	2.95	9.79	-6.84	
Energy	6.94	8.54	-1.60	

The Edit Template window appears.

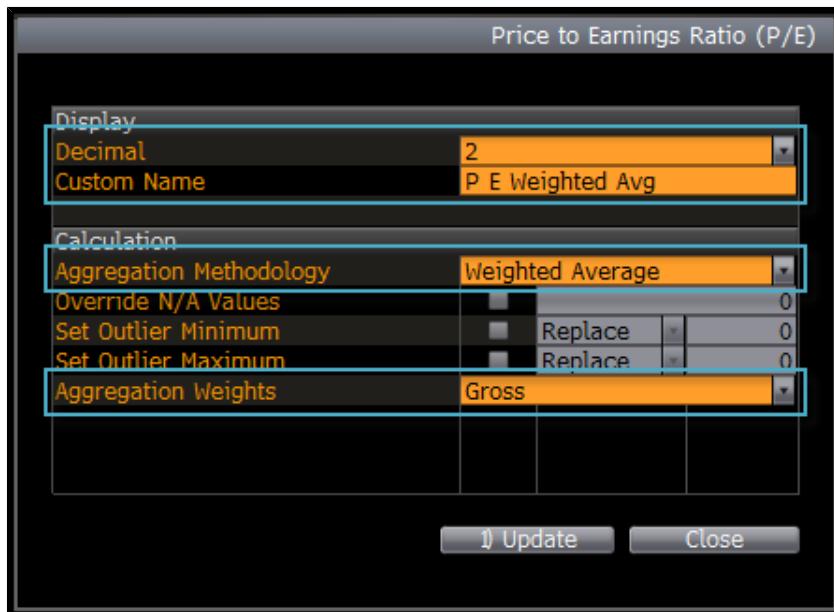
- From the Available Fields column, select the field you want to duplicate, then click the pencil (editing) icon.



A window where you can edit the field's parameters appears.

Note: To learn more about options for adding fields, see [Adding/Removing Fields](#).

3. Update the *Display* (Decimal and Custom Name) and aggregation calculation options, then click **Update**.



The duplicate field appears in the Add/Remove Fields window.

4. Click the **Update** button.

The duplicate field appears in the tab. If you changed the name of the field, you can position your mouse over the column header to display the original field name in a tooltip.

CALCULATIONS AND OUTLIER HANDLING

The *Characteristics* tab provides multiple options for calculating the field and handling outliers. These options are accessed by clicking the pencil (editing) icon when adding or removing fields to the tab.



Hint For information on adding/removing field options, see [Adding Field Variations](#).



- **Aggregation Methodology:** Select the methodology you want to use to aggregate values for the field calculation. Your selection in this field determines the options in the *Aggregation Weights* field.
- **Override N/A Values:** Specify a value to use in place of N/A. By enabling this option and specifying a replacement value, all instruments which were previously dropped from the aggregate will now be included with that value. This is available for all aggregation methods except *Index Method*²⁰⁶.
- **Set Outlier Minimum:** Set a minimum value for an instrument to be included in the calculation of the portfolio aggregate. If this is checked, instruments whose values are less than the specified minimum can either be removed from the aggregate or replaced with the minimum value.

²⁰⁶ As an aggregation method, *Index Method* is available only for certain equity fields, such as price ratios and growth ratios. With the *Index Method*, calculation of the aggregate Price to Earnings ratio includes companies with negative earnings.

- **Set Outlier Maximum:** Set a maximum value for an instrument to be included in the calculation of the portfolio aggregate. If this is checked, instruments whose values are greater than the specified maximum can either be removed from the aggregate or replaced with the maximum value.
- **Aggregation Weights:** When choosing *Weighted Average* or *Weighted Harmonic Average* for the *Aggregation Methodology* of an equity field, set the *Aggregation Weights* to either *Gross* or *Net*:
 - *Gross:* PORT first takes the absolute value of the security weights and then perform the aggregation.
 - *Net:* Short positions should be aggregated using their associated negative weight. It is recommended that *Override N/A Values* is set to zero when net aggregation is used. In this way, cash weights are included in the calculation so that net weights sum to 100%. Otherwise cash is excluded for many fundamentals aggregations (because cash does not have a defined value) causing the portfolio to be re-weighted to 100% without cash, and possibly producing non-intuitive results.

Note: Fixed income characteristics are always aggregated using net weights.

OVERRIDING MORTGAGE PRICES

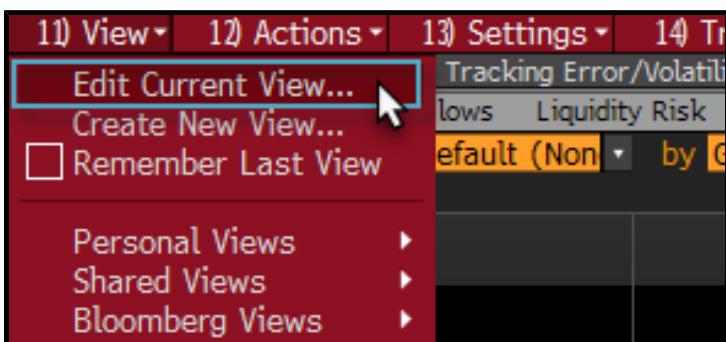
On the *Characteristics* tab, you can analyze mortgages based on your own custom prices by selecting a specific price set that you have uploaded via the *Bloomberg Uploader* (BBU) function.



For more information on uploading your price set via BBU, click [here](#).

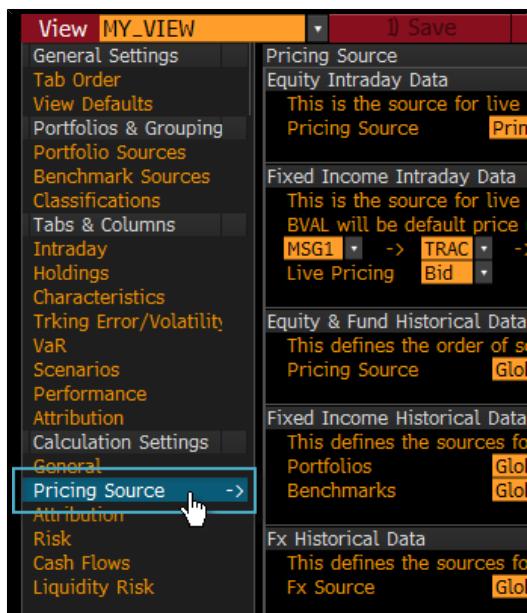
To analyze mortgages based on custom prices in PORT:

1. From the main toolbar, select **View > Edit Current View**.



The *View Manager* screen appears.

2. Under *Calculation Settings*, click **Pricing Source**.

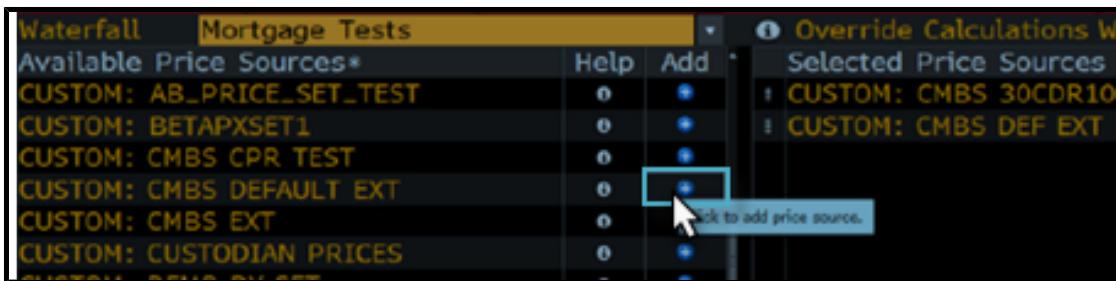


- In the *Pricing Source* settings, under the *Fixed Income Historical Data* section for *Portfolios*, click the **Customize** button.



The *Portfolio Waterfall* screen appears.

- From the list of available pricing sources in the left column, click the blue plus (+) icon for the price set you want to add to your pricing waterfall.



The selected price set appears on the right side of the screen.

- From the main toolbar, click the **Save** button, then return to the previous screen.

The View Manager screen appears.

- From the main toolbar, click the **Save** button.

The Characteristics tab in PORT appears showing analytics based on your price set.

Note: You can add the Price Source column to your Characteristics tab view to see which price set is being used to compute the analytics.

BOOK VALUE ANALYTICS

Many general account investors need to quantify the amortized, or book, value of their fixed income instruments over time. Book value is an accounting concept that allows asset managers to understand the amortized value of their fixed income holdings relative to their marked-to-market value, and is essential for financial reporting and regulatory purposes. This concept is particularly important for holdings in a general account that are deemed "Held-to-Maturity" instruments. The following topics describes Bloomberg's amortization methodology and how to analyze book values in PORT.

AMORTIZATION METHODOLOGY

When you purchase a bond at a discount to par, or less than 100% of par, the price accretes towards par over the remaining life of the bond. Likewise, a premium bond that is purchased at a price greater than 100% of par amortizes (i.e., declines) to 100 at maturity. Except in the case of default, this phenomenon occurs regardless of the market price volatility experienced during the life of the bond. There are multiple methods in which the amortized, or book, price can be calculated. One of the most commonly used approaches is the **Constant Yield** method, which is used in PORT.

Note: If your firm utilizes another amortization methodology, you can use your own book prices to provide a more consistent analysis when comparing book value results to your accounting system. For information on using your own book prices, see *Book Price Overrides*.

Constant Yield Method: For each lot or position, the end user must supply a purchase price (i.e., "cost price") and purchase date (i.e., "cost date"). Bloomberg calculates the internal rate of return (IRR) that discounts the remaining cashflows for each bond, projected from the cost date, to the cost price. This process produces the constant yield that is maintained with each lot to amortize or accrete the bond's cost price in order to derive a daily book price.

Each subsequent day, the amortized price of a bond changes based on discounting the remaining cashflows by the constant yield. Bloomberg projects all future cashflows based on a Yield-to-Worst assumption. For example, if the embedded option in a callable bond is out-of-the money, Bloomberg calculates a constant yield based on the remaining cashflows to maturity. Alternatively, if the option is in-the-money, Bloomberg calculates constant yield based on the remaining cashflows to the call date. For all mortgage-related products for which Bloomberg has predictive models (including agency pool-specific mortgages, CMOs, and non-agency CMOs), Bloomberg forecasts the cashflows based on the Bloomberg Dynamic Prepayment model for agency mortgages and the Bloomberg Credit Model for non-agency collateral.

UPLOADING LOT-LEVEL HOLDINGS

To analyze the amortized, or book, value of a fixed income portfolio, you must first upload your lot-level holdings to an enabled portfolio. This allows for the discrete calculation of the amortized value of multiple positions in the same CUSIP or ISIN across multiple dates.

You can upload your lot-level holdings via the *Bloomberg Uploader* (BBU) function. For details on uploading holdings and

enabling lot-level holdings using BBU, click [here](#) .

ANALYZING BOOK VALUE

After your lot-level holdings have been uploaded to a portfolio and processed in the Bloomberg, you can analyze book values in PORT.

You can add book value fields to the *Main View* of the *Characteristics* tab by right-clicking any column, and selecting any of the fields listed within the *Book Value* node as illustrated below. Click the (i) icon next to each field name for a description of the field.



In the figure below, the market price as of 12/19/2014 is displayed for each holding. This market price is used to calculate the *Market Value*, which includes accrued income, and the clean Market Value (i.e., *Principal Value*²⁰⁷), which excludes accrued income. The book value is also displayed, which is equal to (*book price*²⁰⁸ / 100) * original face * factor, which is used to calculate current face and is based on the portfolio *As Of*²⁰⁹ date. To calculate the *unrealized gain/loss*²¹⁰, the *Principal*

²⁰⁷ The current market value of a bond excluding the accrued income. *Principal value*, also known as the clean market value, is calculated as par amount * clean price.

²⁰⁸ The amortized price for a bond as of the trade date.

²⁰⁹ The date for analysis. If the date is set to today, the analysis is based on current position's with the previous day's closing prices. Analysis may be backdated up to 90 days.

*Value*²¹¹ (i.e., clean market value) is subtracted from the *Book Value*²¹². The *Principal Value*, *Book Value*, and *Unrealized Gain/Loss* columns exclude accrued income and can be generated on a daily basis.

Characteristics							Attribution	Scenarios	Tracking Error/Volatility	Performance	Var	Holdings	Intraday
Main View		Summary		Cash Flows		Key Rates							
Port	BOOK VALUE P	vs	Default (Non)	by	Security Typ	in	USD	As Of 12/19/14					
Name	Wgt			Pos	Eff Mty (Yrs)	Book Px	Bk Lot ID	Unreal					
BOOK VALUE PORTFOLIO	100.00				8.68	107.76	3.31	858,982.95					
CMBS	5.04				4.09	106.75	2.47	1,222.49					
Corporate Bonds	52.99				4.66	110.03	3.66	221,567.69					
Pass-Throughs	2.22				3.48	108.10	2.64	41,931.31					
Private Label CMOs	2.30				1.66	95.65	5.19	34,956.71					
U.S. Taxable Municipals	7.07				7.34	107.29	3.63	49,332.48					
U.S. Treasuries	20.52				24.31	113.13	2.85	520,066.45					
T 2 ½ 11/15/24	0.77	500,000.00		9.88	97.51	2.54	27059	16,204.12					
T 2 ½ 05/15/43	1.53	1,000,000.00		9.88	98.00	2.48	27047	27,419.07					
T 3 11/15/44	0.78	500,000.00		28.40	98.00	2.98	27060	20,865.08					
T 3 ½ 11/15/43	0.40	250,000.00		29.88	100.25	2.99	27048	11,602.82					
T 3 ½ 08/15/44	0.92	500,000.00		28.90	109.99	3.22	27029	50,405.91					
T 3 ½ 05/15/44	3.30	2,000,000.00		29.65	104.99	2.87	27049	48,560.98					
T 3 ½ 02/15/44	4.29	2,500,000.00		29.40	108.48	2.94	27050	98,932.79					
T 4 ½ 02/15/36	1.81	1,000,000.00		29.16	113.35	2.94	27051	41,908.96					
T 4 ½ 02/15/36	1.03	500,000.00		21.16	129.40	2.67	27027	20,176.99					
T 4 ½ 02/15/36	2.05	1,000,000.00		21.16	129.93	2.64	27028	35,059.79					
T 4 ½ 02/15/36	3.08	1,500,000.00		21.16	125.17	2.90	27052	124,070.10					
T o ½ 05/15/30	0.57	250,000.00		15.40	139.78	3.01	27030	24,859.84					
Holdings as of: 11/28/2014		(!) 3 Notices		Submitted at: 10:19		Zoom	-	+ 100%					

Note: In order to have book price and book values appear in PORT, you must incorporate custom portfolio data into your fixed income pricing waterfall for your selected portfolio view. You can find pricing waterfall options by opening the *View Manager*, then selecting *Pricing Source*. From the *Fixed Income & Private Security Historical Data* drop-down menus, select an option that includes *Portfolio* pricing (which refers to pricing uploaded via the *Portfolio Administration* (PRTU) function). For details on setting up your price waterfall, see [Customizing Price Waterfall](#).

BOOK PRICE OVERRIDES

Typically, PORT utilizes the Constant Yield method of calculating book prices. However, if your accounting system follows a different amortization convention, and you want the book values in PORT to match your books and records system as closely as possible, you can use your own custom book prices.

Note: For information on the Constant Yield method, see [Amortization Methodology](#).

Instead of uploading the original cost price and cost date, upload the book price from your accounting system as the cost price, and upload the holdings date that corresponds to the book price as the cost date. For example, if you purchased a CUSIP at 102 on 10/30/2010, and the book price from the accounting system as of 10/31/2014 was 101.75, you can upload the book price of 101.75 as the cost price and upload the cost date as 10/31/2014. This ensures that the book prices displayed in PORT match the accounting system.

²¹⁰ The position's principal value (i.e., the clean market value) minus the book value (i.e., the current face of the bond multiplied by the book price). Accrued income is excluded from the principal and book value calculations.

²¹¹ The current market value of a bond excluding the accrued income. Principal value, also known as the clean market value, is calculated as par amount * clean price.

²¹² The current face value of a bond, multiplied by the book price.

The book values should match, except in instances when your accounting system and Bloomberg recognize factor changes at different times. For example, Bloomberg recognizes agency mortgage factors (and retroactively apply them) for the prior calendar month at the end of the first week in the current month.

SETTLEMENT CONVENTION

The settlement convention used in PORT results in an additional day of accrued being included in market value and a slight change in the settlement-dependent analytics. This is the settlement convention used by the Bloomberg Barclays indices. The Bloomberg index settlement convention is as follows:

- **Government & Corporate Debt, ABS, CMBS:** T+1 calendar day settlement except at month end when the last day of the month is a weekend. If the month ends on a weekend, the settlement date will be the first day of the following month.
- **Agency Mortgages, CMOs:** T+0 settlement except at month end when the last day of the month is a weekend. If the month ends on a weekend, the settlement date will be the first day of the following month.

RATINGS TABLE

On the *Characteristics* tab in PORT, you can see ratings for Moody, S&P, Fitch, and Bloomberg Composite ratings. The table below lists the numerical values of quality ratings.

Numerical Value	Moody Rating	S&P Rating	Fitch Rating	Bloomberg Composite Rating
2	AAA	AAA	AAA	AAA
3	Aa1	AA+	AA+	AA+
4	Aa2	AA	AA	AA
5	Aa3	AA-	AA-	AA-
6	A1	A+	A+	A+
7	A2	A	A	A
8	A3	A-	A-	A-
9	Baa1	BBB+	BBB+	BBB+
10	Baa2	BBB	BBB	BBB
11	Baa3	BBB-	BBB-	BBB-
12	Ba1	BB+	BB+	BB+
13	Ba2	BB	BB	BB
14	Ba3	BB-	BB-	BB-

Numerical Value	Moody Rating	S&P Rating	Fitch Rating	Bloomberg Composite Rating
15	B1	B+	B+	B+
16	B2	B	B	B
17	B3	B-	B-	B-
18	Caa1	CCC+	CCC+	CCC+
19	Caa2	CCC	CCC	CCC
20	Caa3	CCC-	CCC-	CCC-
21	Ca	CC	CC	CC
22	C	C	C	C
23	D	D	D	D
24	NR	NR	NR	NR

TRACKING ERROR/VOL TAB

RISK TRANSPARENCY SCREEN

The *Risk Transparency* screen provides full transparency into the calculation of style factor exposures for fundamental equity risk models. Each factor exposure is calculated as the weighted average of one or more factor descriptors, which are calculated using company fundamentals.

The *Risk Transparency* screen appears when you click any cell in the *Tracking Error/Volatility - Exposures* sub-tab. For information on analyzing exposures, see [Analyzing Exposures](#).

Note: Factor exposure transparency is available for up to three months.

The screen is organized into a control area, a list of descriptors, information on the descriptor components, and a related historical chart.



- **Control Area:** Allows you to specify the model, calculation date, style factor, and security for the risk transparency analysis, and export the exposure data to Microsoft® Excel.
- **Descriptors:** Displays data on the individual descriptors used to calculate the total factor exposure. Each factor has one or more descriptors. For each descriptor, the BLOOMBERG PROFESSIONAL® service calculates the original value, as well as the average and standard deviation of all values in the universe.
- **Components:** Provides the raw data and calculation formulae for each component that comprises the selected descriptor.
- **Historical Chart:** Provides a bar chart of the selected descriptor or specific component over time. Your selections in the descriptors and components sections determine the data illustrated in the chart.

For information on analyzing risk exposures in the *Risk Transparency* screen, see [Analyzing Risk Transparency](#).

ANALYZING RISK TRANSPARENCY

You can evaluate the risk transparency of a specific security by analyzing its factor components in table or chart format. You can update the factor, factor model, and calculation date to further analyze the security's risk exposures.

Note: These instructions assume you are in the *Risk Transparency* screen, accessible from the *Tracking Error/Volatility Exposures* sub-tab in PORT. For information on the *Exposures* sub-tab, see [Analyzing Exposures](#).

To evaluate a security's risk exposures:

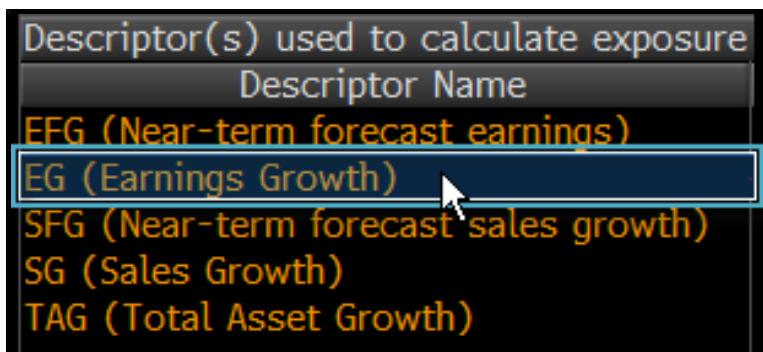
1. From the *Factor* drop-down menu, choose the factor you want to evaluate (e.g., *US Growth*).



The descriptors, components, and historical chart sections update based on your selection.

2. From the descriptors table, select an action:

- To analyze the raw data and formula for a specific component, click the component name (e.g., EG [Earnings Growth]).



The components and chart sections update to reflect your selection.

- To display the iterations involved in calculating a factor exposure or component, click the corresponding notes icon next to the *Standardized* column.

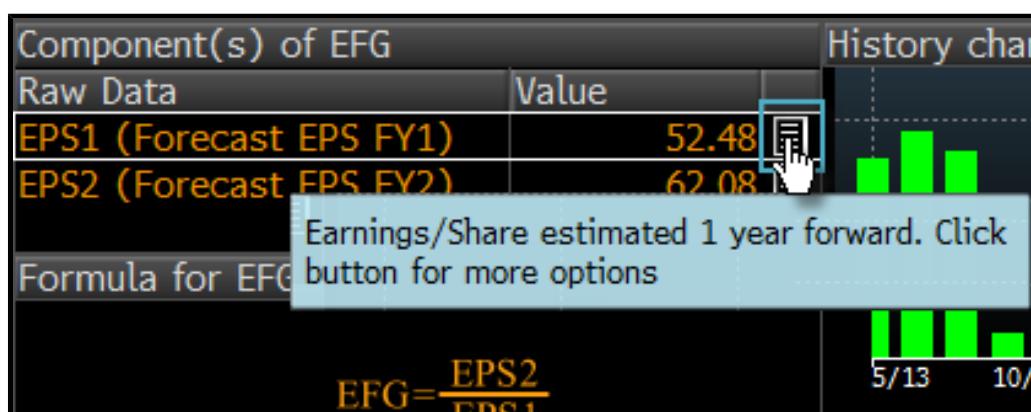
Beta exposure for US Growth		
	Weight %	Standardized
Energy	15.0	0.19
Financials	19.0	0.50
Healthcare	21.3	1.64
Technology	24.0	0.72
Utilities	21.7	1.36

The *Iterations for {Factor or Descriptor}* window appears.

- To display more precision (i.e., more decimal places) for all values, from the control area, select **Extra Precision**.



- To display additional fundamental analysis (e.g., the origin of the values used in calculations) for any component, from the components section, click the corresponding notes icon.



The Risk Transparency screen updates based on your selections.

EX-ANTE RISK

WHAT IS RISK?

Using a basic understanding of risk, we can calculate historical risk for a given portfolio. Historical portfolio risk is sometimes referred to as "ex-post" risk.

Risk management, however, deals with forward-looking risk. Forward-looking risk refers to risks that a given portfolio might be facing going forward. Such risk is referred to as "ex-ante" risk. Over the last 50 years, a vast body of academic and industry research was produced that covered the issue of forward-looking risk modeling. Therefore, this problem is now well understood.

To estimate portfolio risk, we need to be able to estimate risks of securities that make up a given portfolio and then be able to aggregate individual security risks to the portfolio level.

Risk is expressed as the standard deviation of portfolio returns and is used as a gauge for the portfolio's expected volatility. The following terms explain risk measurements in PORT:

Measurement	Description
Isolated Risk (Std)	The standard deviation of the distribution of returns, expressed as either a percentage return or portfolio profit and loss (P&L). This measure represents portfolio risk (expressed as the standard deviation of portfolio returns) or active risk (expressed as the standard deviation of portfolio active returns).
Active Return	The difference between portfolio return and benchmark return. If you are using the geometric method, then active return = $100 * [(1 + \text{portfolio return} / 100) / (1 + \text{benchmark return} / 100) - 1]$.
Contribution to Risk	The fraction of risk that a particular factor or factor group contributes to total risk. <i>Contribution (%)</i> ²¹³ is expressed in percentage points so <i>Total Risk</i> ²¹⁴ sums up to 100%.

*Total Risk*²¹⁵ is broken down into factor and residual groups. Factor groups are model-specific. For information on interpreting risk outputs, see [White Papers](#) and [Definitions](#).

RISK MODEL UPDATES

Equity risk models are updated on a weekly basis. For information on equity risk models, see [Equity Risk](#).

Fixed income risk models are updated on a weekly basis. For information on fixed income risk models, see [Fixed Income Risk](#).

²¹³ Used to determine a fraction of risk that a particular group contributes to total risk. Risk Contribution (%) is expressed in percentage points so that *Total Risk* sums up to 100%.

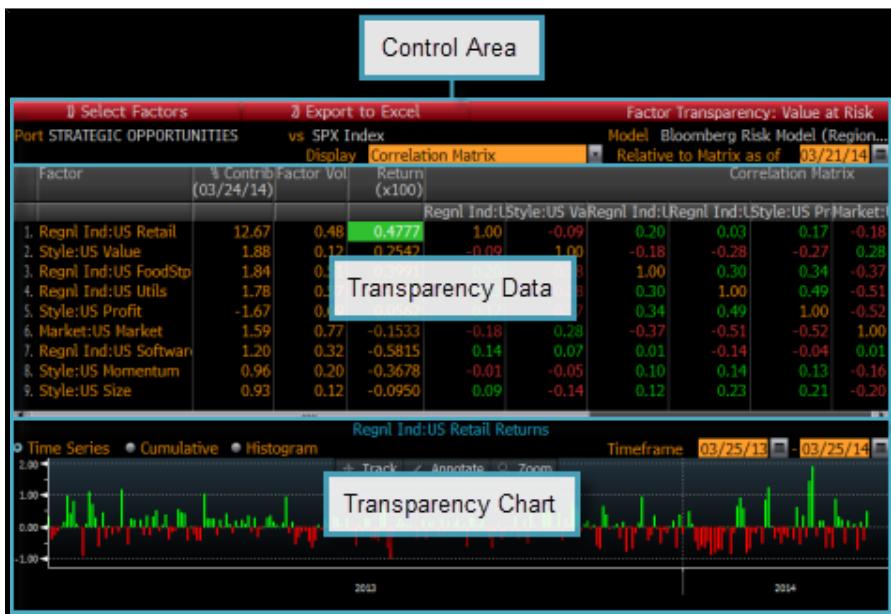
²¹⁴ Total risk is broken down into the Factor and non-factor groups. Factor groups are model-specific.

²¹⁵ Total risk is broken down into the Factor and non-factor groups. Factor groups are model-specific.

FACTOR TRANSPARENCY

You can see the correlation and variance/co-variance matrix of risk factors from the *Tracking Error/Volatility* and *VaR* tabs, so you can validate risk numbers and understand the sources of risk results.

The *Factor Transparency* screen appears when you select a factor in the *VaR Factor Breakdown* sub-tab or the *Tracking Error/Volatility Factors* sub-tab. For more information on analyzing factors in these sub-tabs, see [VaR Factor Breakdown](#) and [Analyzing Factor Groups](#).



- **Control Area:** Allows you to select the factors you want to analyze, update the date of the values displayed in the transparency data section, and export the factor analysis to Microsoft® Excel.
- **Transparency Data:** Displays the *%Contrib*²¹⁶, *Factor Vol*²¹⁷, and *Return (x100)*²¹⁸ for each factor, and the *Correlation Matrix*²¹⁹ or *VCV Matrix*²²⁰, which compares the displayed factors. The date and display options in the control area determine the data displayed in the matrix.
- **Transparency Chart:** Displays a chart illustrating the return of the selected factor or a historical time series representing the correlation or variance/co-variance of two factors. The value selected in the transparency data section determines the data that appears on the chart.

For more information on analyzing factors in the *Factor Transparency* screen, see [Analyzing Factor Transparency](#).

²¹⁶ In the Factor Transparency screen, the percentage of the overall portfolio riskiness contributed by the factor for the selected *Relative to Matrix as of* date.

²¹⁷ In the Factor Transparency screen, the daily factor volatility for the selected *Relative to Matrix as of* date.

²¹⁸ In the Factor Transparency screen, the latest return for the factor for the selected *Relative to Matrix as of* date. The return frequency is daily for VaR and weekly for tracking error.

²¹⁹ In the Factor Transparency screen, displays a matrix of correlation between related factors from the specified *Relative to Matrix as of* date.

²²⁰ In the Factor Transparency screen, displays a matrix of variance/co-variance values between related factors from the specified *Relative to Matrix as of* date.

ANALYZING FACTOR TRANSPARENCY

You can see the correlation and variance/co-variance matrix of risk factors from the *VaR* and *Tracking Error/Volatility* tabs, so you can validate risk numbers and understand the sources of risk results.

To analyze factor transparency:

1. From the *VaR Factor Breakdown* or *Tracking Error/Volatility Factors* sub-tab, click the factor you want to analyze. *The Factor Transparency screen appears in another window. The selected factor appears in the first row, and the top nine factors with the highest contribution to factor risk appear in the subsequent rows. For a description of the Factor Transparency screen, see [Factor Transparency](#).*
2. From the control area, update the factor transparency settings, then press <GO>:



- **Display:** Select whether the *correlation matrix*²²¹ or *VCV matrix*²²² (variance/co-variance) appears.
- **Relative to Matrix as of:** Select the date for which the transparency data appears.

The transparency data section updates based on your selections.

Note: *The transparency chart does not rely on these settings.*

3. If you want to select a different set of factors, from the toolbar, click the **Select Factors** button. From the *Select Factors* window that appears, click the add button next to the factors you want to see, then click the **Update** button.

Note: You can select up to 20 factors for simultaneous analysis.



The factor list updates.

4. If you want to evaluate a specific factor's return over time or see the historical movement of correlation or covariance between factors, click a value in the *Factor Vol*²²³, *Return (x100)*²²⁴, *Correlation Matrix*²²⁵, or *VCV Matrix*²²⁶ column.

²²¹ In the Factor Transparency screen, displays a matrix of correlation between related factors from the specified *Relative to Matrix as of* date.

²²² In the Factor Transparency screen, displays a matrix of variance/co-variance values between related factors from the specified *Relative to Matrix as of* date.

²²³ In the Factor Transparency screen, the daily factor volatility for the selected *Relative to Matrix as of* date.

The transparency chart updates to reflect the selected cell.

- If you want to modify the chart, select a different chart type or timeframe:

- For *factor vol*²²⁷ values, you can evaluate a time series of data going back two months, with a default *timeframe*²²⁸ of 45 days.
- For *return (x100)*²²⁹ values, you can choose to see the data as a *Time Series*²³⁰ chart, *Cumulative*²³¹ chart, or a *Histogram*²³², and update the *timeframe*²³³ to a relevant historical period.
- For correlations or variance/co-variance values, you can evaluate a time series of data going back two months, with a default *timeframe*²³⁴ of 45 days.

The chart updates based on your selections.

- If you want to export the data that appears to a Microsoft® Excel spreadsheet, from the toolbar, click the **Export to Excel** button.



A new spreadsheet appears with the data.

Note: Each data point on the displayed chart appears in the spreadsheet.

SCENARIOS TAB

²²⁴ In the Factor Transparency screen, the latest return for the factor for the selected *Relative to Matrix as of* date. The return frequency is daily for VaR and weekly for tracking error.

²²⁵ In the Factor Transparency screen, displays a matrix of correlation between related factors from the specified *Relative to Matrix as of* date.

²²⁶ In the Factor Transparency screen, displays a matrix of variance/co-variance values between related factors from the specified *Relative to Matrix as of* date.

²²⁷ In the Factor Transparency screen, the daily factor volatility for the selected *Relative to Matrix as of* date.

²²⁸ In the Factor Transparency screen, allows you to select the date range illustrated in the transparency chart.

²²⁹ In the Factor Transparency screen, the latest return for the factor for the selected *Relative to Matrix as of* date. The return frequency is daily for VaR and weekly for tracking error.

²³⁰ In the Factor Transparency screen, displays a bar chart illustrating the weekly positive and negative returns attributed to the selected factor over the specified timeframe.

²³¹ In the Factor Transparency screen, displays a line chart representing the total cumulative return of the selected factor over the specified timeframe.

²³² In the Factor Transparency screen, displays a histogram illustrating returns attributed to the selected factor over the specified *timeframe*.

²³³ In the Factor Transparency screen, allows you to select the date range illustrated in the transparency chart.

²³⁴ In the Factor Transparency screen, allows you to select the date range illustrated in the transparency chart.

PREDEFINED EQUITY/BALANCED SCENARIOS

The following predefined equity/balanced scenarios are available by default for new *Equity* and *Balanced* views and automatically populate the *Scenarios* tab.

For information on creating views, see [Creating a View](#).

Scenario Name	Description
Equity Markets Rebound in 2009	Global equity markets rebound following 2008 recession. Uses historical factor returns from March 4, 2009 - June 1, 2009.
Libya Oil Shock - Feb 2011	Civil war in Libya breaks out on February 15, 2011, causing oil prices to surge. Uses historical factor returns from February 14, 2011 - February 23, 2011
Russian Financial Crisis - 2008	War with Georgia and rapidly declining oil prices raise fears of an economic recession within the region. Uses historical factor returns from August 7, 2008 - October 6, 2008.
Oil Prices Drop - May 2010	The price of oil drops 20% due to concerns over how European countries would reduce budget deficits in the wake of the European economic crisis. Uses historical factor returns from May 3, 2010 - May 20, 2010.
Japan Earthquake in Mar 2011	A 9.0 magnitude earthquake occurred off the coast of Japan which also triggered a major tsunami. Uses historical factor returns from March 10, 2011 - March 15, 2011.
Greece Financial Crisis in 2015	Greece resisted via referendum but ultimately agreed to rush through long-resisted economic reforms, imposed by its creditors, in a bid to stay in the eurozone between June and July 2015. Uses historical factor returns from June 22, 2015 and July 8, 2015.
Debt Ceiling Crisis & Downgrade in 2011	The debt ceiling crisis led to a USA credit downgrade. This stress scenario describes a 17-day period starting from 7/22/2011 when market began to react to debt ceiling impasse. 8/8/2011 is the first business day after the downgrade announcement. Uses historical factor returns from July 22, 2011 - August 8, 2011.
Equities down 10%	Global/US/Europe/Asia & Japan market factors down 10%.
EUR up 10% vs. USD	EUR up 10% vs. USD, propagated to other currencies and equity factors via correlation.

Scenario Name	Description
Lehman Default - 2008	Represents historical returns over the month immediately following default of Lehman Brothers in 2008. Uses historical factor returns from September 15, 2008 - October 14, 2008.
EUR down 10% vs. USD	EUR down 10% vs. USD, propagated to other currencies and equity factors via correlation.
Equities up 10%	Global/US/Europe/Asia & Japan market factors up 10%.

PREDEFINED FIXED INCOME SCENARIOS

The following predefined fixed income scenarios are available by default for new *Fixed Income* views and automatically populate the *Scenarios* tab.

For information on creating views, see [Creating a View](#).

Scenario Name	Description
Down 100bps (all curves)	Parallel shift down 100bps.
Down 50bps (all curves)	Parallel shift down 50bps.
Up 50bps (all curves)	Parallel shift up 50bps.
Up 100bps (all curves)	Parallel shift up 100bps.
Flattener (Short up 25bps, Long down 50bps)	1 year up 25 bps, 10 years down 50bps, then flat extrapolate below 1 year and above 10 years.
Steepener (Short down 25bps, Long up 50bps)	1 year down 25 bps, 10 years up 50bps, then flat extrapolate below 1 year and above 10 years.
Butterfly (Short up 50bps, Medium down 20bps, Long up 50bps)	1 years up 50bps, 5 years down 20bps, 10 years up 50 bps, then flat extrapolate below 1 year and above 10 years.

EQUITY/BALANCED FACTOR MODEL SHIFTS

Factor model methodology is available when creating equity/balanced scenarios that either shock variables individually in an explicit scenario, or stress the entire universe of variables at once using a historical or propagated scenario.

You can create factor model scenarios in the *Scenario Manager*. For information on using the *Scenario Manager* screen to create factor model scenarios, see [Equity/Balanced Portfolio Scenarios](#).

The types of shifts available for a factor model scenario include:

Shift	Description
IR (Interest Rates)	Allows you to indicate a parallel, non-parallel, or custom shift in the swap curve or treasury curve.
FX	Allows you to shift foreign exchange rates between arbitrary currencies and USD.
Model Factors	Allows you to shift equity risk model factors from all factor models available via the BLOOMBERG PROFESSIONAL® service.
Macro Factors	Allows you to shift macroeconomic variables such as commodities (gold and oil), indices (equity and rates), and volatility.

FIXED INCOME FULL VALUATION SHIFTS

Full valuation methodology is available when creating fixed income scenarios for shifting and analyzing your portfolio.

You can create full valuation scenarios in the *Scenario Manager* (SHOC) function. For information on using the *Scenario Manager* screen to create full valuation scenarios, see [Fixed Income Portfolio Scenarios](#).

The types of shifts available for a full valuation scenario include:

Shift	Description
IR (Interest Rates)	<p>Allows you to indicate a parallel, non-parallel, or custom shift in the swap curve or treasury curve, or on the implied volatility.</p> <ul style="list-style-type: none"> • Swap Curve Shift: Allows you to shift currencies and curves or change the shape of the swap or treasury curve. This shift impacts OTC derivatives, listed derivatives (including interest rate futures, bond futures, and options on interest rate and bond futures), treasury and corporate bonds, convertibles, inflation-linked bonds, fixed income structured notes, and loans. • Treasury Curve Shift: Allows you to shift government/treasury bonds where sovereign curves are used in valuations. • IR Vol Shift: Allows you to perform a parallel shift on the implied volatility calculated for listed and OTC options.
Equity	<p>Allows you to perform shifts on underlying price, volatility, and dividend yield for equity instruments.</p> <ul style="list-style-type: none"> • Equity Price Shift: Allows you to aggregate equities by country, sector, and with or without Beta propagation, or to shift equities specifically based on the ticker, index ticker, or index future. • Equity Vol Shift: Allows you to shift implied volatility for listed and OTC options, or the entire volatility surface of a specific equity or index ticker. • Dividend Yield Shift: Allows you to shift dividends by country and sector, or by ticker. Dividend yields can be explicitly provided or can be shifted by absolute or a percentage.

Shift	Description
Commodity	<p>Allows you to shift the underlying future price and implied volatility for commodities.</p> <ul style="list-style-type: none"> • Commodity Future Curve Shift: Allows you to shift underlying future prices by category (e.g., Agriculture or Livestock) or generic active futures contract, which propagates to all applicable futures contracts (e.g., BOA Comdty impacts all futures listed in BOA Comdty CT <GO>). • Commodity Vol Shift: Allows you to perform a parallel shift on the implied volatility for listed and OTC options that can be valued by the <i>Option Valuation</i> (OVML) function. For information on OVML, see OVML Help Page.
Inflation	<p>Allows you to shift the inflation swap curve rates available in the <i>Inflation Bond/Swap Settings</i> (SWIL) function. For information on SWIL, see the SWIL Help Page.</p> <ul style="list-style-type: none"> • Inflation Curve Shift: Allows you to shift either the zero-coupon inflation curve or the year-on-year inflation curve, depending on the product. • Inflation Vol Shift: Allows you to perform a parallel shift on the implied volatility for inflation linked options that can be valued by the <i>Swap Manager</i> (SWPM) function. For information on SWPM, see the SWPM Help Page.
Credit	<p>Allows you to shift CDS curves and option adjusted spreads. CDS curve shifts impact convertible bonds and OTC deals, which are saved in the <i>Credit Default Swap Valuation</i> (CDSW) function. For information on CDSW, see the CDSW Help Page.</p> <ul style="list-style-type: none"> • CDS/OAS Shift: Allows you to shift CDS curves or option adjusted spread based on a sector or a specific reference name. You can apply shifts to CDS curves and the <i>option adjusted spread (OAS)</i>²³⁵ of corresponding bonds by simply selecting the OAS option in the <i>CDS Curve Shift</i> section of the <i>Credit</i> tab. • Bond Recovery Rate Shift: Provides the ability to explore the impact of recovery rate changes on credit default swap and convertible bond valuation, and on bond valuation in general if your pricing preferences are set to use the CDS curve. You can specify explicit recovery rate shifts for CDS contracts based on the reference entity, currency, and debt type.
FX	<p>Allows you to shift foreign exchange spot rates and volatilities.</p> <ul style="list-style-type: none"> • FX Rate Shift: Allows you to enter absolute shifts, percentage shifts, or override values for foreign exchange rates. You can use one of the following modes: <ul style="list-style-type: none"> — <i>Home Currency Mode:</i> FX spot rate shifts are calculated as a percentage change against one base currency. This mode allows for cross rate shifts based on two predefined currency pairs. For example, if the home currency is USD and two currency pair shifts defined for a scenario are USDBRL and EURUSD, then the scenario can generate a shift value for EURBRL from those two pre-defined shifts.

²³⁵ The option adjusted spread. The flat spread that must be added to the yield curve in a pricing model to discount a security payment to match its market price.

Shift	Description
	<p>Note: In cases where the quotation format of the FX deals found in a portfolio differ from the format defined in the <i>Scenario Manager</i> configuration, the opposite shift applies. Following the example above, when USD is strengthening, an FX spot deal of EURUSD results in a shift where EUR is weakening.</p> <ul style="list-style-type: none"> — Currency Pair Mode: FX spot rate shifts are calculated based on the currency pair format defined in the shift, ignoring any concept of base (or home) currency. In this mode, no cross rate shifts are performed, meaning that if a specific currency pair is not defined within the scenario, then a trade based on that currency pair is not shifted. • FX Vol Shift: Provides the ability to perform shifts on the foreign exchange option implied volatility surface. You can specify an absolute parallel shift or a percentage parallel shift across the entire volatility surface.

EDITING SCENARIOS

You can only edit scenarios for which you have read/write permissions.

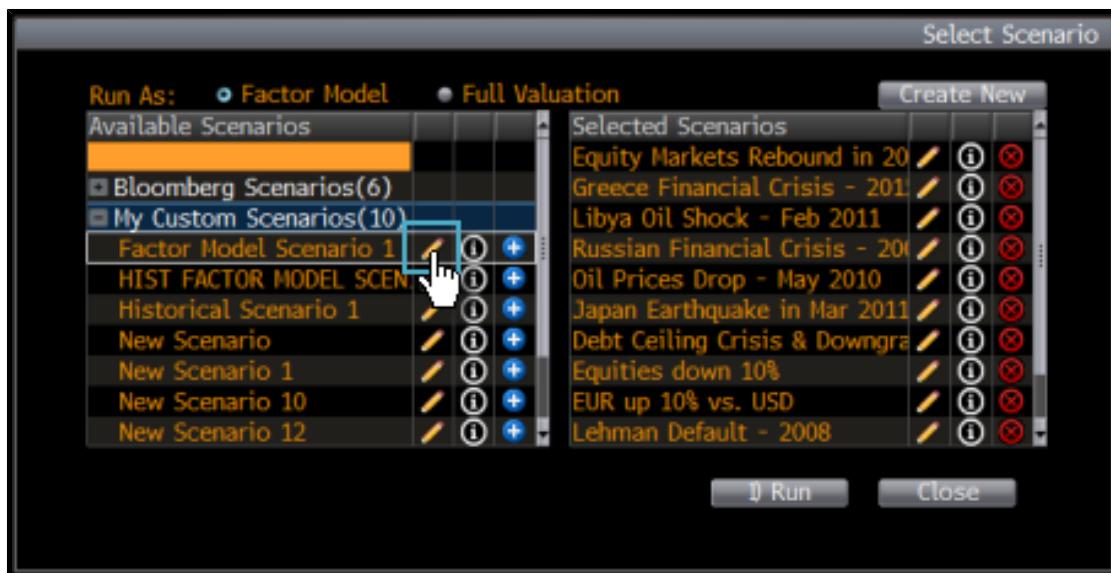
To edit a scenario:

1. In the Scenarios tab, from the Set drop-down menu, select [**Edit / Create New...**].



The Select Scenario window appears.

2. Next to the scenario you want to customize, click the pencil icon.



The Scenario Manager (SHOC) function appears. For information on managing scenarios in SHOC, click [here](#) .

COPYING SCENARIOS

You can copy individual scenarios that you and members of your firm have created.

To copy a scenario:

1. In the Scenarios tab, from the Set drop-down menu, select [**Edit / Create New...**].



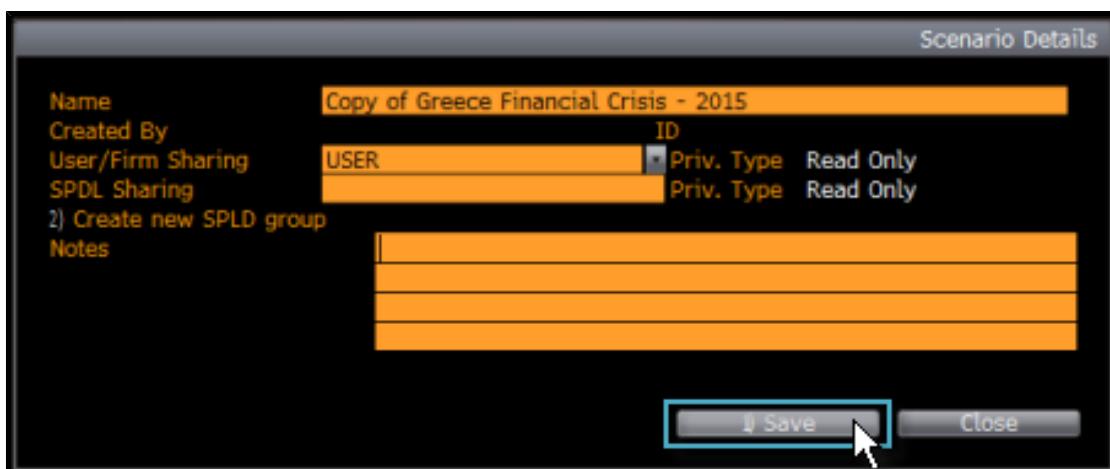
The Scenario Manager (SHOC) function appears. For information on managing scenarios in SHOC, click [here](#) .

2. From the toolbar, select **Actions > Save As**.



The Scenario Details window appears.

3. Set up your copied scenario details:
 - If you want to share the scenario with another user or SPDL group, enter the user or group name in the *SPDL Sharing* field.
 - If you want to add notes to the scenario, enter the text in the *Notes* field.
4. Click the **Save** button.



The scenario saves, and the Scenario Manager screen appears.

DELETING SCENARIOS

You can only delete scenarios for which you have read/write permissions.

To delete a scenario:

1. In the Scenarios tab, from the *Set* field, select [**Edit / Create New...**].

The screenshot shows the Bloomberg PORT interface with the 'Scenarios' tab selected. The toolbar at the top includes buttons for Holdings, Intraday, VaR, Characteristics, Attribution, Performance, Tracking Error/Volatility, and Scenarios. The Scenarios button is highlighted. Below the toolbar, the Port dropdown is set to 'EUROPEAN EQI', vs 'Default (MXE)', by 'GICS Sectors', in 'EUR', and the date is 'As of 07/30/15'. The Scen dropdown is set to 'All Scenarios'. A blue box highlights the 'Edit / Create New...' button in the toolbar. Below the toolbar, a list of scenarios is displayed, with 'All Scenarios' highlighted in blue.



The Scenario Manager (SHOC) function appears. For information on managing scenarios in SHOC, click [here](#).

2. In the scenario repository, select the group where the scenario you want to delete resides.
Your selection is shaded in blue and associated scenarios appear in the Scenario Group Details section.
3. Click the info icon (i) to the right of the scenario you want to delete.
The Scenario Details section appears and displays the details of the scenario.
4. From the toolbar, select **Actions > Delete**.

The screenshot shows the 'Actions' menu open. The 'Delete' option is highlighted with a red box and a cursor arrow pointing to it. Other options in the menu include 'New Scenario', 'New Scenario Group', 'Edit Scenario Group', 'Save', 'Save as', 'Copy', and 'Delete'.

The Delete Scenario window appears.

5. Click the **Delete** button.
The scenario is removed from the Scenario Manager.

ATTRIBUTION TAB

TRANSACTIONS-BASED METHOD

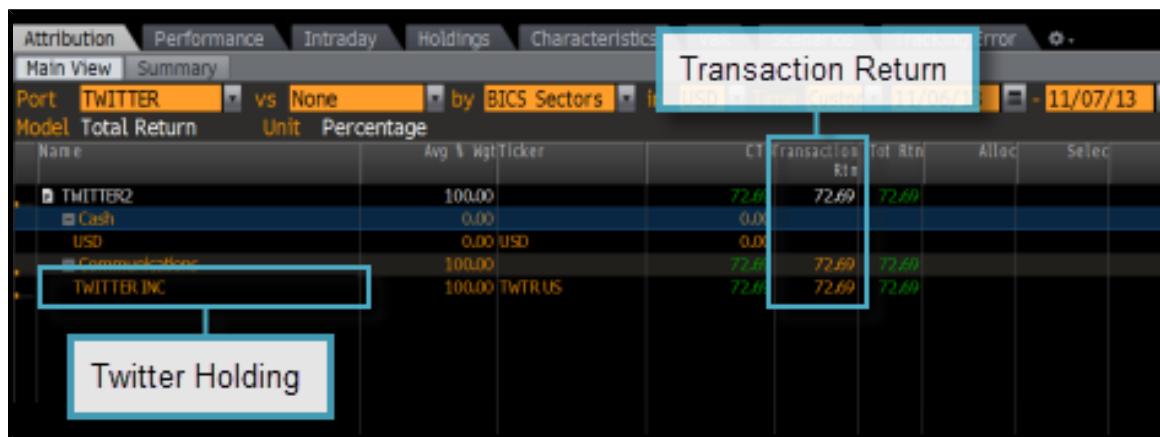
When incorporating transactions into the return, Bloomberg assumes inflows beginning of day and outflows end of day (IBOE). In other words, for weighting the impact of trades, Bloomberg includes all inflows (buy long and short sales) at the start of the day and all outflows (sell long, buy to cover) at the end of the day. To calculate the P&L for a purchase

today, Bloomberg compares the total cost of the purchase (total number shares purchased times the purchase price) to the close-of-day market value (total number shares purchased times the close of day price).

For example, consider the following trade:

- Inflow (Purchase): Twitter
- Trade Price on 11/07/2013: \$26 (IPO price)
- Shares: 5,000
- Total Cost: \$130,000
- Close-of-date Price on 11/07/2013: 44.90
- Close-of-day Value: \$224,500
- Profit/Loss: \$94,500
- 1-Day Return: 72.69%

Since this is an inflow, this trade is included for the entire day's performance from the beginning of 11/07/2013, so the beginning-of-period weight assigned to this trade is the total cost value of the Twitter position (\$130,000). Since this is the only holding in this example, Twitter's beginning-of-period weight is 100%. Had there been other holdings in the portfolio, Twitter's portfolio weight would be \$130,000 divided by the entire market value of all the holdings (including Twitter) as of the beginning of 11/07/2013.



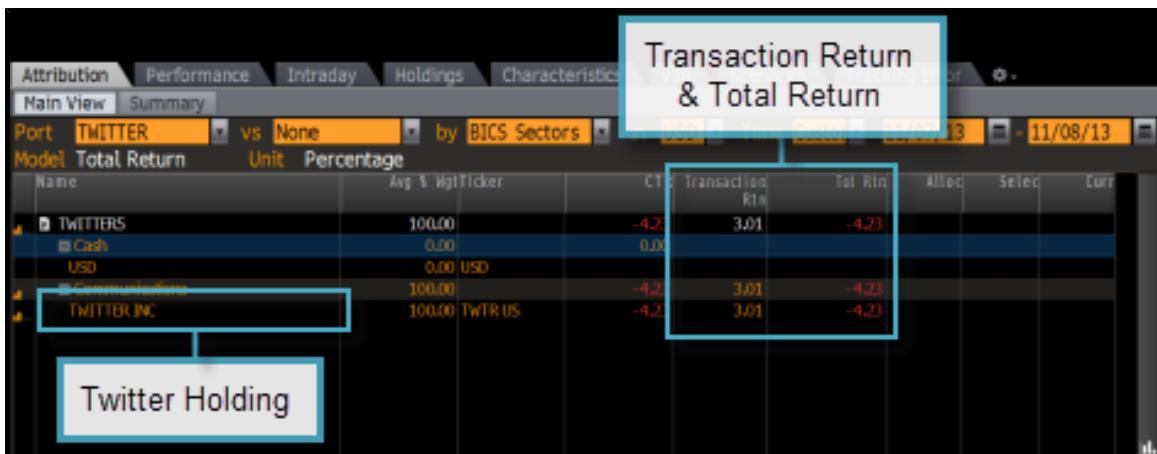
Note: This example assumes that the portfolio held \$130,000 cash in the portfolio the prior day (11/06/2013) in order to pay for the purchase of Twitter on 11/07/2013. If the portfolio had no initial cash, for return calculation purposes, the portfolio is assumed to have gone short \$130,000 cash to fund the 5,000 shares of Twitter stock at \$26 per share.

Now, assume that on 11/08/2013, you decide to sell the Twitter shares. The following trade details now apply:

- Outflow (Sale): Twitter
- Trade Price on 11/08/2013: \$43
- Shares: 5,000
- Total Proceeds: \$215,000
- Close-of-date Price on 11/07/2013: 44.90
- Close-of-day Value: \$224,500
- Profit/Loss relative to prior close: \$9,500
- 1-Day Return: -4.23%

The 1-day total return was -4.23% because the shares were sold at \$43 per share, below the prior day's closing price of \$44.90. However, the transaction return was positive 3.01%, because if the Twitter shares were held until the end of 11/08/13 when Twitter closed at 41.65 per share, the 1-day return would have been -7.24%. By selling the shares at \$43 per share prior to market close on 11/08/13, you mitigated the 1-day loss by 3.01%.

The illustration below highlights the transaction return and total return for this trade in PORT.



UPLOADING TRANSACTIONS

Transactions-based attribution in PORT requires that you upload your daily close-of-day holdings, which includes corporate action and trade-adjusted trade-date positions, including trade-date cash, as well as your trades. You can upload holdings and transactions data separately, or in a single file via the *Bloomberg Uploader* (BBU) function or FTP.

- For instructions on uploading transactions as a single file with both holdings and trade data, click [here](#)
- For instructions on uploading transactions as a separate file with trade data separate from holdings data, click [here](#)

Note: Bloomberg does not adjust each day's positions based on the prior day's holdings and trades/corporate actions. Therefore, it is important that the daily holdings submitted from accounting systems are adjusted for any corporate actions and trades.

[Hint] AIM Analytics subscribers have the option of having their daily holdings calculated based on trades and Bloomberg's corporate action database. For more information on AIM Analytics, contact your account representative.

ENABLING TBA

Once your holdings and trades have been uploaded to a portfolio using BBU, you can enable transactions-based attribution for your portfolio within PORT.

For information on uploading transactions using BBU, click [here](#)

To enable transactions-based attribution in PORT:

- From the toolbar, select **View > Edit Current View**.

The View Manager appears.

- From the sidebar, select **Calculation Settings > Attribution**.

The Attribution settings appear.

- From the Performance Calc field, select **Transactions-based**.



- From the toolbar, click the **Save** button.

The view is saved.

Note: You can interactively enable/disable transactions from the total return calculation in PORT. This feature is useful because if the transaction data has not been integrated properly, you can easily revert back to the holdings-based performance calculation.

USING TRANSACTIONS

You can observe and evaluate transactions-based returns in the *Attribution* and *Performance* tabs.

- From the *Attribution* tab, you can right-click a portfolio or individual security and select **Explain Return Calculation**.

The *Performance Data Dashboard* appears in a separate window, where you can drill down into an individual day's performance to access the underlying trade information used in calculating the return on that day. You can use this as a diagnostic tool to validate transaction returns.

For example, as illustrated in *Transactions-Based Method*, you can see that the return on 11/08/2013 was -4.23% and 5,000 Twitter shares were sold for total sales proceeds of \$215,000.

- From the *Performance* tab, you can analyze total return incorporating transactions over multiple time periods simultaneously.

BENCHMARKS

LONG/SHORT BENCHMARKS

Benchmarks must have a positive net basis value in order to generate useful analytics in PORT. However, you can make a short benchmark, a dollar neutral benchmark, or a leveraged benchmark suitable for use in PORT by strategically adding a cash position to the benchmark in the *Portfolio Administration* (PRTU) function.

For example, if you are benchmarking performance to the inverse of the S&P 500 Index, you can use PRTU to create a benchmark that is short the S&P with a positive net basis value. The resulting benchmark is compatible with PORT analytics. See below for additional examples and links to instructions.

- **Dollar Neutral:** For instructions on using PRTU to create a PORT-compatible, dollar-neutral benchmark that makes a bet on the difference between returns of two indices, see [Dollar Neutral](#).
- **Inverse:** For instructions on using PRTU to create a PORT-compatible, short benchmark that tracks the inverse performance of a popular benchmark, see [Inverse](#).
- **Short/Leveraged:** For instructions on using PRTU to create a PORT-compatible, short, leveraged benchmark, see [Short/Leveraged](#).
- **Dollar Neutral/Leveraged:** For instructions on using PRTU to create a PORT-compatible benchmark replicating 2.5 times the spread between U.S. treasury inflation notes and a 7-10 year treasury bond index, see [Dollar Neutral/Leveraged](#).
- **Long/Leveraged:** For instructions on using PRTU to create a PORT-compatible long, leveraged benchmark, see [Long/Leveraged](#).

DOLLAR NEUTRAL

The following practical example shows an investor who is measuring return for the ProShares RAFI Long/Short ETF (RALS US Equity). This ETF tracks the difference between the performance of a fundamental-weighted index of 1000 US equities (FTSE RAFI US 1000), and a market capitalization-weighted index of 1000 US equities (Russell 1000 Index (RIY Index)).

A dollar neutral benchmark is a benchmark where the long security weight is the opposite of the short security weight. Usually these weights are +100% and -100%. If the weights are larger than 100%, then it is a leveraged benchmark. For more information on leveraged benchmarks, see [Dollar Neutral/Leveraged](#).

Note: Since the appropriate benchmark for this fund has a net value of zero, you must add a cash position to make it suitable for PORT analytics.

Steps:

1. From the sidebar in PRTU, click the **Benchmarks** category.



Your selection is shaded blue and your benchmarks (owned and/or shared), if any, appear in the portfolio administration section.

2. From the toolbar, click the **Create** button.
The Benchmark Settings window appears.
3. Enter the *Benchmark Name* (e.g., *RALSBMRK*).

Benchmark Settings

Benchmark Name	RALSBMRK
Benchmark Long Name	
Role	Personal
<input type="radio"/> Custom Benchmark	

4. Under the *Custom Benchmark* section, from the *Position Type* drop-down menu, select **Fixed Weight**.

Benchmark Settings

Benchmark Name	RALSBMRK
Benchmark Long Name	
Role	Personal
<input checked="" type="radio"/> Custom Benchmark	
Base Currency	USD
Position Type	Fixed Weight
Asset Class	Shares / Par Amount
<input type="radio"/> Linked Benchmark	
Source	Fixed Weight Drifting Weight

5. Click the **Save** button.

The Benchmark Display window appears, where you can add constituents to your benchmark. The process for adding constituents to your benchmark is the same as adding or importing securities into a portfolio. For information on using

PRTU to manage bookmarks, click [here](#) . For information on using PRTU to add securities to your portfolio, click [here](#) .

6. In the first *Security* row, enter **FR10**, then select **FR10 Index** from the menu that appears and press <GO>.

Security	Curr	Weight	F
		0.0000	
11 FR10	USD	1061	

The Security, Price, PCS, and FX Rate columns update to show pricing data for the index.

7. In the second *Security* row, start typing **R/Y**, then select **R/Y Index** from the menu that appears and press <GO>.

Security	↑ Curr	Weight	F
		0.0000	
11) FR10	USD		10612
12) RIY	USD		1369

The Security, Price, PCS, and FX Rate columns update to show pricing data for the index.

- In the third Security row, start typing **USD**, then select **USD Curncy** from the menu that appears and press <GO>.

Security	↑ Curr	Weight	F
		0.0000	
11) FR10	USD		10612
12) RIY	USD		1369
13) USD	USD		

The Security, Price, PCS, and FX Rate columns update to show pricing data for the index.

- In the *Weight* column for *FR10*, enter a value of 100.

Security	↑ Curr	Weight	Current		
			Price	PCS	F
		100.0000			
11) FR10	USD	100.0000	10612.24	EXCH	1
12) RIY	USD		1369.24	EXCH	1
13) USD	USD		1.00	EXCH	1

The *Weight* column updates with the corresponding value.

- In the *Weight* column for *RIY*, enter a negative value of -100.

Security	↑ Curr	Weight	Current		
			Price	PCS	F
		0.0000			
11) FR10	USD	100.0000	10612.24	EXCH	1
12) RIY	USD	-100.0000	1369.24	EXCH	1
13) USD	USD		1.00	EXCH	1

The Weight column updates with the corresponding value. The negative (short) Weight for RIY offsets the positive (long) Weight for the FR10 value.

11. In the Weight column for USD, enter a positive value of 100.

Security	Curr	Weight	Current			Cost		
			Price	PCS	FX Rate	Price	FX Rate	Cost Date
11) FR10	USD	100.0000	10612.24	EXCH	1.00000	1.00000	07/24/17	
12) RIY	USD	-100.0000	1369.24	EXCH	1.00000	1.00000	07/24/17	
13) USD	USD	100.0000	1.00	EXCH	1.00000	1.00000	07/24/17	
14)								

The Weight column updates with the corresponding value. The negative (short) Weight for RIY offsets the positive (long) Weight for FR10. The added positive cash weight brings the total to a positive value of 100.

12. From the toolbar, click the **Save** button.

The benchmark is saved and you remain on the Portfolio Display screen. The benchmark's net value is positive and therefore you can use this benchmark in PORT to evaluate a portfolio against the difference in these two weighting schemes.

INVERSE

The following practical example shows an investor who is measuring return relative to the inverse performance of the MSCI World Index (MXWO Index). A short benchmark is a benchmark where there is no long security weight. It is used when one security replicates "the inverse performance" of another security.

Since the appropriate benchmark for this fund has a negative net value, you must add a cash position to make it suitable for PORT analytics.

Steps:

1. From the sidebar in PRTU, click the **Benchmarks** category.

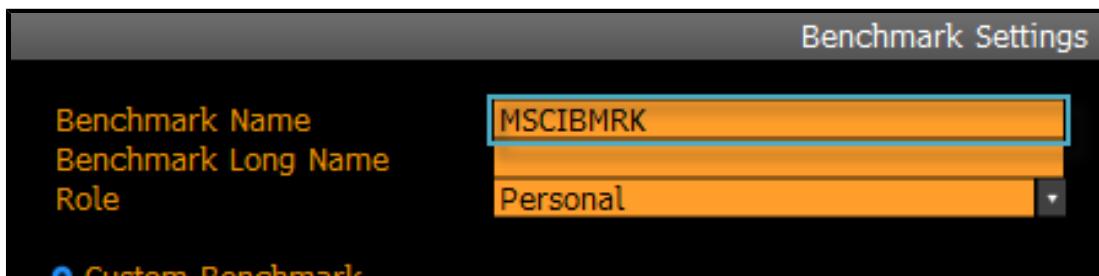


Your selection is shaded blue and your benchmarks (owned and/or shared), if any, appear in the portfolio administration section.

2. From the toolbar, click the **Create** button.

The Benchmark Settings window appears.

3. Enter the *Benchmark Name* (e.g., **MSCIBMRK**).



4. Under the *Custom Benchmark* section, from the *Position Type* drop-down menu, select **Fixed Weight**.



5. Click the **Save** button.

The *Benchmark Display* window appears, where you can add constituents to your benchmark. The process for adding constituents to your benchmark is the same as adding or importing securities into a portfolio. For information on using

PRTU to manage bookmarks, click [here](#) . For information on using PRTU to add securities to your portfolio, click [here](#) .

6. In the first Security row, enter **MXWO**, then select **MXWO Index** from the menu that appears and press <GO>.

Security	Curr	Weight	Current		
			Price	PCS	FX Rate
		0.0000			
11) MXWO	USD		1960.59	EXCH	1.00000
12)					

The Security, Price, PCS, and FX Rate columns update to show pricing data for the index.

- In the Weight column, enter an unleveraged short position of -100.

Security	Curr	Weight	Current		
			Price	PCS	FX Rate
		-100.0000			
11) MXWO	USD	-100.0000	1960.59	EXCH	1.00000
12)					

The Weight column updates with the corresponding value.

- In the second Security row, start typing USD, then select **USD Curncy** from the menu that appears and press <GO>.

Security	Curr	Weight	Current		
			Price	PCS	FX Rate
		-100.0000			
11) MXWO	USD	-100.0000	1960.59	EXCH	1.00000
12) USD	USD		1.00	EXCH	1.00000
13)					

The Security, Price, PCS, and FX Rate columns update to show pricing data for the currency.

- In the Weight column, enter a positive value of 200.

Security	Curr	Weight	Current			Cost		
			Price	PCS	FX Rate	Price	FX Rate	Cost Date
		100.0000						
11) MXWO	USD	-100.0000	1960.59	EXCH	1.00000	1.00000	07/25/17	
12) USD	USD	200.0000	1.00	EXCH	1.00000	1.00000	07/25/17	
13)								

The Weight column updates with the corresponding value (e.g., 100.00). The negative (short) Weight for MXWO Index along with the positive (long) Weight for USD, with the difference in cash value, brings the total to a positive value of 100.

- From the toolbar, click the **Save** button.

The benchmark is saved and you remain on the Portfolio Display screen. The benchmark's net weight is +100% and you can use this benchmark in PORT to evaluate a portfolio against the inverse of a long position in the MSCI World index.

SHORT/LEVERAGED

The following practical example shows an investor who is measuring return relative to a triple leveraged inverse daily performance of the S&P 500 Index (SPX Index). A short leveraged benchmark is a benchmark where there is no long security weight, and the short security weight is larger than 100%. It is used when one security is replicated, for example, "three times the inverse performance" of another security.

Note: Since the appropriate benchmark for this fund has a negative net value, you must add a cash position, to make it suitable for PORT analytics.

Steps:

1. From the sidebar in PRTU, click the **Benchmarks** category.



Your selection is shaded blue and your benchmarks (owned and/or shared), if any, appear in the portfolio administration section.

2. From the toolbar, click the **Create** button.
The **Benchmark Settings** window appears.
3. Enter the **Benchmark Name** (e.g., 3XSPXBMRK).



4. Under the *Custom Benchmark* section, from the *Position Type* drop-down menu, select **Fixed Weight**.

Benchmark Settings

Benchmark Name	3XSPXBMRK
Benchmark Long Name	
Role	Personal
<input checked="" type="radio"/> Custom Benchmark	
Base Currency	USD
Position Type	Fixed Weight
Asset Class	Shares / Par Amount
<input type="radio"/> Linked Benchmark	
Source	Fixed Weight Drifting Weight

- Click the **Save** button.

The Benchmark Display window appears, where you can add constituents to your benchmark. The process for adding constituents to your benchmark is the same as adding or importing securities into a portfolio. For information on using

PRTU to manage bookmarks, click [here](#) . For information on using PRTU to add securities to your portfolio, click [here](#) 

- In the first Security row, enter SPX, then select **SPX Index** from the menu that appears and press <GO>.

Security	Curr	Weight	Current		
			Price	PCS	FX Rate
		0.0000			
11) SPX	USD		2474.02	EXCH	1.00000
12)					

The Security, Price, PCS, and FX Rate columns update to show pricing data for the index.

- In the Weight column, enter a negative weight of -300.

Note: The negative value of -300 is three times the leveraged short position.

Security	Curr	Weight	Current		
			Price	PCS	FX Rate
		-300.0000			
11) SPX	USD	-300.0000	2474.02	EXCH	1.00000
12)					

The Weight column updates with the corresponding weight.

- In the second Security row, start typing **USD**, then select **USD Curncy** from the menu that appears and press <GO>.

Security	Curr	Weight	Current		
			Price	PCS	FX Rate
		-300.0000			
11) SPX	USD	-300.0000	2474.02	EXCH	1.00000
12) USD	USD		1.00	EXCH	1.00000
13)					

The Security, Price, PCS, and FX Rate columns update to show pricing data for the currency.

- In the Weight column, enter a positive weight of 400.

Security	Curr	Weight	Current			Cost		
			Price	PCS	FX Rate	Price	FX Rate	Cost Date
		100.0000						
11) SPX	USD	-300.0000	2474.02	EXCH	1.00000	1.00000	1.00000	08/09/17
12) USD	USD	400.0000	1.00	EXCH	1.00000	1.00000	1.00000	08/09/17
13)								

The Weight column updates with the corresponding weight. The negative (short) Weight for SPX Index along with the positive (long) Weight for USD, with the difference in cash value, brings the total to a positive weight of 100.

- From the toolbar, click the **Save** button.

The benchmark is saved and you remain on the Portfolio Display screen. The benchmark's net weight is +100% and you can use this benchmark in PORT to evaluate a portfolio against the inverse of a leveraged position in the S&P 500 Index.

DOLLAR NEUTRAL/LEVERAGED

The following practical example shows an investor who is measuring return relative to a 2.5 times leveraged spread between U.S. treasury inflation notes (iShares TIPS Bond ETF (TIP US Equity)) and the 7-10 year treasury bond index (iShares 7-10 Yr Treasury B (IEF US Equity)).

A TIP spread includes a leveraged, dollar-neutral benchmark. A leveraged benchmark is a benchmark where the long security weight and/or the short security weight are larger than 100%. It is used when one security is replicated, for example, "three times the inverse performance" of another security. For more information on a dollar-neutral benchmark, see [Dollar Neutral](#).

Note: Since the appropriate benchmark for this fund has a net value of zero, you must add a cash position to make it suitable for PORT analytics.

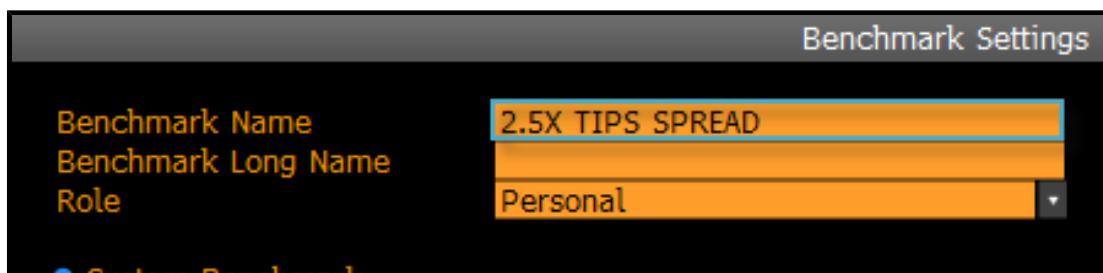
Steps:

- From the sidebar in PRTU, click the **Benchmarks** category.



Your selection is shaded blue and your benchmarks (owned and/or shared), if any, appear in the portfolio administration section.

2. From the toolbar, click the **Create** button.
The Benchmark Settings window appears.
3. Enter the *Benchmark Name* (e.g., *2.5X TIPS SPREAD*).



4. Under the *Custom Benchmark* section, from the *Position Type* drop-down menu, select **Fixed Weight**.



5. Click the **Save** button.

The Benchmark Display window appears, where you can add constituents to your benchmark. The process for adding constituents to your benchmark is the same as adding or importing securities into a portfolio. For information on using



PRTU to manage bookmarks, click [here](#). For information on using PRTU to add securities to your portfolio, click [here](#)



6. In the first Security row, enter *TIP*, then select **TIP US Equity** from the menu that appears and press <GO>.

Security	Curr	Weight	Current		
			Price	PCS	FX Rate
		0.0000			
11) TIP US	USD		114.05	EXCH	1.00000
12)					

The Security, Price, PCS, and FX Rate columns update to show pricing data for the index.

7. In the Weight column for *TIP*, enter 2.5 times the leveraged long security (e.g., 250).

Security	Curr	Weight	Current		
			Price	PCS	FX Rate
		250.0000			
11) TIP US	USD	250.0000	114.05	EXCH	1.00000
12)					

The Weight column updates with the corresponding weight.

8. In the second Security row, enter *IEF*, then select **IEF US Equity** from the menu that appears and press <GO>.

Security	Curr	Weight	Current		
			Price	PCS	FX Rate
		250.0000			
11) TIP US	USD	250.0000	114.05	EXCH	1.00000
12) IEF US	USD		107.03	EXCH	1.00000
13)					

The Security, Price, PCS, and FX Rate columns update to show pricing data for the index.

9. In the Weight row for *IEF*, enter 2.5 times the leveraged short security (e.g., -250).

Security	Curr	Weight	Current		
			Price	PCS	FX Rate
		0.0000			
11) TIP US	USD	250.0000	114.05	EXCH	1.00000
12) IEF US	USD	-250.0000	107.03	EXCH	1.00000
13)					

The Weight column updates with the corresponding weight. The positive (long) Weight for TIP offsets the negative (short) Weight for IEF.

10. In the third Security row, start typing **USD**, then select **USD Curncy** from the menu that appears and press <GO>.

Security	Curr	Weight	Current		
			Price	PCS	FX Rate
		0.0000			
11) TIP US	USD	250.0000	114.05	EXCH	1.00000
12) IEF US	USD	-250.0000	107.03	EXCH	1.00000
13) USD	USD		1.00	EXCH	1.00000
14)					

The Security, Price, PCS, and FX Rate columns update to show pricing data for the currency.

11. In the Weight column, enter a positive weight of 100.

Security	Curr	Weight	Current			Cost		
			Price	PCS	FX Rate	Price	FX Rate	Cost Date
		100.0000						
11) TIP US	USD	250.0000	114.05	EXCH	1.00000		1.00000	08/09/17
12) IEF US	USD	-250.0000	107.03	EXCH	1.00000		1.00000	08/09/17
13) USD	USD	100.0000	1.00	EXCH	1.00000		1.00000	08/09/17
14)								

The Weight column updates with the corresponding weight. The positive (long) Weight for TIP offsets the negative (short) Weight for IEF. The added positive cash weight brings the total to a positive weight of 100.

12. From the toolbar, click the **Save** button.

The benchmark is saved and you remain on the Portfolio Display screen. The benchmark's net value is positive and you can use this benchmark in PORT to evaluate a portfolio against a 2.5 times leveraged spread between U.S. treasury inflation notes and the 7-10 year treasury bond index.

LONG/LEVERAGED

The following practical example shows an investor who is measuring return relative to a triple leveraged daily performance of the S&P 500 Index (SPX Index). A long leveraged benchmark is a benchmark where there is no short security weight, and the long security weight is larger than 100%.

Since the appropriate benchmark for this fund has a negative net value, you must add a cash position to make it suitable for PORT analytics.

Steps:

- From the sidebar in PRTU, click the **Benchmarks** category.



Your selection is shaded blue and your benchmarks (owned and/or shared), if any, appear in the portfolio administration section.

- From the toolbar, click the **Create** button.
The Benchmark Settings window appears.
- Enter the *Benchmark Name* (e.g., 3XSPXBMRK).



- Under the *Custom Benchmark* section, from the *Position Type* drop-down menu, select **Fixed Weight**.

Benchmark Settings

Benchmark Name	3XSPXBMRK
Benchmark Long Name	
Role	Personal
<input checked="" type="radio"/> Custom Benchmark	
Base Currency	USD
Position Type	Fixed Weight
Asset Class	Shares / Par Amount
<input type="radio"/> Linked Benchmark	
Source	Fixed Weight
	Drifting Weight

- Click the **Save** button.

The Benchmark Display window appears, where you can add constituents to your benchmark. The process for adding constituents to your benchmark is the same as adding or importing securities into a portfolio. For information on using

PRTU to manage bookmarks, click [here](#) . For information on using PRTU to add securities to your portfolio, click [here](#) .

- In the first Security row, enter SPX, then select **SPX Index** from the menu that appears and press <GO>.

Security	Curr	Weight	Current		
			Price	PCS	FX Rate
		0.0000			
11) SPX	USD		2474.02	EXCH	1.00000
12)					

The Security, Price, PCS, and FX Rate columns update to show pricing data for the index.

- In the Weight column, enter a value of 300 to represent a 3 times long leveraged position in the security.

Security	Curr	Weight	Current		
			Price	PCS	FX Rate
		300.0000			
11) SPX	USD	300.0000	2474.02	EXCH	1.00000
12)					

The Weight column updates with the corresponding weight.

8. In the second *Security* row, start typing *USD*, then select **USD Curncy** from the menu that appears and press <GO>.

Security	Curr	Weight	Current		
			Price	PCS	FX Rate
		300.0000			
11) SPX	USD	300.0000	2474.02	EXCH	1.00000
12) USD	USD		1.00	EXCH	1.00000
13)					

The *Security*, *Price*, *PCS*, and *FX Rate* columns update to show pricing data for the currency.

9. In the *Weight* column, enter a negative (short) value of -200.

Security	Curr	Weight	Current			Cost		
			Price	PCS	FX Rate	Price	FX Rate	Cost Date
		100.0000						
11) SPX	USD	300.0000	2474.02	EXCH	1.00000		1.00000	08/09/17
12) USD	USD	-200.0000	1.00	EXCH	1.00000		1.00000	08/09/17
13)								

The *Weight* column updates with the corresponding weight. The positive (long) Weight for SPX along with the negative (short) Weight for USD, with the difference in cash value, brings the total to a positive value of 100.

10. From the toolbar, click the **Save** button.

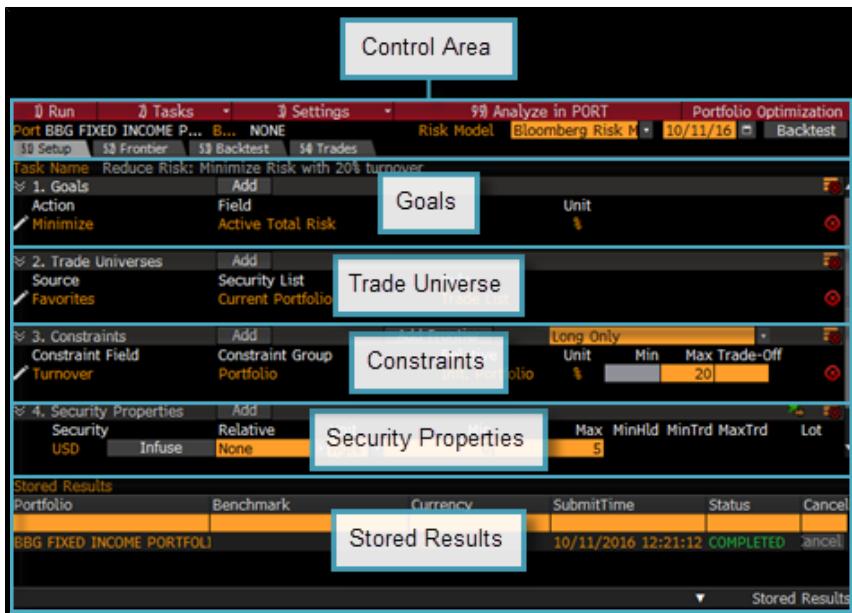
The benchmark is saved and you remain on the Portfolio Display screen. The benchmark's net weight is +100% and you can use this benchmark in PORT to evaluate a portfolio against the performance of a triple leveraged S&P 500 Index.

PORTRFOIO OPTIMIZATION

OPTIMIZATION SETUP

The *Setup* tab allows you to set portfolio optimization parameters, such as goals, universe, constraints, and security properties. This section provides detailed information about the numerous parameters available in the *Setup* tab.

The *Setup* tab is divided into the following sections. You can click any of the section headers to show/hide the section and streamline your view:



- **Control Area:** Displays information for the portfolio being optimized, including the portfolio (*Port*²³⁶), benchmark (*Bmrk*²³⁷), and selected *Risk Model*²³⁸. Allows you to run and refine optimizations as well as enable backtesting. For information on backtesting, see *Backtesting Optimization*.
- **Goals:** Allows you to define the goals of the portfolio optimization by specifying which fields should be minimized or maximized. If more than one goal variable (e.g., Active Total Risk) is selected, then a trade-off between the variables must be specified to determine their relative worth.

Examples of the fields for which you can define optimization include Turnover, LT Debt to Total Capital, and Active Total Risk. You can also build a custom formula to calculate a value to minimize or maximize. The *Trade-Off*²³⁹ field defines how

²³⁶ In general, Port indicates the portfolio being analyzed. The portfolios are created and maintained in PRTU and BBU. For more information, see the *PRTU Help Page* and the *BBU Help Page*. In the Characteristics - Characteristics Summary sub-tab, however, Port indicates the weight value of the portfolio.

²³⁷ Indicates the benchmark against which you are comparing your portfolio, which can be an index, portfolio, or fund.

— In the Characteristics - Characteristics Summary sub-tab, the benchmark indicator value.

— In the View Manager, allows you to choose which fields appear in the benchmark column (for each tab).

²³⁸ See *Model*.

²³⁹ In the Setup tab of the Portfolio Optimization screen, the Trade-Off field defines how different goal and constraint fields are evaluated relative to each other. The trade-off can be understood in two contexts:

— **Multiple Goal Terms:** As an example, specifying two goal terms may look like:

- Minimize Active Total Risk (Unit: %, Trade-off = 0.2)
- Maximize Current Ratio (Unit: number, Trade-off = 1)

This means that a .2% increase in Active Total Risk is worth the same as an increase of 1.0 in Current Ratio, and vice-versa.

different goal and constraint fields are evaluated relative to each other. For more information on setting goal definitions, see [Optimization Goals](#).

- **Trade Universe:** Allows you to choose which securities can be included in the optimization. For more information on creating a trade universe, see [Optimization Universe](#).

Securities in the original portfolio can be bought and sold, but securities in the benchmark may not be bought or sold unless they are also present in the original portfolio or the universe.

- **Constraints:** Allows you to determine the constraints on the optimal portfolio for any aggregate field available in PORT. You can also build a custom formula to calculate a value to constrain. These constraints can be applied to the entire portfolio or to a subset of the portfolio specified by the aggregation bucket. For more information on defining constraints, see [Optimization Constraints](#).

The first line in this section is used to define the default value for all securities which are not specified individually below this line. For more information on specifying constraints for securities, see [Security Properties](#).

- **Security Properties:** Allows you to limit the amount of trading to a fixed percentage of average daily volume (ADV). You can also incorporate Bloomberg-provided round lot values into your optimization. For more information on limiting trading by these parameters, see [Limiting Amount of Trades](#).
- **Stored Results:** Appears after optimizations are run. Displays optimization requests that may take a while to process, the time it was submitted, and the [Status²⁴⁰](#) of the request. You can click any stored result to run that optimization again.

[Hint] You can position your mouse over fields and column headers to display definitions.

BACKTESTING OPTIMIZATION

You can enable backtesting for a portfolio optimization, which allows you to specify parameters to see how a particular portfolio construction strategy performed historically. Backtesting utilizes portfolio maintenance functionality to automatically adjust portfolio positions for corporate actions on the backtest portfolio. The following portfolio maintenance rules apply:

- Cash dividends are reinvested
- Cash is adjusted for coupon payments
- Options in money are exercised on expiration day



For more information on maintaining portfolios in the *Portfolio Administration* (PRTU) function, click [here](#).

The *Backtest* tab provides feedback and transparency into the backtesting process, allowing you to more quickly evaluate the results of your backtest. As the backtesting progresses, you can see a chart updating on this tab with the analytic results of the backtest. You can click the points on the chart to see the trades suggested by the Optimizer for that date.

To enable backtesting:

1. In the Portfolio Optimizer, update any optimization parameters, such as the goals, trade universes, etc., you want to use for the backtest.

— **Soft Constraints:** *In the context of constraints, the trade-off applies to the value in excess of the minimum and maximum bounds specified. As an example:*

- *Goal: Maximize Current Ratio (Trade-off = 1)*
- *Constraint: Active Total Risk (Maximum = 10, Trade-off = 0.5)*

This means that every 0.5% that Active Total Risk goes above 10% is worth an increase of 1 in Current Ratio. If trade-off is not specified for a constraint, then the constraint can never be violated.

²⁴⁰ Indicates whether the optimization request is pending, failed, or a success.

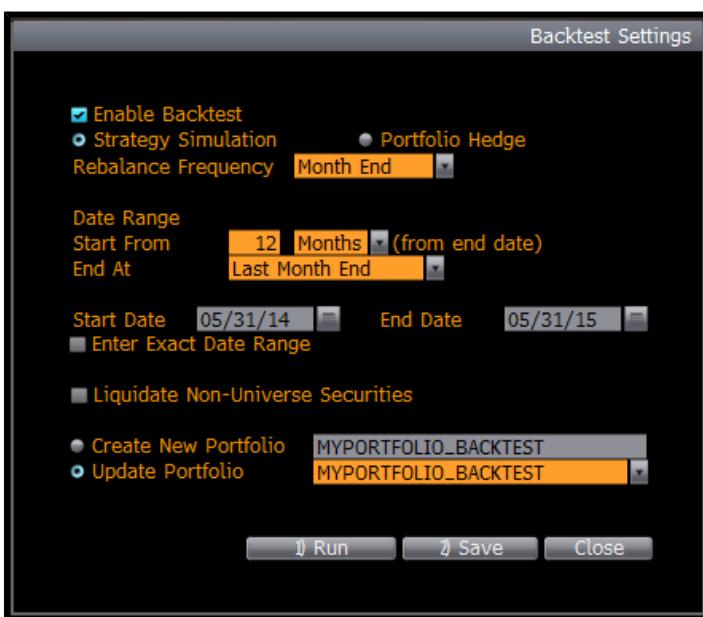
For more information on these options, see the overview information and specific steps in [Portfolio Optimization](#).

- At the top right, click the **Backtest** button.



The Backtest Settings window appears.

- Choose the backtesting parameters you want to use:



- Enable Backtest:** Select to activate backtesting within the Portfolio Optimizer.
- Strategy Simulation:** Specify that the backtest process simulates a particular trading strategy. The optimizer uses your initial portfolio but constructs subsequent historical holdings based on the optimization inputs only.
- Portfolio Hedge:** Specify that the backtest process uses the portfolio hedging strategy, which allows you to see how effective a particular set of hedging instruments is in hedging your portfolio. The optimizer applies the hedging instruments from your initial portfolio to the historical holdings on each rebalancing day during the period.
- Rebalance Frequency:** Select how often the backtest is calculated.
- Date Range:** Choose the timeframe for the backtest calculation:
 - In the *Start From* and *End At* fields, select the date range for the backtest calculation.
 - Select **Enter Exact Date Range**, then in the *Start Date* and *End Date* fields, select the specific date range of the backtest calculation by clicking the calendar icon or entering dates in the fields.

- **Liquidate Non-Universe Securities:** Specify that all portfolio positions not specified in the *Trade Universe* section, which determines the securities included in the optimization, are liquidated when the backtest is run.
- **Create New Portfolio:** If you want to create a new portfolio from the backtest, enter the unique name of the new portfolio or use the automatically generated name (e.g., the name of the original portfolio appended with "_BACKTEST").

Note: This option is only available when *Strategy Simulation* is selected.

- **Update Portfolio:** If you want to update an existing portfolio from the backtest, select the portfolio name.

Note: This option is only available when *Strategy Simulation* is selected.

4. Click the **Run** button.

You are automatically directed to the Backtest tab, where a chart begins monitoring the analytic results as the backtest progresses. You can click points on the chart to see the trades suggested by the Optimizer for that date.

A MSG with a link to the portfolio is sent to you when the optimization is complete.

Note: The amount of time required for the backtest calculation varies.

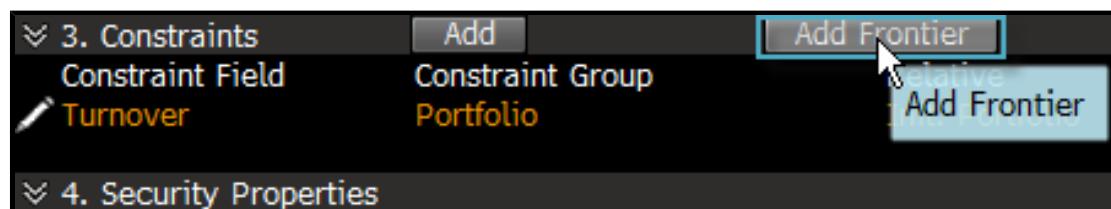
ADDING A FRONTIER

Adding a frontier allows you to generate a set of optimal portfolios based on a range of values for a given constraint. The plot of goal versus constraint range values for these portfolios is called the efficient frontier.

For example, you can minimize portfolio active total risk while allowing maximum portfolio turnover to vary from 10% to 20%.

To add a frontier:

1. In the Setup tab, click the **Add Frontier** button.



Note: This option cannot be used when the *Backtest Enabled* field (in the upper-right corner) is selected.

The Add Constraint window appears.

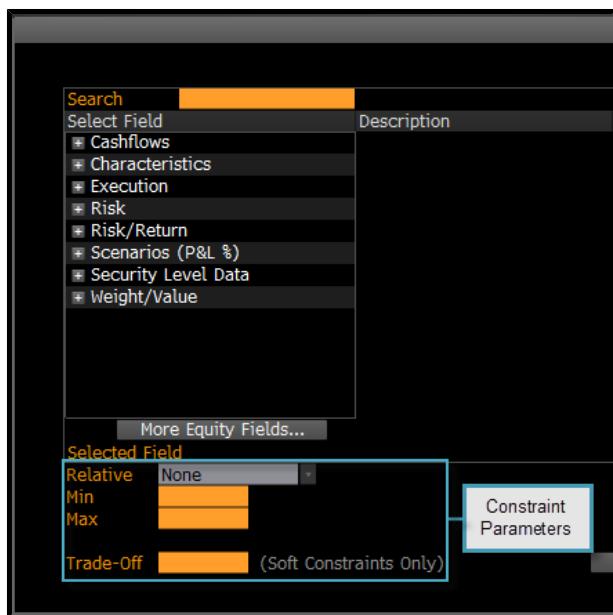
2. From the *Select Field* column, choose the *Constraint Field*²⁴¹ you want as your frontier. You can select any field option to see a definition in the *Description* column.

Note: You can only select one frontier.

Constraint level options appear at the bottom of the window. Depending on your selection, the fields and the corresponding options vary.

3. Define frontier parameters by updating constraint fields.

²⁴¹ In the Setup tab of the Portfolio Optimization screen, specifies which fields should be constrained by the optimizer to generate your optimal portfolio.



Note: Scenarios that are available on the *Scenarios* tab can be added as constraints. They are located under *Scenario (P&L %)*. Multiple scenarios can be added as constraints.

4. Click the **Add Constraint** button.
*The constraints appear in the Constraints section and the **Add Frontier** button is greyed out.*
5. From the toolbar, click the **Run** button.



The Frontier tab opens and displays results for the efficient frontier. For an overview of the tab, see [Optimization Frontier](#).

LIMITING AMOUNT OF TRADES

In the *Security Properties* section of the *Portfolio Optimization* screen, you can limit the amount of trading to a fixed percentage of average daily volume (ADV). You can also incorporate Bloomberg-provided round lot values into your optimization.

To constrain your trades to a fixed percentage of ADV:

1. Click the pencil icon on the left side of the section.

4. Security Properties		Add
Security	Relative	Unit
USD	Infuse	None
Default for all	None	Wgt%
<Type or drag values>	None	Wgt%

The Security Constraint Editor window appears.

- Click the **Fields** button in the *Max Trade* row.

The screenshot shows the 'Security Constraint Editor' window with the following configuration:

Weight Relative	None	Multiplier
Min Wgt(%)	6M Avg Daily Volume	Fields x 1
Max Wgt(%)	100	Fields x 1
Max Trade	Fields	x 1
Lot Size	100	Fields x 1
Exp. Return (%)		Fields x 1

The Select Field to Link window appears with a list of suggested ADV fields.

- Select the appropriate ADV measure, then click the **Select** button.

The *Max Trade* field displays your selection.

- Set the *Multiplier* value for *Max Trade* to the desired value.

For example, if you want to limit trading to 10% of the ADV, set the multiplier to 0.1.

- If you want to use the Bloomberg-provided round lot value, click the **Fields** button in the *Lot Size* row, choose **Round Lot Size** from the list of suggested fields, then click **Select**.



The *Lot Size* field reflects your selection.

6. Click the **Save** button.

The *Max Trade* field in the *Security Properties* section displays your settings. Continue optimizing your portfolio as needed.

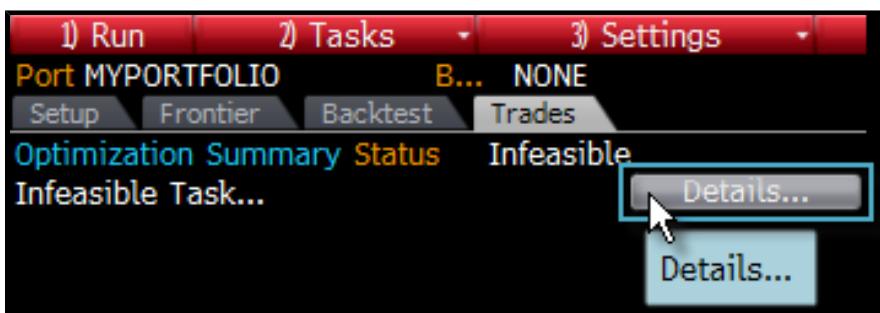
For more information on optimizing your portfolio, including detailed discussions of each section of the Portfolio Optimization screen, see [Portfolio Optimization](#) and [Portfolio Optimization](#).

TROUBLESHOOTING

The *Trades* tab in the *Portfolio Optimization* screen displays the results of your portfolio optimization settings and lets you export trade data. You can also troubleshoot issues with the optimization.

In the top-left corner of the screen, the **Status** field indicates whether the portfolio optimization has succeeded (Success) or failed. If "Failed" or "Infeasible" appears, you can troubleshoot problems with the optimization.

To see the error(s) and recommended actions, click the **Details** button. The *Invalid Initial Portfolio* window appears and displays errors and recommended instructions (if available).



EXPORTING TRADES

After running a portfolio optimization task, you can download the trade list to a Microsoft Excel® spreadsheet from the *Trades* tab in the *Portfolio Optimization* screen.

In the *Result* tab, click the **Export Trades** button.



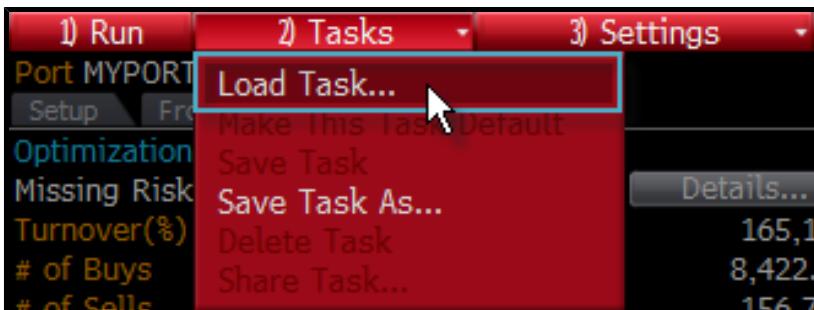
A spreadsheet appears with a list of trades.

PREDEFINED TASKS

In the *Portfolio Optimization* screen, you can use pre-defined tasks, which are created by Bloomberg and available for quick reuse. The tasks are based on simple optimization rules, such as targeting a certain portfolio duration or increasing portfolio dividend yield, thereby allowing you to quickly simulate trades in a given scenario.

To use a pre-defined task:

1. In the *Setup* tab, from the toolbar, select **Tasks > Load Task**.



The *Load Task* window appears.

Note: If you were previously updating a task, the *Load Task* window appears warning that loading the task will override changes made to the current task.

2. From the *Category* column, select the category of tasks you want to browse, e.g., **Equity Tasks**.



Note: If you select *My Tasks*, a list of your saved optimization tasks appears.

The available tasks appear in the *Tasks* column.

3. Select the task you want to run, then click the **Select** button.

For more information on the optimization parameters available in the Portfolio Optimizer, see *Optimization Goals*, *Optimization Universe*, *Optimization Constraints*, and *Security Properties*.

TASK DEFAULTS

In the *Portfolio Optimization* screen, you can set tasks as defaults so you do not need to recreate/load them each time you want to optimize your portfolio with certain conditions.

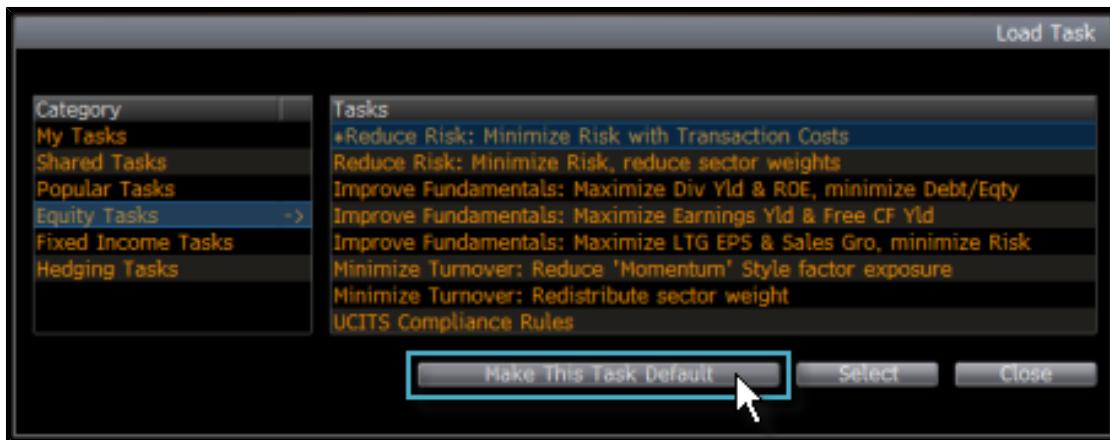
To set a task as your default:

1. Set up your task, as outlined in [Saving Tasks](#).

2. From the toolbar, select **Tasks > Load Task**.

The *Load Task* window appears.

3. Select the task you want to set as your default, then click the **Make This Task Default** button.



The task is saved as your default and appears each time you access the Portfolio Optimization screen.

An asterisk () indicates your default task in the Load Task window.*

SAVING TASKS

In the *Portfolio Optimization* screen, you can edit and save optimization tasks.

From the toolbar, select **Tasks > Save Task** or **Save Task As**.

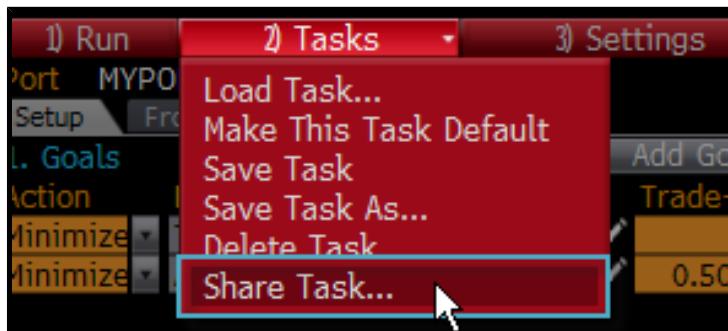
- **Save Task:** Overrides any changes you have made for that task.
- **Save Task As:** Allows you to assign a new task name, thereby creating a new task from which to choose. In the *Save Task As* window, enter the name of the task, then click the **Save** button.

The task is saved.

SHARING TASKS

In the *Portfolio Optimization* screen, you can share saved optimization tasks with other BLOOMBERG PROFESSIONAL® service users.

1. From the toolbar, select **Tasks > Share Task**.



The Task Sharing window appears.

2. Enter the user(s) with whom you want to share the task:

- To share the task with an individual user, enter the user's speed dial name in the *Enter SPDL Group/User* field, then choose the permission level for the user.
- To share the task with a speed dial list, enter the list name in the *Enter SPDL Group/User* field, then choose the permission level for each user in the group. Depending on the information you enter, the *Searching for: (Name)* screen may appear from which you can select the SPDL ID.

Note: For more information on setting up and accessing speed dial contacts, see the the [SPDL Help Page](#).

3. Click the **Update** button.

The user or speed dial group can now access the task in the Portfolio Optimization screen.

DELETING TASKS

In the *Portfolio Optimization* screen, you can remove saved optimization tasks.

1. With the task that you want to delete loaded, from the toolbar, select **Tasks > Delete Task**.
The Delete Task window appears.
2. Click the **Confirm** button.
The task is removed from your saved list (My Tasks).

Note: You cannot delete a predefined, Bloomberg task.

USING LOOK-THROUGH

If you are using the portfolio optimizer to invest in funds, you can use look-through to evaluate fund characteristics and risks.

Steps:

1. Ensure that **Portfolio Look-Through** is selected.

For information on activating *Portfolio Look-Through*, see [Enabling Look-Through](#).

The analysis is re-calculated. Using this option temporarily replaces the funds or ETFs in your portfolio (or benchmark) with their underlying securities while maintaining the same total market values and weights relative to the rest of your portfolio.

2. Enable trade simulations by following the instructions in [Enabling Trade Simulation](#).

"TRADE SIMULATION ENABLED" appears in the top-left corner of the screen and new menu and column options appear, so you can select and edit hypothetical trading positions for your portfolio to assess the impact these moves may have on your portfolio.

3. Run the portfolio optimizer on the portfolio that contains the funds.

For information on using the portfolio optimizer, see [Portfolio Optimization](#).

The portfolio optimizer evaluates funds characteristics & risk based on the underlying holdings of each fund individually, rather than evaluating the fund as a whole.

EXAMPLE: MAXIMIZE SHARPE RATIO

A common way of using the Portfolio Optimizer is to maximize your Sharpe ratio for the portfolio, while respecting an upper bound on your portfolio tracking error (i.e., Active Total Risk). A variation on this simulation is to maximize the Sharpe ratio while simultaneously minimizing portfolio risk.

This topic provides an example of using the Portfolio Optimizer to maximize the Sharpe ratio and limit Active Total Risk.

To optimize the portfolio with your expected returns:

1. In PORT, select the portfolio and benchmark you want to use for the optimization, then from the toolbar, select **Trade Simulation > Launch Optimizer**.

For more information on setting up your PORT analysis, see [Getting Started](#).

The Portfolio Optimization screen appears.

2. Add a goal to maximize the Sharpe ratio:

a) In the **Goals** section, click the **Add** button.

b) From the **Select Field** column in the *Add Goal Term* window that appears, select **Risk/Return > Sharpe Ratio**.

c) Click the **Select** button

The Sharpe Ratio goal appears in the Goals section.

3. Populate the *Exp. Return (%)* column by dragging and dropping expected return values from Microsoft® Excel:

a) To export security constraints to Microsoft® Excel, in the **Security Properties** section, click the Excel icon.

g Only				Trade-Off
Unit	Min	Max		
		20		
iHld	MinTrd	MaxTrd	Lot	ExpRow
			1	

- b) Once the file is open in Excel, populate column A ("Security") with security identifiers and column J ("Exp. Return") with expected returns.

- c) Select the values in columns A through G, then position your mouse over the border of the selection until a pointer with a four-way arrow appears. Drag and drop the selection into the *Security Properties* table in the Optimizer.

The user-defined expected returns are populated in the optimization.

4. Add a constraint on the active total risk of the portfolio:

- a) Click the **Add Constraint** button.

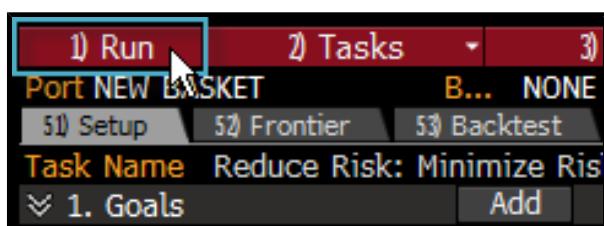
- b) From the *Select Field* column in the *Add Constraint* window that appears, select **Risk > Risk (Ex Ante) > Active Total Risk**.

- c) Click the **Add Constraint** button.

The Active Total Risk constraint appears in the Constraints section.

5. In the *Max* field corresponding to the *Active Total Risk* constraint, enter the upper bound for your active total risk.

6. From the toolbar, click **Run**.



The optimization begins and the Trades tab appears. You can analyze the optimizer progress and results in the Trades tab, from which you can launch PORT to further analyze the optimal portfolios. For information on analyzing in PORT, see [Analyzing in PORT](#).

DEFINITIONS

Term	Definition
# of Instruments	In the <i>Characteristics</i> and <i>Holdings</i> tabs, displays a count of the number of instruments in the portfolio and benchmark. You can use this field as a quick check to ensure that all of your holdings are properly uploaded in the portfolio and represented in PORT.
#Pos	In the <i>VaR Comparison</i> sub-tab, displays the number of positions (securities) covered in the VaR comparison analysis.
% Contribution to VaR	Measures how much of total risk can be attributed to a particular factor/group. Contribution to Risk is expressed in percentage points so that Total Risk sums up to 100%.
% Gross Weight	The current gross exposure of the instrument or grouping divided by the total current gross exposure of the portfolio, expressed as a percentage.
% of Total Notional Exposure	The current <i>Notional</i> value of the instrument or grouping divided by the total current notional value of the portfolio, expressed as a percentage.
% Weight (+/-)	The relative market value of the portfolio/sectors in percentage terms. Calculated as %Wgt (Port) - %Wgt (Bench).
% Weight (Bench)	The market value of the benchmark/sectors in percentage terms.
% Weight (Port)	The market value of the portfolio/sectors in percentage terms.
%Bmrk	In the <i>Holdings - Allocation Summary</i> , sub-tab, the benchmark weight in the sector.
%Contrib	In the <i>Factor Transparency</i> screen, the percentage of the overall portfolio riskiness contributed by the factor for the selected <i>Relative to Matrix as of</i> date.
%Port	In the <i>Holdings - Allocation Summary</i> , sub-tab, the portfolio weight in the sector.
+/-	The difference between the portfolio and the benchmark.
Action	Allows you to minimize or maximize an optimization goal (tied to <i>Field</i>).
Active Exposure (Absolute)	The absolute value of the active return's sensitivity.
Active Return	The difference between portfolio return and benchmark return. If you are using the Geometric Method: Active return = $100 * [(1 + \text{portfolio return} / 100) / (1 + \text{benchmark return} / 100) - 1]$
Active Risk	Expressed as the standard deviation of portfolio active returns. Active risk is also known as tracking error.
Active Share	Indicates how different the portfolio is from its benchmark. Calculated as the sum of each security's absolute weight difference between the portfolio and the benchmark, divided by two. A portfolio's <i>Active Share</i> ranges from 0 to 100, with 0 indicating that the portfolio exactly replicates the benchmark and 100 indicating it is completely different from the benchmark. You can see active share by adding the <i>Active Share</i>

Term	Definition
	column to the <i>Holdings</i> or <i>Characteristics</i> tab, or by selecting <i>Act Share</i> as the analysis field in <i>Trend</i> mode on the <i>Characteristics</i> tab.
Aggregation Methodology	Allows you to determine the method by which instrument values are aggregated at the position and portfolio levels. For a description of the available aggregation methods, see Aggregation Methodology .
Aggregation Weights	Allows you to determine how aggregations of the specific field are weighted. If you select <i>Gross</i> , the market values of all instruments are added together to calculate the aggregate; if you select <i>Net</i> , the market values of all instruments are divided by the position exposure, then summed to calculate the aggregate. For the specific calculations of gross and net aggregation weights, see Aggregation Weights .
Allocation	In the <i>Attribution Summary</i> sub-tab, the active return attributed to asset allocation decisions (e.g., sectors, countries, or market caps) that differ from the benchmark. The Allocation is generally positive when the fund is overweight for a sector in which the benchmark return exceeds the total benchmark return.
Allocation Effect	The active return attributed to asset allocation decisions (e.g., sectors, countries, or market caps) that differ from the benchmark. The allocation is generally positive when the fund is overweight for a sector in which the benchmark return exceeds the total benchmark return.
Alpha	A coefficient of the Capital Asset Pricing Model which measures risk-adjusted performance, factoring in the unsystematic risk rather than market risk (systematic risk). This provides an indication of how the portfolio has performed after accounting for the systematic risk. Intercept of the regression line of the portfolio and benchmark daily returns over the stated timeframe.
Analytic	The liquidity risk calculation selected for your portfolio analysis within the <i>Characteristics-Liquidity Risk</i> sub-tab. For descriptions of each available view, see Liquidity Risk .
Annualization	The rescaling into annual terms of a total return or risk measure that has been evaluated over some timeframe. Annualization is typically used only when the original timeframe is greater than one year. Total return and return attribution measures are annualized based on a 365 calendar day factor. Risk measures, such as Standard Deviation (Annualized) and Sharpe Ratio , are annualized in accordance with the periodicity of the calculation and the number of trading periods in one year. This number is 261 when the periodicity is daily, 52 when the periodicity is weekly, 12 when the periodicity is monthly, etc. For example, a Standard Deviation (Annualized) based on a daily periodicity is calculated as Standard Deviation * SQRT(261).
As Of	The date for analysis. If the date is set to today, the analysis is based on current position's with the previous day's closing prices. Analysis may be backdated up to 90 days.
Asset Class	In the <i>Tracking Error/Volatility</i> sub-tabs, allows you to filter factors by asset class.
Average	Regarding aggregation methods: The simple mean of the instruments' values without consideration for the weight of each instrument in the portfolio or sector grouping.

Term	Definition
Avg Difference	The average of the total winning or losing return periods over the selected period.
Avg Sequence	The average number of positive or negative return periods for the fund occurring sequentially.
Bear Alpha	A coefficient of the Capital Asset Pricing Model which measures risk-adjusted performance, factoring in the unsystematic risk rather than market risk (systematic risk). This provides an indication of how the portfolio has performed after accounting for the systematic risk. Intercept of the regression line of the portfolio and benchmark daily returns over the stated timeframe, only using the days on which the benchmark return was negative.
Bear Beta	A coefficient of the Capital Asset Pricing Model which measures systematic risk. A beta greater than 1 is more volatile than the benchmark, while a beta less than 1 is less volatile. Slope of the regression line of the portfolio and benchmark daily returns over the stated timeframe, only using the days on which the benchmark return was negative.
Bear Capture Ratio	A measure of how well the portfolio is performing relative to the benchmark. Defined as the ratio of the portfolio return to the benchmark return, calculated only using the days when the benchmark return was negative and averaged over the selected timeframe.
Bear Correlation	Correlation coefficient between the portfolio and the benchmark daily returns over the stated timeframe, only using the days on which the benchmark return was negative. Ranges between -1.0 and 1.0.
Bear Information Ratio	A risk-adjusted measure that calculates the excess return over the benchmark, per unit of tracking error volatility. [Annualized Bear Mean Excess Return / Annualized Tracking Error]. The higher the Information ratio, the better. It measures the consistency with which the portfolio is beating the benchmark. Calculated using daily returns over the stated timeframe, only using the days when the benchmark return was negative.
Bear Jensen Alpha	A risk-adjusted measure that calculates the actual return of the portfolio over and above the return predicted by the Capital Asset Pricing Model (CAPM), given the portfolio's beta and the benchmark return. [Portfolio Return - (Risk Free Rate + Beta x (Benchmark Return - Risk Free Rate))]. Calculated using the annualized mean of daily returns of the portfolio and benchmark over the stated timeframe, only using the days when the benchmark return was negative.
Bear Mean Excess Return (Annualized)	The average daily relative total return over the stated timeframe, only on days when the benchmark return was negative, annualized and expressed as a percentage.
Bear R-Squared	A measure of how well the portfolio's performance correlates with the performance of the benchmark, and thus a measure of what portion of its performance may be explained by the performance of the benchmark. Values for R-Squared range from 0 to 1, where 0 indicates no correlation and 1 indicates perfect correlation. Calculated using daily returns over the stated timeframe, only using the days on which the benchmark return was negative.
Bear Sortino Ratio Vs. Index	A risk-adjusted measure that calculates the excess return over the benchmark, per unit of semivariance (volatility of negative returns). [(Annualized Bear Mean Excess Return) / Annualized Semivariance of Returns]. The higher the Sortino ratio, the better

Term	Definition
	the portfolio's historical risk-adjusted performance. Calculated using daily returns over the stated timeframe, only using the days when the benchmark return was negative.
Bear Tracking Error (Annualized)	The standard deviation of the daily excess returns relative to the benchmark over the stated timeframe, only on days when the benchmark return was negative, expressed as an annualized percentage.
Benchmark Exposure	The benchmark's sensitivity to a given factor.
Benchmark Exposure (Absolute)	The absolute value of the benchmark's sensitivity.
Benchmark Return	In the <i>Attribution Summary</i> sub-tab, the total return percentage of the benchmark over the specified timeframe.
Beta	In the <i>Characteristics</i> and <i>Intraday</i> tabs, the security's adjusted beta, which is derived by default from the past two years of weekly prices as of the analysis date (you can override the calculation timeframe when adding the field to the tab). Each security's default index is used for the beta calculation. At the sector and portfolio levels, beta is calculated using the <i>weighted average</i> aggregation methodology.
Beta (ex-post)	A coefficient of the Capital Asset Pricing Model which measures systematic risk. A beta greater than 1 is more volatile than the benchmark, while a beta less than 1 is less volatile. Slope of the regression line of the portfolio and benchmark daily returns over the stated timeframe.
Beta Delta Adjusted Exposure	The security's <i>delta adjusted exposure</i> multiplied by the security's equity <i>beta</i> . At the sector and portfolio levels, this is the sum of the individual security beta delta adjusted exposures.
Beta Delta Adjusted Weight	The security's <i>delta adjusted exposure</i> divided by the portfolio value. At the sector and portfolio levels, this is the sum of each individual security's <i>delta adjusted weight</i> .
Bmrk	<p>Indicates the benchmark against which you are comparing your portfolio, which can be an index, portfolio, or fund.</p> <ul style="list-style-type: none"> • In the <i>Characteristics - Characteristics Summary</i> sub-tab, the benchmark indicator value. • In the <i>View Manager</i>, allows you to choose which fields appear in the benchmark column (for each tab).
Book Price	The amortized price for a bond as of the trade date.
Book Value	The current face value of a bond, multiplied by the book price.
Book Value Weighted	The <i>book value</i> of the individual lot divided by the portfolio's book value, which is calculated as the sum of the lot-level book values within the portfolio
Book Weight (%)	The tax lot's book value divided by the portfolio's book value.
Book Yield	The internal rate of return that discounts the future remaining cashflows of the bond to the book price. The future cashflows are based on a yield-to-worst call for callable bonds, and the Bloomberg Dynamic prepayment model for residential mortgages.

Term	Definition
Breakdown by	Determines the classification by which your portfolio is broken down (segmented), such as country of origin, industrial sector, and market capitalization.
Bull Alpha	A coefficient of the Capital Asset Pricing Model which measures risk-adjusted performance, factoring in the unsystematic risk rather than market risk (systematic risk). This provides an indication of how the portfolio has performed after accounting for the systematic risk. Intercept of the regression line of the portfolio and benchmark daily returns over the stated timeframe, only using the days on which the benchmark return was positive.
Bull Beta	A coefficient of the Capital Asset Pricing Model which measures systematic risk. A beta greater than 1 is more volatile than the benchmark, while a beta less than 1 is less volatile. Slope of the regression line of the portfolio and benchmark daily returns over the stated timeframe, only using the days on which the benchmark return was positive.
Bull Capture Ratio	A measure of how well the portfolio is performing relative to the benchmark. Defined as the ratio of the portfolio return to the benchmark return, calculated only using the days when the benchmark return was positive and averaged over the selected timeframe.
Bull Correlation	Correlation coefficient between the portfolio and the benchmark daily returns over the stated timeframe, only using the days on which the benchmark return was positive. Ranges between -1.0 and 1.0.
Bull R-Squared	A measure of how well the portfolio's performance correlates with the performance of the benchmark, and thus a measure of what portion of its performance may be explained by the performance of the benchmark. Values for R-Squared range from 0 to 1, where 0 indicates no correlation and 1 indicates perfect correlation. Calculated using daily returns over the stated timeframe, only using the days on which the benchmark return was positive.
Bull Information Ratio	A risk-adjusted measure that calculates the excess return over the benchmark, per unit of tracking error volatility. [Annualized Bull Mean Excess Return / Annualized Tracking Error]. The higher the Information ratio, the better. It measures the consistency with which the portfolio is beating the benchmark. Calculated using daily returns over the stated timeframe, only using the days when the benchmark return was positive.
Bull Jensen Alpha	A risk-adjusted measure that calculates the actual return of the portfolio over and above the return predicted by the Capital Asset Pricing Model (CAPM), given the portfolio's beta and the benchmark return. [Portfolio Return - (Risk Free Rate + Beta x (Benchmark Return - Risk Free Rate))]. Calculated using the annualized mean of daily returns of the portfolio and benchmark over the stated timeframe, only using the days when the benchmark return was positive.
Bull Mean Excess Return (Annualized)	The average daily relative total return over the stated timeframe, only on days when the benchmark return was positive, annualized and expressed as a percentage.
Bull Sortino Ratio Vs. Index	A risk-adjusted measure that calculates the excess return over the benchmark, per unit of semivariance (volatility of negative returns). [(Annualized Bull Mean Excess Return) / Annualized Semivariance of Returns]. The higher the Sortino ratio, the better the portfolio's historical risk-adjusted performance. Calculated using daily returns over the stated timeframe, only using the days when the benchmark return was positive.

Term	Definition
Bull Tracking Error (Annualized)	The standard deviation of the daily excess returns relative to the benchmark over the stated timeframe, only on days when the benchmark return was positive, expressed as an annualized percentage.
by	<p>Allows you to analyze your portfolio and benchmark broken down by various classification schemes, such as by country/region, industry sector, long/short, and currency. You can also set a default classification for the view you are customizing. You do not, however, have to choose a classification.</p> <p>Note: For more information on breaking down your portfolio analysis by classifications, see Selecting Classifications.</p>
By Security	A classification option that aggregates your portfolio positions by underlying security. When look-through is enabled, this option allows you to see, as a bucket, the aggregate of all the positions on each specific security included in one or more of the sub-portfolios (i.e., funds, ETFS, or tickerized portfolios) in your portfolio.
Capture Ratio	A measure of how well the portfolio is performing relative to the benchmark. Defined as the ratio of the portfolio return to the benchmark return, calculated on a daily basis and averaged over the selected timeframe.
Cashflow	The cash flow for the portfolio attributed to the scenario as of the horizon date.
Closing Beta Delta Adjusted Exposure	The security's <i>closing delta adjusted exposure</i> multiplied by the security's equity beta. At the sector and portfolio levels, this is the sum of the individual security beta delta adjusted exposures.
Closing Beta Delta Adjusted Weight	The security's <i>closing beta delta adjusted exposure</i> divided by the portfolio value. At the sector and portfolio levels, this is the sum of the individual security delta adjusted weights.
Closing Delta	The change in the value of the option for each dollar change in the market price of the underlying asset as of the previous market close.
Closing Delta Adjusted Exposure	The closing value of the underlying asset. For an option, closing delta adjusted exposure is the delta adjusted underlying value (calculated as number of contracts * contract size * option delta * underlying asset price), while for a future it is the contract value. For non-derivative instruments, the closing market value is displayed.
Closing Delta Adjusted Weight	The <i>closing delta adjusted exposure</i> of the instrument or grouping divided by the total closing market value of the portfolio, expressed as a percentage.
Closing Market Value	<p>The value of your investment in or exposure to an instrument as of the previous market close, calculated as your position in that instrument multiplied by its closing price multiplied by the exchange rate. At the sector and portfolio levels, this is the sum of the market values of the individual instruments.</p> <p>For a portfolio with short positions, market value at the portfolio level is calculated as the total market value of long positions minus the total market value of the shorts, plus cash and any margin set aside to cover the shorts.</p>
CLvl	See Confidence Level .

Term	Definition
Component Table	Displays the formula components corresponding to the Descriptor.
Conditional VaR	Abbreviated as CVaR in the <i>VaR</i> tab. Measures the expected loss in the underlying currency of the portfolio when the confidence level is surpassed. This measure of tail risk is also called Expected Shortfall. For VaR methodologies Monte Carlo and Historical, the average of the P&L generated for each scenario located in the tail of the distribution is used. This can be expressed in P&L and % terms. If expressed in percentage, the conditional VaR in P&L is divided by the active/ difference portfolio market value at that node.
Confidence Level	A measure of the degree of confidence for a random variable of interest. A confidence interval of X is defined as the probability that, given the underlying distribution of the random variable, the set of possible outcomes lies in a range greater than or equal to a pre-determined value. For example, a confidence level of 95% means that you are 95% confident that the portfolio will be subject to no more than the maximum loss indicated by the VaR computation.
Constraint Field	In the <i>Setup</i> tab of the <i>Portfolio Optimization</i> screen, specifies which fields should be constrained by the optimizer to generate your optimal portfolio.
Constraint Level	In the <i>Setup</i> tab of the <i>Portfolio Optimization</i> screen, specifies the set of securities for which the field should be calculated when determining constraints. Portfolio-level constraints will set boundaries on top-level values calculated for the entire optimal portfolio. You can also specify constraints that only apply to values aggregated up to the group-level, using many of the most popular breakdowns available in PORT.
Contribution %	In the <i>Factors</i> and <i>Risk Bets</i> sub-tabs of the <i>Tracking Error/Volatility</i> tab, represents the factor contribution to active risk. Contribution to active risk displays the tracking error decomposition into components that add up to the overall portfolio tracking error. Contribution to risk is expressed as a percentage of active risk.
Contribution (%)	Used to determine a fraction of risk that a particular group contributes to total risk. Risk Contribution (%) is expressed in percentage points so that <i>Total Risk</i> sums up to 100%.
Contribution (Std)	Used to determine a fraction of risk that a particular group contributes to total risk. Risk Contribution (Std) is expressed as the standard deviation of % Return or P&L.
Contribution to Active Risk	Percentage of risk attributed to the factors.
Contribution to Total Risk	In the <i>Portfolio Optimization</i> setup screen, allows you to optimize your portfolio with a goal of meeting specific security-level ex-ante risk contribution targets that you provide in the optimization's <i>Security Properties</i> . This field represents the <i>Contribution (Std)</i> field that is available on the <i>Tracking Error/Volatility</i> tab.
Convexity	The second derivative of a security's price with respect to its yield, divided by the security's price. A security exhibits positive convexity when its price rises more for a downward move in its yield than its price declines for an equal upward move in its yield.
Correlation	Correlation coefficient between the portfolio and the benchmark daily returns over the stated timeframe. Ranges between -1.0 and 1.0.

Term	Definition
Correlation Matrix	In the <i>Factor Transparency</i> screen, displays a matrix of correlation between related factors from the specified <i>Relative to Matrix as of</i> date.
Cost Date	The purchase date of the position.
Cost FX Rate	The strike rate for a currency forward between the instrument's currency and the portfolio base currency, which is used to calculate P&L based on cost. You can activate cost FX for your portfolio in the <i>Portfolio Administration</i> (PRTU) function, then add the <i>Cost FX</i> column to the <i>Intraday</i> tab in PORT. For all other return calculations, PORT uses the customizable FX waterfall from the <i>View Manager</i> as the rate source.
Country of Jurisdiction	<p>Allows you to choose the tax jurisdiction of the investor when calculating portfolio and benchmark returns:</p> <ul style="list-style-type: none"> • International: Takes the position that the investor is not entitled to tax imputation credits offered to domestic Australian and New Zealand investors. For Australian stocks, international investors do not receive franking credits and hence they are not included in the gross dividend calculation. Franked dividends are not further taxed when calculating net of tax total returns. • Australia: The franking credit percentage as stated by the company is added back to the declared dividend. The formula to obtain the franked up gross dividend is: $\text{Gross} = \text{Declared Amt (net)} * (1 + (\text{Frank \%} / (1 - \text{Tax Rate})) - \text{Frank \%})$ • New Zealand: The gross dividend is obtained by adding to the net dividend (declared amount) received by investors the tax credit as declared by the company. For New Zealand stocks, the gross dividend includes the net amount plus the bonus amount. • NZ & Australia: Includes both the Australian franking credit and the New Zealand tax credit in the return calculations. <p>Note: Data on tax credits, franking percentage, and tax rates can be seen on the <i>Dividend/Split Summary</i> (DVD) function for the relevant dividend. For more information, see the DVD Help Page.</p>
Country Tax Rate	The highest tax rate an institutional foreign investor pays in a specific country.
CTR (+/-)	Calculated as CTR (Port) – CTR (Bench).
CTR (Bench)	Contribution to return of the security or grouping in the benchmark. This can generally be interpreted as the total return of every instrument multiplied by its weight in the benchmark. The sum of CTR (Bench) for all instruments is equal to the <i>Total Return</i> of the benchmark.
CTR (Port)	Contribution to return of the security or grouping in the portfolio. This can generally be interpreted as the total return of every instrument multiplied by its weight in the portfolio. The sum of CTR (Port) for all instruments is equal to the <i>Total Return</i> of the portfolio.
Cumulative	In the <i>Factor Transparency</i> screen, displays a line chart representing the total cumulative return of the selected factor over the specified timeframe.

Term	Definition
Cumulative CF	In the <i>Cash Flow Summary</i> sub-tab, the running total of all cash flows received over the period.
Currency	Generally, Currency indicates the currency of the portfolio being analyzed. In the <i>Attribution Summary</i> sub-tab, Currency indicates the active return due to currency exposures that differ from the benchmark.
Currency Effect	The active return due to currency exposures that differ from the benchmark.
Current Ratio (+/-)	Calculated as Current Ratio (Port) – Current Ratio (Bench).
Current Ratio (Bench)	The current ratio for the benchmark sector/security.
Current Ratio (Port)	The current ratio for the portfolio sector/security.
Custom Name	Allows you to override the name of a column that appears in your portfolio.
CV Delta	Measures how much the value of a convertible changes with the underlying stock price calculated at constant firm volatility. This field is especially used in the <i>Characteristics Main View</i> sub-tab.
Debt/Equity (+/-)	Calculated Debt/Common Equity (Port) – Debt/Common Equity (Bench).
Debt/Equity (Bench)	The debt to common equity ratio for the benchmark sector/security.
Debt/Equity (Port)	The debt to common equity ratio for the portfolio sector/security.
Decimal	Allows you to select the number of decimal places to display in a selected column.
Delta	The change in the value of a derivative for each dollar change in the market price of the underlying asset.
Delta Adjusted Exposure	The exposure of a security adjusted to include value and volatility of any underlying assets. For an option, the delta adjusted exposure is calculated as the delta times the underlying security's notional exposure, while for all other instruments it is calculated as the notional exposure of the security. At the sector and portfolio levels, this is the sum of the individual security delta adjusted exposures.
Delta Adjusted Weight	The security's <i>delta adjusted exposure</i> divided by the portfolio value. At the sector and portfolio levels, this is the sum of the individual security delta adjusted weights.
Denominator	<p>For custom formula fields only, allows you to customize the denominator for the weighted average <i>aggregation methodology</i>. This option provides additional flexibility when including custom fields in your portfolio view.</p> <p>Note: If you choose the <i>Market Val (portfolio)/Exposure</i> option, the portfolio market value will be used as the denominator for portfolio aggregations and the sum of security exposures in a given group will be used as the denominator for all other group-level aggregations.</p>
Depository Receipts Pricing	If the <i>Use Underlying Price for Receipts</i> option is selected, the underlying equivalent price is calculated by multiplying the price of the underlying ticker by the receipt ratio. The receipt ratio represents the number of underlying shares represented by one receipt. If the underlying share is unlisted, not actively traded, or a receipt ratio is unavailable, the receipt price continues to be used. If the underlying is not trading on a

Term	Definition
	<p>particular day due to a holiday (for example), the underlying price from the previous day is carried forward.</p> <p>If the underlying pricing is used, the currency of the receipt will be in the underlying share currency.</p>
Descriptor Name	Displays the Descriptors that are used to calculate the Factor Exposures.
Descriptor Table	The Descriptors used to calculate the Factor.
Display	In the <i>Tracking Error/Volatility Exposures</i> sub-tab, allows you to filter the factor exposures that appear, such as market or industry.
Div Yld	The dividend yield of the security. This is another dimension of value, but is also distinct in its behavior, which is why Bloomberg separates it, so that it remains a standalone factor.
Div Yld (+/-)	Calculated as Div Yield (Port) – Div Yield (Bench).
Div Yld (Bench)	The dividend yield of the benchmark sector/security.
Div Yld (Port)	The dividend yield of the portfolio sector/security.
Dividend Yield	The dividend yield of the portfolio or benchmark sector/security.
Downside Risk (Annualized)	Volatility of the daily returns that are lower than the mean return over the stated timeframe, expressed as an annualized percentage. Whereas Standard Deviation is calculated using all the returns, Downside Risk is calculated using only the returns below the mean. Larger values suggest greater risk.
Drifting Weight	In Trade Simulation, indicates the percentage (%) weights drift with changes in the market each day. No rebalancing assumptions are made.
Duration	The first order derivative measurement of the sensitivity of bond price to changes in interest rate. In general, the higher the duration, the more sensitive the bond price is to interest rate movements. Duration is calculated by holding the base case option adjusted spread (OAS) constant while the par swap curve is shifted up or down 25 bps and the price is recomputed.
Duration Times Spread (DTS)	Duration Times Spread is the contribution to spread duration of a bond multiplied by its option adjusted spread (OAS). By combining the spread level (OAS) of a bond with its contribution to spread duration, the DTS exposure is a recognition of the significant positive correlation between spread levels and spread volatility - bonds with higher spreads have higher spread volatility. The DTS exposure is utilized in the <i>Risk</i> tabs in PORT (<i>VAR, Tracking Error/Volatility, Factor-based Scenario Analysis</i>) to measure the spread exposure for fixed income instruments and is also an available field in the <i>Characteristics</i> tab.
EarnVariat	Analyzes how consistent the earnings, cash flows, and sales have been based on the last several years of data.
End	In trend analysis mode, the date you want to end analysis.
EQY_FUND_TICKER	Specifies the ticker to access equity fundamental data for a company. The price data of the fundamental ticker is used to compute most financial ratios which combine market

Term	Definition
	data and equity fundamental data. If a company has several listings/tickers, Bloomberg selects the fundamental ticker based on listing dates, country of domicile, and liquidity.
Exposure	A portfolio's, security's, or benchmark's sensitivity to a given risk factor.
Extra Precision	Enables you to display more precise values (i.e., include more decimals).
Factor	The indicator, or factor type, by which risk is measured.
Factor (+/-)	In the <i>Tracking Error/Volatility Main View</i> sub-tab, the relative factor risk. Factors display risk factor exposures (factor betas), as well as factor level risk statistics.
Factor Contribution to Active Risk	The tracking error decomposition into components that sum up to the overall portfolio tracking error. Contribution to risk expressed as a percentage of active risk.
Factor Exposure	The sensitivity of your portfolio to the market. Factor exposure is also known as factor beta.
Factor Group	<p>A factor group is a list of related factors grouped together. Depending on the risk model that is used, the following factor groups are available:</p> <ul style="list-style-type: none"> • Market • Style • Industry • Country • Currency
Factor Marginal Risk	Marginal Risk is the value by which the portfolio tracking error increases for a small increase in exposure to a given factor, assuming that all other portfolio exposures remained the same.
Factor Model	Allows you to shock your portfolio by shifting macroeconomic factors, interest rates, foreign exchange rates, and model factors in a scenario analysis.
Factor Vol	In the <i>Factor Transparency</i> screen, the daily factor volatility for the selected <i>Relative to Matrix as of</i> date.
Field	In trend analysis mode, the field for trend analysis. For example, # (PORT), % Wgt (+ / -), Mkt Val (+ / -), or <i>Active Share</i> .
Filter	In the <i>Cash Flow Summary</i> sub-tab, allows you to filter cash flows by the currency in which they are paid.
Fixed Weight	In Trade Simulation, indicates positions are valued with a set percentage (%) weight. This weight is rebalanced at the market close each day back to the original weight. The default overall market value of the portfolio is 100,000,000. Fixed weights remain fixed until you update them.
Freq	Allows you to choose the frequency for trend and period analyses (Daily, Weekly, Monthly, etc.).
Full Valuation	Allows you to evaluate your portfolio on a forward horizon date by shifting interest rates, option adjusted spreads, credit curves, and many more variables in a scenario analysis.

Term	Definition
Fund from Cash	Uses cash holdings in the portfolio to purchase the target quantity of each security as specified in the editable column in the grid in the <i>Add/Edit Trade Simulation Holdings</i> window. If the total of all targets in the portfolio exceeds the value of the portfolio, the cash position is negative to maintain the market value of the portfolio. Analytics refresh using the new Trade Simulation portfolio holdings.
Fund from Holdings	Sells off portfolio holdings to purchase the target quantity of each security, as specified in the <i>Add/Edit Trade Simulation Holdings</i> window. Securities are sold off based on current market weight, heaviest first. If the target holdings are lower than previous holdings, securities are purchased to compensate. Analytics refresh using the new Trade Simulation portfolio holdings.
Graph	In the <i>Cash Flow Summary</i> sub-tab, allows you to analyze a chart of cash flow projections for the timeframe specified.
Graph Type	<p>In the <i>Cash Flow Summary</i> sub-tab, allows you to choose the cash flow payments that appear on the chart or table. The options are:</p> <ul style="list-style-type: none"> • Interim Only: Displays only the periodic payments produced by the instrument, i.e., projected dividends for equities and coupons for fixed income. • Principal Only: Displays only the principal payments produced by the instrument. • Cash flow (Total): Displays the sum of the interim and principal cash flows for each period. • Cash flow (Cumulative): Displays the running total of the interim and principal cash flows received over each period.
Gross (At Inception)	Indicates that the gross portfolio value, which is the absolute market value for each position, is calculated once on the portfolio inception date, then divided by the leverage. On subsequent days, the portfolio value increases or decreases in line with the portfolio P&L. This option is available when creating a new portfolio in PRTU, and impacts the calculation of portfolio value in PORT.
Gross (Daily Recalc)	Indicates that the gross portfolio value, which is the absolute market value for each position, is calculated on the portfolio inception date and divided by the leverage, then recalculated on a daily basis independent of the portfolio P&L. This option is available when creating a new portfolio in PRTU, and impacts the calculation of portfolio value in PORT.
Gross Active Weight	An absolute value of the portfolio weight for a security minus its benchmark weight.
Group By	<p>In the <i>Tracking Error/Volatility Factors</i> sub-tab, allows you to filter factors by the factor groups that appear in the <i>Summary</i> sub-tab: All Factors, Market, Style, Industry, or Greeks.</p> <p>Note: For multi-country equity models, style factor exposures for multi-country risk models are neutralized within a given country. For more information on factor models, see White Papers.</p>

Term	Definition
Growth	In the <i>Tracking Error/Volatility Exposures</i> sub-tab, based on historical and forward-looking fundamental data from analysts trying to capture distinction between high- and low-growers.
Held-to-Maturity	Debt securities that a firm has the ability and intent to hold until maturity.
Hide zero exposures	In the <i>Tracking Error/Volatility</i> tab, allows you to show or hide factors with zero <i>exposure</i> values.
Histogram	In the <i>Factor Transparency</i> screen, displays a histogram illustrating returns attributed to the selected factor over the specified <i>timeframe</i> .
History	A bar chart that displays historical trends for selected Factors.
Holdings As Of	The last date your portfolio positions were updated, which appears at the bottom of the <i>Main View</i> in every PORT tab. For public funds, the latest filing date for that fund appears.
Horizon	<ul style="list-style-type: none"> In the <i>Tracking Error/Volatility Summary</i> sub-tab, refers to how the risk numbers are scaled. For example, if Time Horizon is set to one year, the risk statistics are annualized. In the <i>VaR Main View</i>, the risk forecast in number of business days. Bloomberg calculates a one-day VaR and scales that number by multiplying it by the square root of the number of business days to include additional timeframes. In the <i>Scenarios</i> tab, allows you to analyze full valuation scenarios over several timeframes: one day, one week, one month, or one year.
Hurdle Rate	In the <i>Attribution</i> tab, the return of the benchmark in local currency. This is a key component in the calculation of <i>Allocation Effect</i> . Optionally, if attribution is calculated with Currency Effect embedded, then the Hurdle Rate is the benchmark return in the portfolio currency. Hurdle Rate is represented in the <i>Benchmark Total Return (Local Currency)</i> column in the <i>Attribution</i> tab.
Implied Alpha	Displays the expected return of the security over the horizon, assuming that the portfolio lies on the efficient frontier. This column is available on the <i>Tracking Error/Volatility</i> tab. You can customize the ratio of the expected return to the expected risk (i.e., the information ratio) by clicking the pencil icon next to <i>Implied Alpha</i> in the column picker.
in	Allows you to choose the currency in which the portfolio and benchmark are compared. By default, the currency under analysis is the portfolio base currency. For a complete list of currencies, see the CURR Help Page .
inc	Security Inclusion. Allows you to select securities/sectors to include in a rebalancing scenario. Unchecked securities cannot be targeted and do not change in a sector-level rebalance, or in a rebalance funded from holdings.
Index Method	As an aggregation method, Index Method is available only for certain equity fields, such as price ratios and growth ratios. With the Index Method, calculation of the aggregate Price to Earnings ratio includes companies with negative earnings.

Term	Definition
Information Ratio	A risk-adjusted measure that calculates the excess return over the benchmark, per unit of tracking error volatility. [Annualized Mean Excess Return / Annualized Tracking Error]. The higher the Information ratio, the better. It measures the consistency with which the portfolio is beating the benchmark. Calculated using daily returns over the stated timeframe.
Interaction Effect	The interaction between the weighting and the selection effects, which does <i>not</i> represent an explicit decision of the investment manager.
Interim CF	In the <i>Cash Flow Summary</i> sub-tab, the periodic income produced by the instrument. For equities, this is a projected dividend; for fixed income, this is a coupon payment.
Isolated Risk (Std)	The standard deviation of the distribution of returns, expressed as either a percentage return or portfolio profit and loss (P&L). This measure represents portfolio risk (expressed as the standard deviation of portfolio returns) or active risk (expressed as the standard deviation of portfolio active returns).
Issuer Constraint	Ensures that no single issuer has the weight of greater than <i>Max</i> value (default is 10%) in the optimal portfolio.
Jensen Alpha	A risk-adjusted measure that calculates the actual return of the portfolio over and above the return predicted by the Capital Asset Pricing Model (CAPM), given the portfolio's beta and the benchmark return. [Portfolio Return - (Risk Free Rate + Beta x (Benchmark Return - Risk Free Rate))]. Calculated using the annualized mean of daily returns of the portfolio and benchmark over the stated timeframe.
Key Rate	A measurement of the sensitivity of the portfolio to a single basis point shift at a specific rate.
Kurtosis	Kurtosis measures the peakedness or flatness of the daily return distribution over the stated timeframe. In a flat distribution, the average value is more likely to occur.
Level	In the <i>Best & Worst</i> sub-tab, allows you to choose to view the best or worst performing sectors or positions against scenarios.
Leverage	A composite metric of different measures of leverage.
Long	Provides a value that reflects your long positions for the corresponding metric and security. For example, when appearing under the <i>Market Value Last</i> column, shows the market value of long positions only. A long position is the buying of a security, such as a stock, commodity or currency, with the expectation that the asset will rise in value.
Look-through	The concept of evaluating each underlying holding in an index or exchange-traded fund (ETF) individually when looking at portfolio exposure or return, rather than evaluating the index or ETF as a whole. Enabling portfolio or benchmark look-through temporarily replaces the funds or ETFs in your portfolio with their underlying securities, while maintaining the same total market values and weights relative to the rest of your portfolio. This allows you to see a complete picture of the sectors where you have exposure, because indexes and ETFS are comprised of instruments that vary in sector or industry.

Term	Definition
Look-through Depth	The maximum level of look-through enabled for portfolios, funds, or portfolios of portfolios, as set in the <i>View Defaults</i> .
Lot ID	The tax lot identifier for the position.
Lot Size (Shares)	Smallest increment in number of shares traded or held in optimal portfolio.
Marginal Contribution	Sensitivity of active risk for small changes in active exposure.
Marginal (X100)	The factor marginal risk multiplied by 100. This is the value by which the portfolio tracking error increases for a 1% increase in the weight of a portfolio holdings subgroup.
Marginal VaR	Measures the impact of a one hundred currency unit change in the position within the portfolio. For example, if the portfolio is denominated in U.S. dollars, Marginal VaR is based on a one hundred dollar change.
Market Value Last	<p>The current value of your investment in or exposure to an instrument, calculated as your position in that instrument multiplied by its current price multiplied by the current exchange rate. At the sector and portfolio levels, this is the sum of the market values of the individual instruments.</p> <p>For a portfolio with short positions, market value at the portfolio level is calculated as the total market value of long positions minus the total market value of the shorts, plus cash and any margin set aside to cover the shorts.</p>
Max	In the <i>Setup</i> tab of the <i>Portfolio Optimization</i> screen, specifies a maximum constraint in order to shape your optimal portfolio.
Max Sequence	The maximum number of positive or negative return periods for the fund occurring sequentially. For example, if the fund experiences a streak of nine days in a row of positive returns followed by one down day, and if this streak represents the most number of days in a row of positive returns during the specified period, this value is the <i>Max Sequence</i> .
Maximum	The highest individual value in the portfolio or sector grouping.
Maximum Drawdown	The largest drop from a peak to a bottom in a sub-period over the stated timeframe. It measures the magnitude of the worst loss an investor could have incurred by investing in the portfolio or benchmark.
Maximum Drawdown Length	The length in days between the peak and the bottom of the maximum drawdown over the stated timeframe.
Maximum Increase	The largest gain from a bottom to a peak in a sub-period over the stated timeframe. It measures the magnitude of the best gain an investor could have incurred by investing in the portfolio or benchmark.
Maximum Range	The earliest date in the portfolio that contains valid positions. The Maximum Range timeframe option is available in the <i>Attribution</i> , <i>Performance (Total Return, Period Analysis, and Statistical Summary</i> sub-tabs), and the Trends view in the <i>Holdings</i> and <i>Characteristics</i> tabs.

Term	Definition
	<p>Fixed income and balanced portfolios are limited to analysis no earlier than Dec 31, 2010. If you have included a benchmark, the shorter of the portfolio and benchmark maximum ranges is used.</p> <p>AIM Analytics customers have the additional option to set an <i>Inception Date</i> for each account in the <i>Analytics</i> tab in the <i>Accounts</i> setup screen of the <i>Firm Setup Manager</i> (FIRM) function. This <i>Inception Date</i> is used as the <i>Start</i> date when Maximum Range is selected in PORT. For more information on FIRM, see the FIRM Help Page.</p>
Maximum Recovery Period	The sum of maximum drawdown length and recovery period from maximum drawdown over the stated timeframe.
Maximum Relative Drawdown	The largest drop relative to the benchmark from a peak to a bottom in a sub-period over the timeframe. It measures the magnitude of the worst relative loss an investor could have incurred by investing in the portfolio vs. the benchmark.
Maximum Relative Drawdown Length	The length in days between the peak and the bottom of the maximum relative drawdown over the stated timeframe.
Maximum Relative Recovery Period	The sum of maximum relative drawdown length and recovery period from maximum relative drawdown.
Maximum Return	The highest one-day total return over the stated timeframe, expressed as a percentage.
Mean	The average of the Descriptor.
Mean Excess Return (Annualized)	The average daily relative total return over the stated timeframe, annualized and expressed as a percentage.
Mean Return (Annualized)	The average daily total return over the stated timeframe, annualized and expressed as a percentage.
Median	The midpoint of the range of numbers that are arranged in order of value.
Methodology	In the <i>Tracking Error/Volatility Trends</i> sub-tab, allows you to specify ex-ante risk options: Current Portfolio, Historical Risk, or Historical Risk (X100) (historical risk multiplied by 100).
Min	In the <i>Setup</i> tab of the <i>Portfolio Optimization</i> screen, specifies a minimum constraint in order to shape your optimal portfolio.
Minimum	The lowest individual value in the portfolio or sector grouping.
Minimum Return	The lowest one-day total return over the stated timeframe, expressed as a percentage.
MktVal (Port)	The current market value of the portfolio.
Model	<ul style="list-style-type: none"> • In the <i>Tracking Error/Volatility Summary</i> and <i>Trends</i> sub-tabs, refers to multi-factor risk model that is used to estimate the portfolio, benchmark, and active risk values. The model version is the date on which the model was generated. • In the <i>VaR</i> and <i>Scenarios</i> tabs, the risk model you want to apply to your portfolio, typically the smallest geographical region that covers the holdings in your portfolio. For more information on Bloomberg's risk factor models, see White Papers.

Term	Definition
Model Date	The iteration of the risk model.
Modified Duration	A measurement of the percentage change in price for a given change in yield.
Momentum	Differentiates between stocks that have risen over the past year from those that fell.
Mondigiani RAP	Modigliani Risk-Adjusted Performance measures how much the portfolio would have returned if it had had the same risk as the benchmark. It is a linear transformation of the Sharpe Ratio, but the results are expressed in terms of performance for more intuitive interpretation. The higher the indicator, the better. Calculated using daily returns over the stated timeframe.
MV	In the <i>VaR Comparison</i> sub-tab, displays the VaR comparison analysis coverage by market value.
Net	Indicates that portfolio weights are calculated as the exposure of the positions divided by the market value of the portfolio. This is the default portfolio capital calculation for most portfolios, but it does not work for hedge funds with a long/short strategy, which requires the flexibility to use a different denominator when calculating portfolio weights.
News Heat	A measure of the amount of stories currently being published on a company relative to the flow over the previous 45 days. The data is updated in realtime. The greater the number of bars, the more news that is being generated for that instrument.
Notional	The value of the underlying asset. The notional represents the market value for non-derivative instruments. The notional value of an options is the delta adjusted underlying value while for a future it is the contract value.
Notional Exposure	The current value of the underlying asset. For an option, notional exposure is the delta-adjusted underlying value (calculated as number of contracts * contract size * option delta * underlying asset price), while for a future it is the contract value. For non-derivative instruments, the current market value is displayed.
Notional Weight	The notional value of the instrument divided by the sum of the notional values of all securities in the portfolio.
Notional Weight (Leveraged)	The notional value of the instrument divided by the market value of the portfolio.
Number	On the <i>Performance-Period Analysis</i> sub-tab, the number of up/down or winning/losing periods, in terms of fund return, during the analysis time frame.
Number of Buys	The number of portfolio positions bought.
Number of Sells	The number of portfolio positions sold.
Numerator	For custom formula fields only, allows you to customize the numerator for the weighted average <i>aggregation methodology</i> . This option provides additional flexibility when including custom fields in your portfolio view.
Option Adjusted Convexity (OAC)	A measurement of the convexity of the bond considering embedded options (e.g. dynamic cash flows due to change rates).
Option Adjusted Duration (OAD)	A measurement of the bond duration considering embedded options (e.g., dynamic cash flows due to change rates).

Term	Definition
Option Adjusted Spread Duration (OASD)	A measurement of the sensitivity of price to a one percent change in option adjusted spread.
Option Adjusted Spread (OAS)	The option adjusted spread. The flat spread that must be added to the yield curve in a pricing model to discount a security payment to match its market price.
Original	The original value of the individual Descriptor's Factor Exposure.
Override N/A Values	Allows you to specify a value to appear in place of N/A for a specific field. This ensures that positions with N/A values, which were previously dropped from the aggregate, are now included in the aggregation using that value.
P&L	The portfolio's current profit or loss position. P&L is calculated as the portfolio's current value – the portfolio's value at the prior market close.
P&L %	In the <i>Scenario Summary</i> sub-tab, the profit or loss generated on the portfolio (or active portfolio if a benchmark is selected) in the stated portfolio currency expressed as a percent of market value, given the applied scenario.
P/B (+/-)	Calculated as P/B Ratio (Port) – P/B Ratio (Bench).
P/B (Bench)	The P/B ratio for the benchmark sector/security.
P/B (Port)	The P/B ratio for the portfolio sector/security.
P/CF (+/-)	Calculated as P/CF (Port) – P/CF (Bench).
P/CF (Bench)	The P/CF ratio for the benchmark sector/security.
P/CF (Port)	The P/CF ratio for the portfolio sector/security.
P/E (+/-)	Calculated as P/E Ratio (P) – P/E Ratio (B).
P/E (Bench)	The P/E ratio for the benchmark sector/security.
P/E (Port)	The P/E ratio for the portfolio sector/security.
P/E Ratio	The price/earnings ratio for the portfolio or benchmark sector/security.
Par Weighted Average	The sum of the indicator * par amount, divided by the sum of the par amount.
Partial VaR	Measures the impact of removing an entire position or aggregation (e.g., the entire financial sector) on the overall portfolio VaR. This can be measured in P&L units or in %. If viewed in percent, the partial VaR expressed in P&L is divided by the active/difference portfolio's market value at that particular node.
Participation Rate	The percentage of the average or median daily volume of your position that you are willing or intending to sell on a given day.
Per	In the <i>Cash Flow Summary</i> sub-tab, allows you to specify the periodicity and timeframe of the cash flow projection. The periodicity can be daily, monthly, quarterly, semi-annually, and annually.
Pick Percentile	In the <i>VaR Distribution</i> sub-tab, allows you display different scenarios for a selected percentile (e.g., 2.5%).

Term	Definition
Port	In general, Port indicates the portfolio being analyzed. The portfolios are created and maintained in PRTU and BBU. For more information, see the PRTU Help Page and the BBU Help Page . In the <i>Characteristics - Characteristics Summary</i> sub-tab, however, Port indicates the weight value of the portfolio.
Portfolio Beta	A number describing the relation of its returns with that of the benchmark. If the benchmark is up 10% and your portfolio beta is 1.2, your portfolio is expected to be up 12%. Portfolio Beta is calculated as the ratio of the covariance between the portfolio and benchmark and the variance of the benchmark. If no benchmark is selected, Portfolio Beta is set to zero.
Portfolio Beta (ex-ante)	A number describing the relation of returns of portfolio and benchmark.
Portfolio Exposure	The portfolio's sensitivity to a given factor.
Port Exposure (Absolute)	The absolute value of the portfolio's sensitivity.
Portfolio Return	In the <i>Attribution - Attribution Summary</i> sub-tab, the total return percentage of the portfolio over the specified timeframe.
Pos (Port)	The number of shares held on the portfolio security.
Position	In the <i>Best & Worst</i> sub-tab allows you to choose to see the best or worst scenarios in relation to GICS sector or securities.
Portfolio Level 1	Displays the first level of position ownership within your portfolio view. When you are analyzing a portfolio of portfolios or a portfolio of funds, you can add up to six <i>Portfolio Level</i> columns into your view, so you can see the deepest owner of a single position.
Portfolio of Portfolios	A compilation of multiple tickerized sub-portfolios into one portfolio, which allows you to analyze an aggregation of portfolios and positions in one view in PORT. You can set up a portfolio of portfolios by adding positions on sub-portfolios to any portfolio in PRTU or by uploading portfolio tickers to your portfolio via BBU. For complete information on tickerized portfolios, click here  .
Price Close (Port)	The closing price of the portfolio security.
Principal	The clean market value of the book.
Principal CF	In the <i>Cash Flow Summary</i> sub-tab, the notional repayment of the instrument. This represents the redemption of the instrument either through maturity or call.
Principal Value	The current market value of a bond excluding the accrued income. Principal value, also known as the clean market value, is calculated as par amount * clean price.
Profit	In the <i>Tracking Error/Volatility Exposures</i> sub-tab, analyzes profit margins and measures such as ROE to differentiate between money makers and money losers.
Profit & Loss	The estimated amount earned or lost on positions held in the portfolio over the stated timeframe, as of the date of analysis. P&L is calculated using end of day prices and is expressed in the portfolio currency.

Term	Definition
Propagation	<p>Allows you to create explicit factor model scenarios (typically intended for equity portfolios) based on other variables, which may not be directly used in re-pricing the securities in your portfolio. For example, you may want to know how your portfolio might move if inflation goes up, based on the relationship between inflation and the factors that drive your portfolio.</p> <p>Note: Propagation is not available with historical or full valuation scenarios.</p>
R-Squared	<p>A measure of how well the portfolio's performance correlates with the performance of the benchmark, and thus a measure of what portion of its performance may be explained by the performance of the benchmark. Values for R-Squared range from 0 to 1, where 0 indicates no correlation and 1 indicates perfect correlation. Calculated using daily returns over the stated timeframe.</p>
Raw Data	<p>Displays the individual Components that comprise the Descriptors.</p>
Recovery Period from Max Drawdown	<p>The length in days between the bottom of the maximum drawdown and a value equal to or greater than the peak.</p>
Recovery Period from Max Relative Drawdown	<p>The length in days between the bottom of the maximum relative drawdown and a value equal to or greater than the peak.</p>
Relative	<p>In the <i>Setup</i> tab of the <i>Portfolio Optimization</i> screen, specifies whether the corresponding constraint is calculated relative to another portfolio, benchmark, or nothing (none).</p>
Relative to Matrix as of	<p>In the <i>Factor Transparency</i> screen, the date for the factor transparency data calculation.</p>
Relative Total Return	<p>Portfolio Total Return - Benchmark Total Return over the stated timeframe, expressed as a percentage.</p>
Relative Total Return %	<p>Portfolio Total Return - Benchmark Total Return over the stated timeframe, expressed as a percentage.</p>
Relative VaR	<p>The maximum expected relative loss of the portfolio vs. the benchmark, expressed as a percentage. VaR here is calculated using the natural distribution of daily returns over the stated timeframe and is based on a 95% confidence level.</p>
Relative VaR Gaussian	<p>The maximum expected relative loss of the portfolio vs. the benchmark, expressed as a percentage. Standard VaR is calculated using the natural distribution of daily returns over the stated timeframe and is based on a 95% confidence level. By contrast, Gaussian VaR is calculated using the mean daily return and standard deviation to normalize the distribution of returns.</p>
Reporting Currency	<p>The currency used in the analysis, as indicated by the selection in the <i>Curr</i> drop-down menu of any <i>Main View</i> sub-tab. By default, the currency under analysis is the portfolio base currency.</p>
Reporting Units	<p>Indicates either Returns or P&L.</p>
Residual (+/-)	<p>In the <i>Tracking Error Main View</i> tab, the relative residual risk.</p>

Term	Definition
Return (x100)	In the <i>Factor Transparency</i> screen, the latest return for the factor for the selected <i>Relative to Matrix as of</i> date. The return frequency is daily for VaR and weekly for tracking error.
Return Calculation Type	<p>Allows you to choose your taxation calculation method:</p> <ul style="list-style-type: none"> Gross: No tax is taken out of dividends included in return calculations. Net: The withholding tax is based on the country of domicile of the company, and is taken out of the dividend in the return. Portfolio Gross / Bench Net: Calculates gross returns for the portfolio versus net of tax returns for the benchmark.
Return on Cash	<p>Allows you to determine how the portfolio handles the return on cash for foreign investments:</p> <ul style="list-style-type: none"> None: Excludes return on cash in the local currency for the portfolio. Portfolio Fixed Rate: Uses the rate of return specified for the portfolio in the <i>Portfolio Administration</i> (PRTU) function. Pre-Defined Money Market Program: Simulates an investment in a money market instrument to see a return on cash in your portfolio analysis. For information on pre-defined money markets, see Return on Cash. <p>Note: When setting up the portfolio in PRTU, the <i>Return on Cash</i> field allows you to enter a fixed rate of return on foreign cash investments for the portfolio.</p>
Risk	Expressed as the standard deviation of portfolio returns and is used as a gauge for the portfolio's expected volatility.
Risk Factor Vol (Std %)	In the <i>Tracking Error/Volatility Factors</i> sub-tab, the factor volatility expressed as the standard deviation of return.
Risk Marginal (x100)	In the <i>Tracking Error/Volatility Risk Bets</i> sub-tab, the factor marginal risk multiplied by 100. This is the value by which the portfolio tracking error increases for a 1% increase in the weight of a portfolio holdings subgroup.
Risk Model	See Model .
Risk (Tot. Active Std %)	In the <i>Tracking Error/Volatility Risk Bets</i> sub-tab, the factor-isolated active risk expressed as the standard deviation of return.
Rule	<p>When optimizing a portfolio, allows you to set the rule that applies to the trade universe. The following options are available:</p> <ul style="list-style-type: none"> No Trade List: A list of securities in your portfolio that you do not buy or sell (trade). No Sell List: A list of securities in your portfolio for which you do not reduce weights (cannot sell). No Buy List: A list of securities in your portfolio for which you do not increase weights (cannot buy). Liquidate (No Hold): Sets security weights to zero.

Term	Definition
	<ul style="list-style-type: none"> No Short: A list of securities you cannot have short. No Long: A list of securities you cannot have long.
Scen	Allows you to select a scenario for analysis on the <i>Scenarios</i> tab, so you can stress-test your portfolio to see how your portfolio is impacted, determine which scenarios are best or worst for your portfolio, and drill down into your portfolio holdings to see numerical and graphical depictions of how holdings perform within a given scenario. You can also access the <i>Scenario Manager</i> screen.
Sector	The industry sector.
Security List	The destination portfolio, equity index, benchmark, or favorite source, depending on the <i>Source</i> selection.
Selection Effect	The active return attributed to security selection decisions that differ from the benchmark. When the portfolio sector returns exceed the benchmark return, a positive number is posted.
Semivariance (Annualized)	Volatility of the daily returns that are lower than the mean return over the stated timeframe, expressed as an annualized percentage. Whereas Standard Deviation is calculated using all the returns, Semivariance is calculated using only the returns below the mean. It aims to isolate the negative portion of volatility. Larger values suggest greater risk.
Set Outlier Maximum	Allows you to set a maximum value for a specific field. If an instrument exceeds the maximum value, its value is excluded from the calculation of the portfolio aggregate.
Set Outlier Minimum	Allows you to set a minimum value for a specific field. If an instrument does not meet the minimum value, it is excluded from the calculation of the portfolio aggregate.
Shares / Par Amount	In Trade Simulation, indicates position values are defined explicitly by the number of shares in each security.
Sharpe ratio	A risk-adjusted measure that calculates the excess return over the risk free rate (3-month yield linked to the currency), per unit of volatility. [(Annualized Mean Return - Risk Free Rate) / Annualized Standard Deviation of Returns]. The higher the Sharpe ratio, the better the portfolio's historical risk-adjusted performance. Calculated using daily returns over the stated timeframe.
Short	Provides a value that reflects your short positions for the corresponding metric and security. For example, when appearing under the <i>Market Value Last</i> column, shows the market value of short positions only. A short position is a sale of a borrowed security, commodity, or currency with the expectation that the asset will fall in value.
Size	In the <i>Tracking Error/Volatility Exposures</i> sub-tab, an aggregate metric distinguishing between large and small stocks.
Skewness	Skewness measures the degree of asymmetry of the daily return distribution over the stated timeframe. If the left tail (tail at small end of the distribution) is more pronounced than the right tail (tail at the large end of the distribution), the return is said to have negative skewness. If the reverse is true, it has positive skewness. If the two are equal, it has zero skewness.

Term	Definition
Sortino Ratio Vs Index	A risk-adjusted measure that calculates the excess return over the benchmark, per unit of semivariance (volatility of negative returns). [(Annualized Mean Excess Return) / Annualized Semivariance of Returns]. The higher the Sortino ratio, the better the portfolio's historical risk-adjusted performance. Calculated using daily returns over the stated timeframe.
Sortino Ratio Vs Riskfree	A risk-adjusted measure that calculates the excess return over the benchmark, per unit of semivariance (volatility of negative returns). [(Annualized Mean Excess Return) / Annualized Semivariance of Returns]. The higher the Sortino ratio, the better the portfolio's historical risk-adjusted performance. Calculated using daily returns over the stated timeframe.
Source	The source of trades you want to optimize, either Portfolio, Equity Index, Favorites, or Benchmark.
Specified by User	Indicates that the portfolio market value is defined by the user, then incorporated as the denominator in the portfolio weight calculations. When you supply a portfolio value via BBU or PRTU as of a historical date, if there are no cash inflows or outflows, the portfolio adopts the newly supplied portfolio value and includes any accumulated P&L from the historical date up to the date of analysis. For more information on the calculation of portfolio weights, see Portfolio Capital .
Spread Change	The change in OAS implied by the instruments excess return and OAS spread duration. For credit default swaps, this represents the change in the underlying CDS spread and is calculated using the excess return (as shown from the seller of protections perspective).
Standard Dev	The standard deviation of the Descriptor.
Standard Deviation (Annualized)	A measure of the volatility of the daily total returns over the stated timeframe, expressed as an annualized percentage. It measures how widely spread the daily returns are within the period. Larger values suggest greater risk.
Standardized	The standardized value of the individual Descriptor's Factor Exposure.
Start	In trend analysis mode, the date you want to begin analysis.
Status	Indicates whether the optimization request is pending, failed, or a success.
Stress MV	In the <i>Scenario Summary</i> sub-tab, the new market value of the portfolio (or active portfolio if a benchmark is selected) taking into account any profit or loss generated, given the applied scenario.
Sub-Portfolio	A portfolio that comprises a portfolio of portfolios .
Sub-Portfolio Level 1	A classification option that, when look-through is enabled, aggregates your portfolio positions by their original sub-portfolio or fund. You can add up to six <i>Sub-Portfolio Levels</i> to your classification, so you can analyze your portfolio broken down by the deepest owner of a single position.
Table	In the <i>Cash Flow Summary</i> sub-tab, allows you to analyze a table of cash flow projections for the timeframe specified.

Term	Definition
Target Price Display Type	Allows you to select how you want the target price data for your custom field to appear. If you select <i>Price</i> , the field displays the target price you entered in or uploaded to the custom data field. If you select <i>Difference</i> , the field displays the difference between your custom target price and the most recent closing price for the instrument, i.e., custom target price - last close. If you select <i>Percentage Difference</i> , the field displays the percentage difference between your custom target price and the most recent closing price.
Tickerized Portfolio	A portfolio to which a ticker has been assigned in the <i>Portfolio Administration</i> (PRTU) function. You can load the portfolio in the command line similar to a security and analyze risk, characteristics, and performance analytics throughout the Bloomberg. You can create "positions" on the tickerized portfolio in other portfolios, thereby creating a <i>portfolio of portfolios</i> . For complete information on tickerized portfolios, click here  .
Time	In trend analysis mode, the timeframe for the analysis (e.g., month-to-date [MTD] or year-to-date [YTD]).
Timeframe	In the <i>Factor Transparency</i> screen, allows you to select the date range illustrated in the transparency chart.
Time Horizon	Refers to how the risk numbers are scaled. For example, if Time Horizon is set to one year, the risk statistics are annualized. For VaR, Bloomberg calculates a 1-day VaR and scales that number to include other times frames.
Time Series	In the <i>Factor Transparency</i> screen, displays a bar chart illustrating the weekly positive and negative returns attributed to the selected factor over the specified timeframe.
Total Active Risk	The standard deviation of portfolio active returns.
Total CF	In the <i>Cash Flow Summary</i> sub-tab, the sum of the <i>Interim CF</i> and <i>Principal CF</i> payments.
Total Return	The total return over the stated timeframe as of the date of analysis, expressed as a percentage.
Total Return %	The total return over the stated timeframe as of the date of analysis, expressed as a percentage.
Total Risk	Total risk is broken down into the Factor and non-factor groups. Factor groups are model-specific.
Tracking Error	<p>Tracking errors are annualized volatilities of active returns, expressed in percentages. Tracking error on security level shows the contribution to the portfolio level tracking error. This would be the annualized volatility \times (relative) weight \times correlation. It is important to keep in mind that there is a difference between the total tracking error and the security level track error.</p> <p>Total track error is the standard deviation of the active portfolio (which is the portfolio minus the benchmark), and it can never be negative. However, when the tracking error is shown broken up in securities or sectors, what is actually shown is a marginal contribution to tracking error. Then, the security level tracking error shows how</p>

Term	Definition
	<p>sensitive is the total tracking error when increasing a given position. Usually that number is positive: increasing a given position would make the returns of the portfolio less alike the returns of the benchmark, thus increasing the total track error.</p> <p>It can happen due to correlations, however, that increasing a position will make the portfolio more similar to the benchmark (decreasing the tracking error). In that case, the security contribution to tracking error would be negative.</p>
Tracking Error (Annualized)	<p>The standard deviation of the daily excess returns relative to the benchmark over the stated timeframe, expressed as an annualized percentage. It is used as a measure of the quality of benchmark tracking.</p>
TradeAct	<p>A turnover-based measure. Bloomberg focuses on turnover instead of trading volume to avoid its correlation with size since ideally descriptors should be independent from each other in the cross-section.</p>
Trade-Off	<p>In the <i>Setup</i> tab of the <i>Portfolio Optimization</i> screen, the Trade-Off field defines how different goal and constraint fields are evaluated relative to each other. The trade-off can be understood in two contexts:</p> <ul style="list-style-type: none"> • Multiple Goal Terms: As an example, specifying two goal terms may look like: <ul style="list-style-type: none"> — Minimize Active Total Risk (Unit: %, Trade-off = 0.2) — Maximize Current Ratio (Unit: number, Trade-off = 1) This means that a .2% increase in Active Total Risk is worth the same as an increase of 1.0 in Current Ratio, and vice-versa. • Soft Constraints: In the context of constraints, the trade-off applies to the value in excess of the minimum and maximum bounds specified. As an example: <ul style="list-style-type: none"> — Goal: Maximize Current Ratio (Trade-off = 1) — Constraint: Active Total Risk (Maximum = 10, Trade-off = 0.5) This means that every 0.5% that Active Total Risk goes above 10% is worth an increase of 1 in Current Ratio. If trade-off is not specified for a constraint, then the constraint can never be violated.
Trades Value	<p>The combined market value of the trades.</p>
Transaction Return	<p>The active return attributable to trading above or below a day's closing price. Reported in local currency.</p>
Treynor Measure	<p>A risk-adjusted measure that calculates the excess return over the risk free rate (3-month yield linked to the currency), per unit of Beta relative to the benchmark. $[(\text{Annualized Mean Return} - \text{Risk Free Rate}) / \text{Beta}]$. The higher the Treynor ratio, the better the portfolio's historical risk-adjusted performance. This is useful for assessing the excess return from each unit of systematic risk. Calculated using daily returns over the stated timeframe.</p>
Turnover	<p>The value of simulated buys plus the value of simulated sells excluding cash, divided by the original portfolio value. This is expressed in percentage terms.</p> <p>Note: Turnover is only available within Trade Simulation and Portfolio Optimization. In Trade Simulation mode, Turnover appears at the bottom of each tab's Main View</p>

Term	Definition
	sub-tab. In Portfolio Optimization, <i>Turnover</i> can be used as either a goal or a constraint in the Optimization Setup, and the resulting <i>Turnover</i> value appears on the <i>Trades</i> results tab after the Optimization task has been run.
Turnover (%)	The turnover, in percentage terms, incurred from the initial portfolio to the optimal portfolio.
UCITS Rule (5 sum 40 rule)	The UCITS rule ensures that the sum of issuer weights greater than the specified threshold is not greater than the <i>Max</i> value (default is 40%).
Unit	In the <i>VaR</i> and <i>Tracking Error/Volatility</i> tabs, the units to display potential portfolio loss, which may be displayed as either a market value (P&L) or percentage return (Return %).
Unrealized Gain/Loss	The position's principal value (i.e., the clean market value) minus the book value (i.e., the current face of the bond multiplied by the book price). Accrued income is excluded from the principal and book value calculations.
Use Underlying Price for Receipts	<p>The option for <i>Depository Receipts Pricing</i>. If selected, the underlying equivalent price is calculated by multiplying the price of the underlying ticker by the receipt ratio. The receipt ratio represents the number of underlying shares represented by one receipt. If the underlying share is unlisted, not actively traded, or a receipt ratio is unavailable, the receipt price continues to be used. If the underlying is not trading on a particular day due to a holiday (for example), the underlying price from the previous day is carried forward.</p> <p>If the underlying pricing is used, the currency of the receipt will be in the underlying share currency.</p>
Value	<p>The value of specific components. In various tables, this is the percentage weight of the security in the portfolio.</p> <p>In the <i>Tracking Error/Volatility Exposures</i> sub-tab, a composite value metric that differentiates between "rich" and "cheap" stocks. Bloomberg combines fundamental and analyst consensus data for this factor.</p>
Value at Risk	Abbreviated as VaR. Measured in currency units or as a % of market value, VaR measures the maximum loss projected given inputs for the time horizon and confidence level. The can be measured on the portfolio, benchmark, or active/difference portfolio.
Value of Buys	The buy values associated with the Trades Value (in the reporting currency).
Value of Sells	The sell values associated with the Trades Value (in the reporting currency).
VaR	Measured in currency units or as a % of market value, VaR measures the maximum loss projected given inputs for the time horizon and confidence level. VaR can be measured on the portfolio, benchmark, or active/difference portfolio.
VaR%	VaR divided by portfolio market value. For leveraged portfolios, such as long-short or portfolios with derivative instruments, portfolio VaR can be greater than the portfolio market value, and thus greater than 100%.

Term	Definition
VaR (ex-post)	The maximum expected loss of the portfolio, expressed as a percentage. VaR here is calculated using the natural distribution of daily returns over the stated timeframe and is based on a 95% confidence level.
VaR Gaussian	The maximum expected loss of the portfolio, expressed as a percentage. Standard VaR is calculated using the natural distribution of daily returns over the stated timeframe and is based on a 95% confidence level. By contrast, Gaussian VaR is calculated using the mean daily return and standard deviation to normalize the distribution of returns.
VaR Ratio	Measures the ratio of the portfolio's VaR in the underlying currency with the benchmark VaR as the same underlying currency. A ratio of 2 would indicate that the portfolio VaR is twice as large as the benchmark VaR. This measure will only display if a benchmark is selected, despite it being included in the existing view.
VCV Matrix	In the <i>Factor Transparency</i> screen, displays a matrix of variance/co-variance values between related factors from the specified <i>Relative to Matrix as of</i> date.
Version	The dated version of the portfolio under analysis.
View	The fields to display for the scenario, either all fields for a specific scenario or a single field for all scenarios.
Volatility	In the <i>Tracking Error/Volatility Exposures</i> sub-tab, distinguishes between more volatile and less volatile stocks by measuring volatility from several different angles.
Volume History	The length of trade history used to calculate the median or average volume.
vs	Indicates the benchmark against which you are comparing your portfolio, which can be an index, portfolio, or fund. You can create and maintain custom benchmarks in the <i>Portfolio Administration</i> (PRTU) function. For more information on using PRTU to maintain benchmarks, click here 
Waterfall	A hierarchy of sources used to specify the priority of pricing sources you want to use. For each day in the analysis, instruments are priced by checking for a price from the first source in the hierarchy. If not found, the next price source on the list is checked. The process continues until a price is found. For historical analysis such as performance attribution, PORT looks back up to 10 business days to find prices for the start date of the analysis. From that day forward, if the price source hierarchy fails to find a price for a given day, the last known price is carried forward.
Weight %	The weight of the Descriptor used to calculate the Factor Exposure.
Weight Bounds (%)	In the <i>Portfolio Optimization</i> screen, the portfolio weights in the optimal portfolio between a specified range (minimum and maximum).
Weighted Average	The mean of the instruments' values weighted by the market value weight of each instrument in the portfolio or sector grouping. If any instrument is missing the value (shows "blank" or N/A), that instrument is excluded from the aggregate calculation.
Weighted Harmonic Average	The reciprocal of the weighted average of reciprocal values. For example, the harmonic weighted average of P/E is calculated as [1 / (Weighted Average of E/P)]. This option is

Term	Definition
	sometimes preferred to Weighted Average for price ratios, because it prevents excess weighting of higher values.
Workout Conv	In the <i>Cash Flow Summary</i> sub-tab, allows you to choose the cash flow projection methodology, which provides an assumption as to when you are going to recover your principal. The options are: <ul style="list-style-type: none">• To Worst: Selects a workout date that produces the worst yield based on the price of the bond. The date may be a maturity or call date.• To Next Call: Assumes the bond is called at its next call date.• To Maturity: Assumes the bond is called on its maturity.

FREQUENTLY ASKED QUESTIONS

Get answers to the most commonly asked questions.

How do I find the duration of a bond fund?

To see the duration of a bond fund, enter the ticker of the fund followed by PORT <GO>.

For example, enter LQD <Equity> PORT <GO>. On the Main View tab, basic information about the fund appears. Scroll to the right to see key duration measures, such as Option Adjusted Duration (OAD) and Modified Duration (Mod Dur).

For more on using PORT, see the PORT Help Page.

Why is CDS contract total return positive when it actually lost money?

The total return for a CDS contract is always shown from the protection seller's view.

How are buckets defined in PORT when I choose the Market Cap grouping option?

You can create your own custom market cap buckets using the Unified Classifications (UNCL) function. The following buckets are expressed in USD:

- Small Cap = < \$2 billion
- Mid Cap = \$2 billion - \$5 billion
- Large Cap = > \$5 billion

Note: For more information on creating your own custom market cap buckets, see the UNCL Help Page.

Why does PORT show me securities I don't own?

If you see securities in the Portfolio & Risk Analytics (PORT) function that you do not own, check the following settings:

- Portfolio Look-through: When you enable the Benchmark Look-through setting, lookthrough opens up any funds that you might have. As a result, you may see securities that you do not own. For information on enabling and disabling Portfolio Look-through, see Enabling Look-Through in the PORT Help Page.
- Show Benchmark Securities: When you enable the Show Benchmark Securities setting, the securities held by the benchmark appear. As a result, you may see securities that you do not own. For information on enabling and disabling Show Benchmark Securities, see Showing/Hiding Benchmark in the PORT Help Page.

Why does the risk for my long-short portfolio look so high in PORT?

The Portfolio & Risk Analytics (PORT) function expects that cash from shorting securities is included in the portfolio. For example, if you started with \$100 capital and bought \$100 worth of stocks while simultaneously short-selling \$100, then your portfolio should include a \$100 long position, \$100 short position, and \$100 cash that you have received as proceeds for shorting. If the \$100 cash position is missing, PORT assumes that portfolio leverage is high and subsequently the risk of this portfolio is high as well.

Why does the Intraday tab of PORT give incorrect P&L for my FI/Balanced portfolio?

The live FX rates and calculation methodology for the Intraday tab in the Portfolio & Risk Analytics (PORT) function are exactly the same for FI/Balanced portfolios as those for current Equity Intraday. Differences may be attributed to the difference

between the previous close BVAL price and MSG1/TRAC/CBBT/BGN/EXCH pricing, or to the Bid/Ask settings for the side of the market.

To troubleshoot, in PORT, check the Display Units setting, which defaults to "Basis Points" for fixed income and balanced portfolio views. You can also add the Closing Market Value column to the Intraday tab and compare the closing market value with the current market value. For more information on updating your unit settings, see Advanced View Defaults in the PORT Help Page. For more information on adding columns, see Adding/Removing Fields in the PORT Help Page.

Can the Factor Risk Contribution (%) for a factor group be greater than 100%?

Yes, it is possible for the Factor Risk Contribution (%) for a factor group to be greater than 100%. In the Portfolio & Risk Analytics (PORT) function, Total Risk Contribution (%) always sums up to 100%. Factor Risk Contribution can be both positive and negative. If Factor Risk Contribution for a given factor group is negative, then to get all risk contributions to sum up to 100%, some other factor group risk contribution can be greater than 100%.

Why do I have an incorrect price for MSG1?

On the Intraday tab in the Portfolio & Risk Analytics (PORT) function, you can right-click the security and select Quotes Manager (QMGR), which opens the Quotes Manager (QMGR) function in another window. In QMGR, you can see the market depth for the current security in question and also drill down to see the actual message that corresponds to the MSG1 price. For more information on using QMGR, see the QMGR Help Page.

What is "Cash and Other" in PORT asset allocation?

"Cash and Other" refers to cash and instruments that are not supported on the BLOOMBERG PROFESSIONAL® service because they are not tickerized. This includes OTC instruments such as repos, swaps, and shorts. In the Mutual Funds Holding (MHD) function, these positions display "n.a." in the Ticker column. Bloomberg is working to enhance the related functionality to support additional financial instruments in PORT in the future.

Why does a floating rate instrument show negative effective duration?

In the Portfolio & Risk Analytics (PORT) function, effective duration measures the interest rate sensitivity of the instrument. An instrument with a floating rate coupon trading close to par has an effective duration of close to zero, which is calculated by subtracting the quoted margin from the discount margin. When the bond trades at a premium, the discount margin falls below the quoted margin. This results in the investor receiving what is essentially a fixed cash flow, which is the difference between the two margins (i.e., where you receive LIBOR + 100 bp, but the market says you should be getting LIBOR + 50 bp, which results in a fixed income stream of 50 bp). This fixed cash flow has a positive duration. Hence, the floating rate note has positive interest rate sensitivity.

In the opposite scenario, when a bond trades at a discount, the discount margin is greater than the quoted margin (i.e., the investor receives less than the prevailing market rate). In this case, the investor is short a fixed cash flow represented by the difference between the two margins. The net impact of a short position in a fixed income instrument is a negative duration.

Why doesn't the market value of my Swap/CDS match SWPM/CDSW?

The Portfolio & Risk Analytics (PORT) function takes a snapshot of the curve at 4 PM New York, London, and Tokyo time. This can differ from the closing curve for SWPM and CDSW. For swaps, it differs because you may have used another discount curve, or, the other SWPM settings that were set differ from PORT's settings. For more on the curves that PORT utilizes, see the PORT Help Page: Yield Curves. For CDS, it differs because CMAN mid prices were used, so you would need to use the same prices in order to match.

How do I see the holdings of a fund as of a specific date?

You can backdate a fund's holdings in the Portfolio & Risk Analytics (PORT) function.

To see historical holdings as of a specific date:

1. Enter the fund's ticker followed by PORT <GO>. For example, enter SPY US <Equity> PORT <GO>.
2. Select the Holdings tab.
3. In the As of field at the top-right of the tab, enter a historical date.

Note: If you want to track how the holdings have changed over time, at the top-left of the tab, select Trend.

How do I tickerize a portfolio?

You must be enabled in order to create and analyze tickerized portfolios. To request enablement, contact your Bloomberg Sales Representative. Once enabled, you can create and manage up to 20 portfolio tickers in the Portfolio Administration (PRTU) function.

For information on using tickerized portfolios, see the PRTU Help Page: Tickerized Portfolios.

What is the maximum count of securities I can add to a portfolio?

PORT supports a maximum of 30,000 securities in your portfolio. You can use PRTU <GO> or BBU <GO> to add or upload securities to your portfolio.

For more on adding securities to your portfolio, see the PRTU Help Page: Adding Securities <GO>.

For more on uploading securities to your portfolio, see the BBU Help Page: Uploading Portfolios <GO>.

Why do I see an Offset Cash position in a portfolio?

When you add a leveraged instrument to your portfolio, such as a future, an Offset Cash position is automatically created in the Portfolio & Risk (PORT) function. Offset Cash appears when the market value of an instrument is not equal to its nominal exposure value. When exposure is not equal to market value, as in the case of a leveraged instrument like a future, economic cash can be generated to ensure that the portfolio notional exposure is equal to the portfolio market value, and that all weights sum to 100%.

To remove the offset position, from PORT <GO>:

1. From the toolbar, select View > Edit Current View.
2. In the left sidebar, select General.
3. Deselect Enable Economic Cash.
4. From the toolbar, click the Save button. The offset position is removed. Note: The weights in the portfolio will no longer add up to 100.

Where do the fund holdings that appear in PORT come from?

Bloomberg receives the fund holdings that appear in PORT <GO> directly from public 13F filings provided by the SEC. You can see the raw filings that underly the fund holdings in the Company Filings Search (CFS) function.

How do I reinvest dividends in PORT <GO>?

You can establish automatic adjustments to your portfolio positions using PRTU <GO> when corporate actions, such as dividend payments, occur, so your positions are updated in real-time to reflect market changes.

For example, you can indicate that any proceeds due to cash dividend payments are added as cash to the portfolio.

For more information on reinvesting dividends, see the PRTU Help Page: Corporate Actions.

Does total return on PORT differ from total return on TRA and COMP?

Yes, the total return computations differ on the Portfolio & Risk Analytics (PORT) and Total Return Analysis (TRA)/Comparative Returns (COMP) functions due to different calculation methodologies.

PORT <GO> takes a bottom-up approach to the total return calculation. It calculates the contributed daily return of each of the underlying securities (including any income distributions) and aggregates this on the fund/portfolio level to find the total daily return. This is done for each day throughout the holding period, and then the daily returns are geometrically linked to obtain the total holding period return.

TRA <GO> and COMP <GO> take a top-down approach to the total return calculation, where income distributions are reinvested on the fund level. They do not calculate the daily returns of the underlying securities. Instead, they calculate the daily returns of the fund using the NAV/Price of the fund.

How do I create a fund of ETFs?

You can create a custom portfolio of ETFs on the Portfolio Administration (PRTU) function.

To create a fund comprised of ETFs, from PRTU <GO>:

1. Create a new custom portfolio by following the steps in PRTU Help Page: Create a Portfolio.
2. Add ETFs to the portfolio by following the steps in PRTU Help Page: Adding a Security.
3. Display the portfolio in the Portfolio & Risk Analytics function by running PORT <GO>.

For more on using PORT, see the PORT Help Page.

How do I replicate Duration, OAS, and other analytics for Bloomberg Barclays Indices in Market Structure (MSR) reports?

When you are analyzing Bloomberg Barclays Statistics Universe Indices in Market Structure (MSR) reports, the default aggregation settings for duration fields are already configured to produce official index values. No changes to these settings are required.

When you are analyzing Bloomberg Barclays Returns Universe Indices in MSR reports, Bloomberg recommends the following aggregation settings to ensure that the weighted average values of duration fields match the official index calculation methodology:

- Aggregation Methodology: "Weighted Average"
- Numerator: "RU Sec Mkt Val\Exposure"
- Denominator: "RU Mkt Val\Mkt Val"

For a full list of relevant fields, click [here](#).

To adjust the default aggregation methodology for a field, add the field to your report, then click the corresponding pencil icon. For more on adjusting the fields in an MSR report: PREP Help Page > MSR Report (Steps 12-17).

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