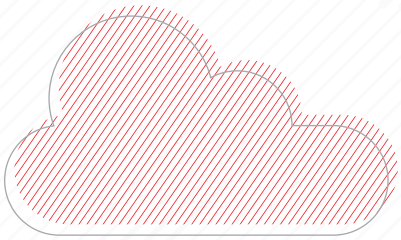
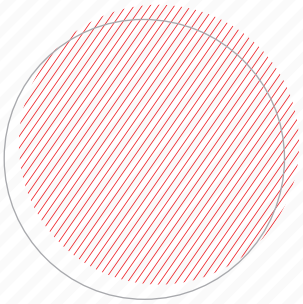
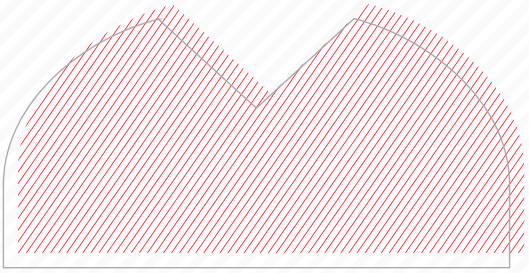
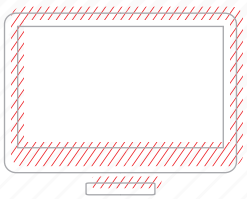
Using the Morningstar Global Risk Model Components

Morningstar Direct Cloud Editions

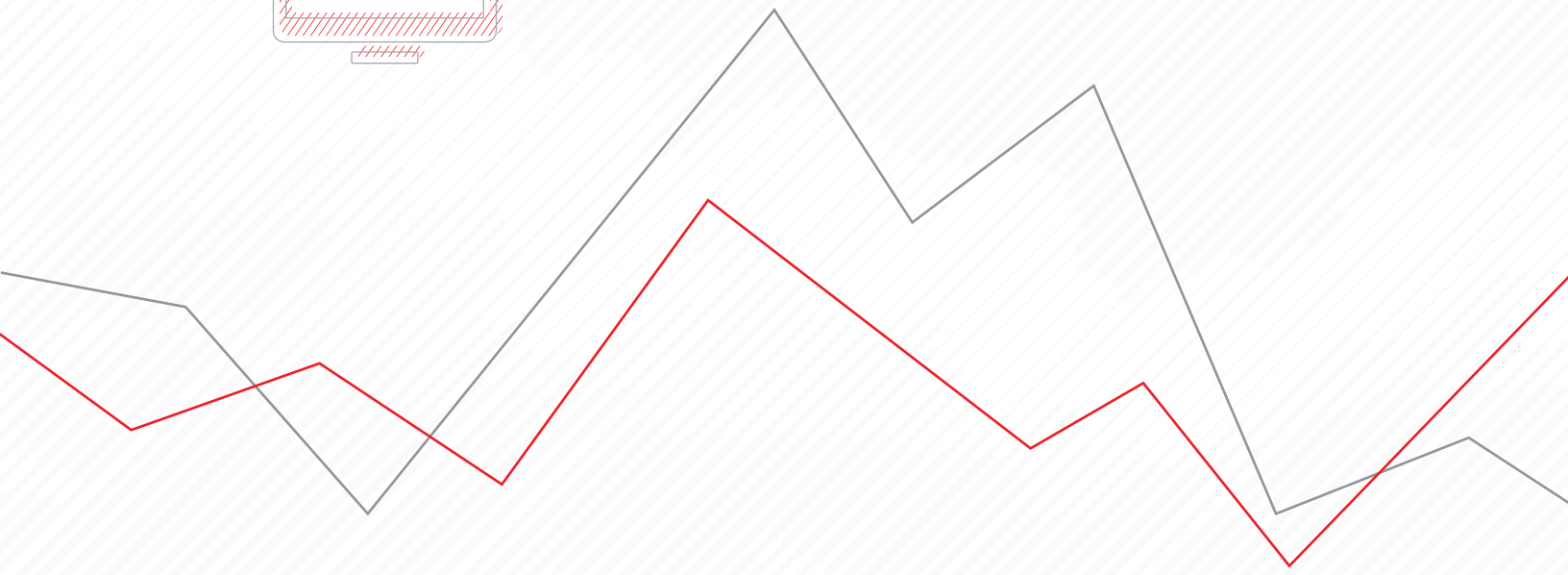








MORNINGSTAR Direct



Contents

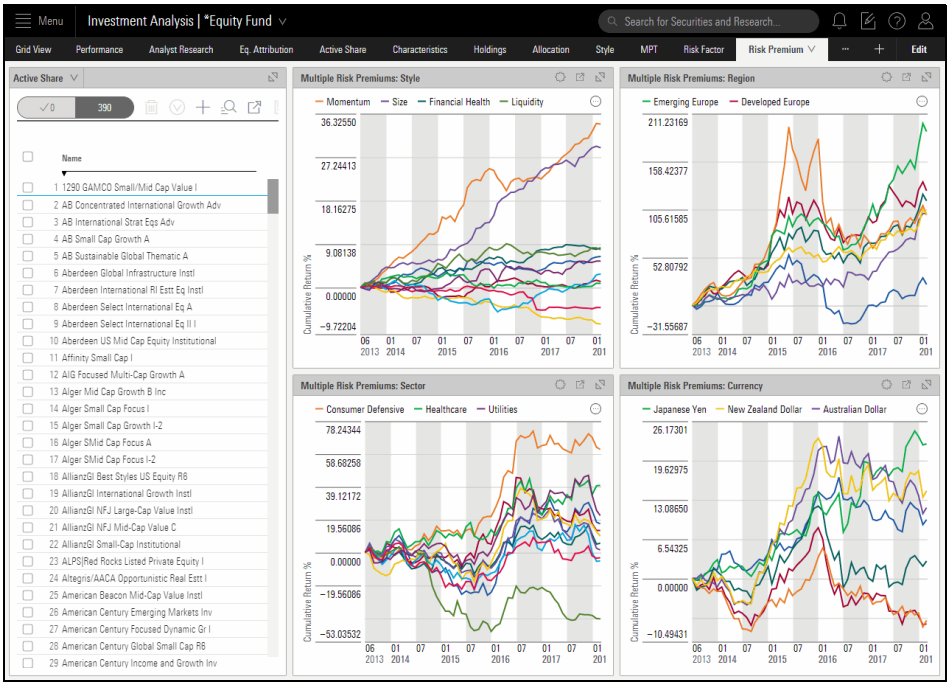
Using the Morningstar Global Risk Model in the Morningstar Direct℠ Cloud Editions

Overview

The web-based versions of Morningstar Direct℠ offer access to the Morningstar Global Equity Risk Model and the Global Multi-Asset Risk Model via a number of components. You can see graphical representations of the risk factor exposures and risk premiums, or view the information as a table.

> ☞ Note: Before proceeding, you might want to read the Morningstar Global Risk Model Methodology, where the risk factors and risk premiums are defined.

This guide offers a number of exercises for screening for investments to analyze using the Risk Model components, as well as practice configuring and analyzing the data in those components.



The Global Risk Model offers a variety of components for analyzing a unique set of data.

Before beginning the exercises in this manual, be sure to read the following topics:

What is a Risk Model?

A risk model is a forecast of the joint distribution of returns for a set of assets. Using the Morningstar Global Risk Models, you can do the following:

- Make more informed account construction decisions
- Understand future return behavior, and
- Understand the impact of adding or subtracting a particular security.

The web-based versions of Morningstar Direct offer data from both the Morningstar Global Equity Risk Model and the Global Multi-Asset Risk Model.

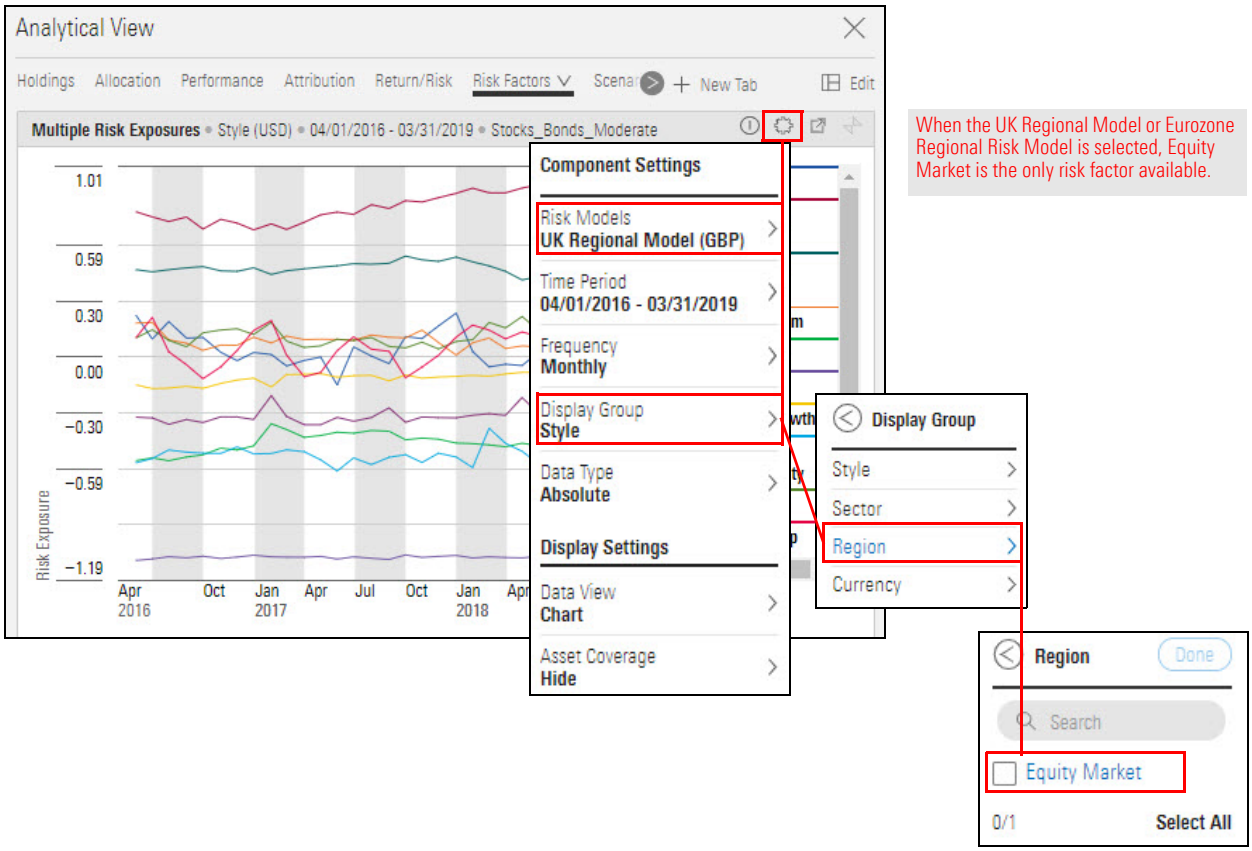
> ☞ Note: Before proceeding, you might want to read the Morningstar Global Risk Model Methodology, where the risk factors and risk premiums are defined. Further, using the Scenario Trend and Scenario Metrics components is covered in Working with the Scenario Analysis Worksheet.

What risk models are available?

The risk models are as follows:

- Global Equity Model (USD)
- Global Multi-Asset Model (USD)
- Global Equity Model (EUR)
- Global Equity Model (GBP)
- Global Equity Model (CAD)
- UK Regional Model (GBP), and
- Eurozone Regional Model (EUR).

> ☞ Note: The UK Regional Model or Eurozone Regional Risk Model are premium features. To request access, contact your Customer Success Manager.



When the UK Regional Model or Eurozone Regional Risk Model is selected, Equity Market is the only risk factor available.

What factors are contained in the Global Equity Risk Model?

The Global Equity Risk Model is comprised of 37 risk factors, grouped as follows:

- Style
- Region
- Sector, and
- Currency.

The risk factors are described in the following table:

	Risk Factor	Description
Style	Valuation	The ratio of Morningstar's quantitative fair value estimate for a company to its current market price
	Economic Moat	A quantitative measure of the strength and sustainability of a firm's competitive advantages
	Valuation Uncertainty	The level of uncertainty embedded in the quantitative fair value estimate for a company
	Financial Health	A quantitative measure of the strength of a firm's financial position
	Ownership Risk	A measure of the risk exhibited by the fund managers who own a company
	Ownership Popularity	A measure of recent accumulation of shares by fund managers.
	Liquidity	Share turnover of a company.
	Size	Market capitalization of a company.
	Value-Growth	Value-Growth, where a value stock has a low price relative to its book value, earnings and yield
	Momentum	How much a stock has risen in price over the past year relative to other stocks.
	Volatility	Total return volatility as measured by largest minus smallest 1month returns in a trailing 12 month horizon

	Risk Factor	Description
Sector	Basic Materials	Measure the economic exposure of a company to the 11 Morningstar sectors. Must sum to 1 and must individually be between 0 and 1.
	Energy	
	Financial Services	
	Consumer Defensive	
	Consumer Cyclical	
	Technology	
	Industrials	
	Healthcare	
	Communication Services	
	Real Estate	
	Utilities	
Region	Developed North America	Measure the partial economic exposure of a company or portfolio to seven geographic regions (Better approach than measuring geographic measuring risk according to where the stock is listed, incorporated, or headquartered).
	Developed Europe	
	Developed Asia Pacific	
	Emerging Latin America	
	Emerging Europe	
	Emerging Asia Pacific	
	Emerging Middle East & Africa	
	Equity Market	
Currency	Euro	Measure the partial economic exposure of a company or portfolio to seven exchange rates. we estimate partial economic exposure of each company to all 7 exchange rates. To capture these partial exposures, we perform a time-series quantile regression over the past 5 years on a rolling, weekly frequency. These exposures generally fall between -1 and 1.
	Japanese Yen	
	British Pound	
	Swiss Franc	
	Canadian Dollar	
	Australian Dollar	
	New Zealand Dollar	

What is the Global Multi-Asset Risk Model?

The Morningstar Global Multi-Asset Risk Model allows you to examine risk in multi-asset funds and portfolios (including fixed-income investments). It captures equity risk premiums across the global equity universe, and the interest-rate component of USD-, EUR-, GBP-, and CHF-denominated bonds in terms of the respective shift, twist, and curvature factors of the U.S., German, British, and Swiss government yield curves.

The Global Multi-Asset Risk Model includes the 36 risk factors from the Global Equity Risk Model, as well as 12 yield curve factors. To qualify for analysis with the Global Multi-Asset Risk Model, a fund or portfolio must meet the following requirements:

- Cannot be a fund-of-funds
- Must have a portfolio report date within the last six months
- Market capitalization > USD 1 million
- Liquidity > USD 10,000
- Region-size rank ≤ 500
- Sector-size rank ≤ 250
- Sector-region-size rank ≤ 50
- Sector-country-size rank ≤ 10, and
- United States-size rank ≤ 2,000.

  ☞ Note: ADRs are not eligible.

At this time, the following investments are covered by the Multi-Asset Risk Model:

- noncallable corporate
- sovereign, and
- muni bonds denominated in four major currencies (USD, EUR, GBP, CHF).

Note that the following bond types are excluded from coverage:

- those denominated in currencies other than USD, EUR, GBP, and CHF
- callable bonds
- mortgage-backed securities, and
- interest derivatives.

In this manual, you will learn how to use the Global Multi-Asset Risk Model in a number of risk-model related components. To learn about using the Global Multi-Asset Risk Model in scenario analysis, please read Working with the Scenario Analysis Worksheet exercise guide.

To learn more about the Morningstar Global Multi-Asset Risk Model, please read Morningstar Risk Model Methodology.

How are the yield curve factors reflected in the Global Multi-Asset Risk Model?

A yield curve shows interest rates at a point in time with differing maturities. In normal markets, as the time to maturity increases, so does the yield. Interest-rate risk tends to increase with maturity, and investors expect compensation for this risk. Investors' anticipation of future short-term rates also influences the shape of the yield curve, regardless of whether those fixed-income instruments are being issued by the federal government, municipal agencies, or corporations.

If investors believe short-term rates will fall in the near term, the yield curve may become flat, or even inverted, where long-term interest rates are lower than short-term rates. A flattening or inverted yield curve is often interpreted as a sign the economy is starting to cool and the Fed (or other central bank) may start to lower short-term rates. In contrast, a steepening yield curve usually points to a strong economy with increased expectations of inflation.

What are the yield curve risk factors?

The yield curve risk factors in the Global Multi-Asset Risk Model are described in the following table:

Risk Factor	Description
USD - Shift EUR - Shift GBP - Shift CHF - Shift	The Shift factor measures the degree to which the curve has moved up or down, in parallel, across all maturities. Mathematically, it is the principal component of daily par curve changes.
USD - Twist EUR - Twist GBP - Twist CHF - Twist	The Twist factor measures the degree to which the curve has steepened or flattened. Mathematically, it is the secondary component of daily par curve changes.
USD - Curvature EUR - Curvature GBP - Curvature CHF - Curvature	The Curvature (or butterfly) factor measures the degree to which the curve term structure has become more or less curved. Mathematically, it is the third principal component of daily par curve changes.

☞ Note: USD represents the US Treasury yield curve; EUR represents the German government yield curve; GBP represents the UK government yield curve; and CHF represents the Swiss government yield curve.

In terms of interpreting the positive and negative values for the Yield Curve factor exposures, consider the following table:

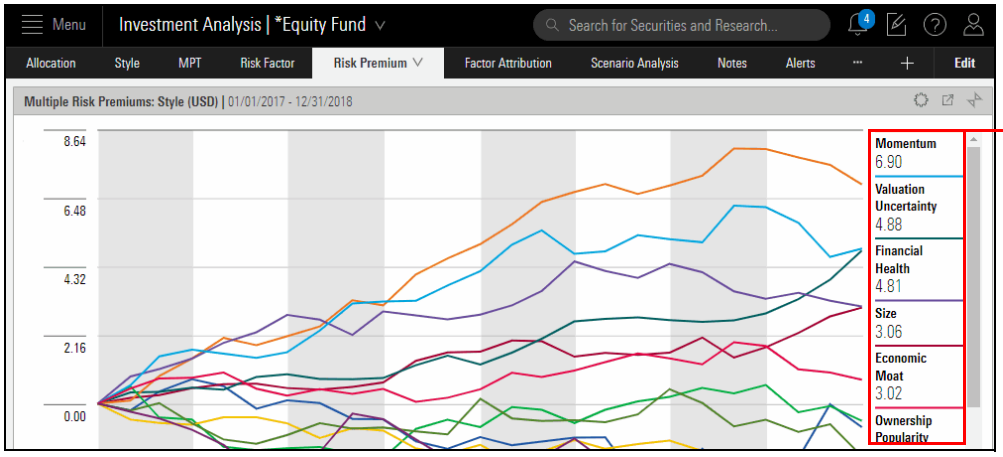
For this risk factor…	A positive factor exposure means…	While a negative factor exposure means…
Shift	The portfolio's price decreases when the shift premium goes up. When the premium for shift is negative, the portfolio's price increases.	The portfolio's price increases when the shift premium goes up. When the premium for shift is negative, the portfolio's price decreases.
Twist	The portfolio's price decreases when the twist premium goes up. When the premium for twist is negative, the portfolio's price increases.	The portfolio's price increases when the twist premium goes up. When the premium for twist is negative, the portfolio's price decreases.
Curvature	The portfolio's price decreases when the curvature premium goes up. When the premium for curvature is negative, the portfolio's price increases.	The portfolio's price increases when the curvature premium goes up. When the premium for curvature is negative, the portfolio's price decreases.

What does the Multiple Risk Premiums component show me?

The Risk Premium worksheet is unique in the web-based versions of Morningstar Direct. The data in the Multiple Risk Premiums components found here are agnostic of any investment in a list, screen, or of portfolio objects like model portfolios or client accounts. The components here reflect information about the returns associated with the factors in the Global Risk Models themselves, and serve as a point of reference for investment analysis.

Which of the 48 risk factors has had the highest positive returns over a particular time period, and which has had the largest negative returns? These questions can be answered by using the Multiple Risk Premiums component, which is found on the Risk Premium worksheet in the Equity Fund workbook. Remember, the values here reflect those of the Morningstar Global Risk Models, and not any specific investment you may have selected in the Grid View component.

The Risk Premium worksheet shows four instances of the Multiple Risk Premiums component. Each component, in turn, targets a selection of the 48 risk factors: Style, Region, Sector, and Currency. (The Yield Curve factors can also be shown in this component, but they do not appear here by default.) The values in the components represent how much a particular risk factor has influenced asset returns for a particular time period. For example, the component in the following screenshot shows that a single unit of exposure to the Momentum factor would result in a return of 6.9% for the time period being considered.

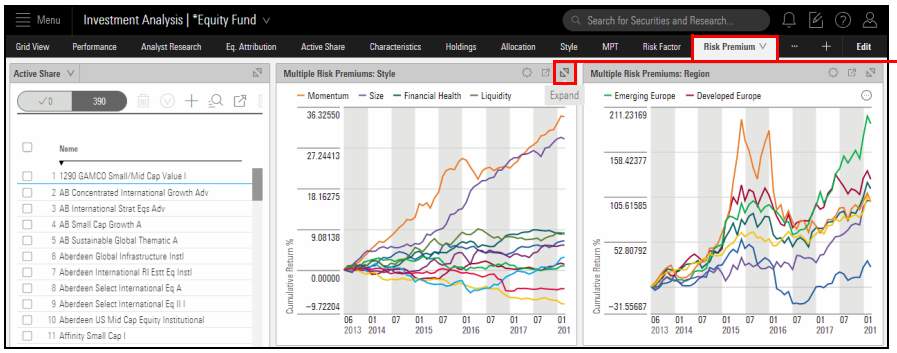


The returns for the different factors for a time period are shown here

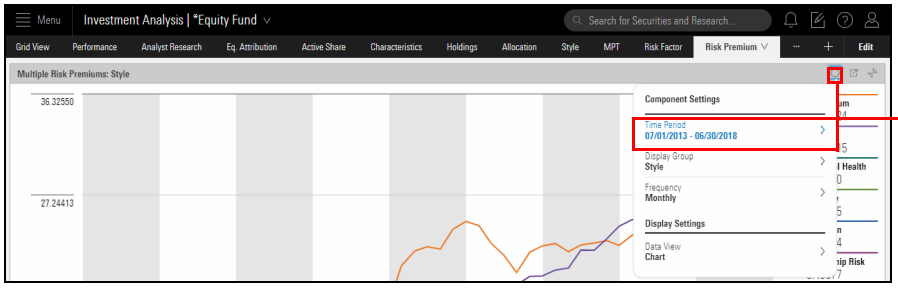
Exercise 1: See how different factors have impacted returns

To view and analyze risk premium data in the Multiple Risk Premiums component, do the following:

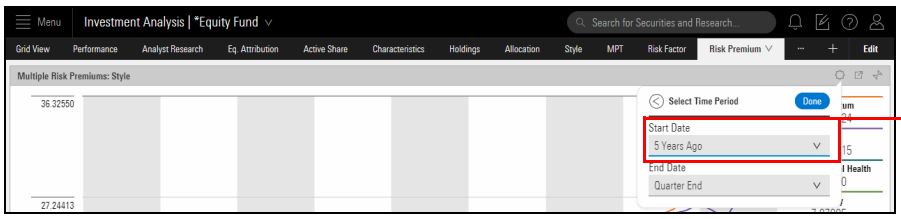
1. Be sure the **Equity Fund** workbook is open.
2. Click the **Risk Premium** worksheet.
3. On the **Multiple Risk Premiums: Style** component, click the **Expand** icon. The component resizes to fill the screen. This will make it easier to read the data.



4. Click the **Component Settings** icon. The Component Settings menu opens.
5. From the Component Settings menu, select **Time Period**.

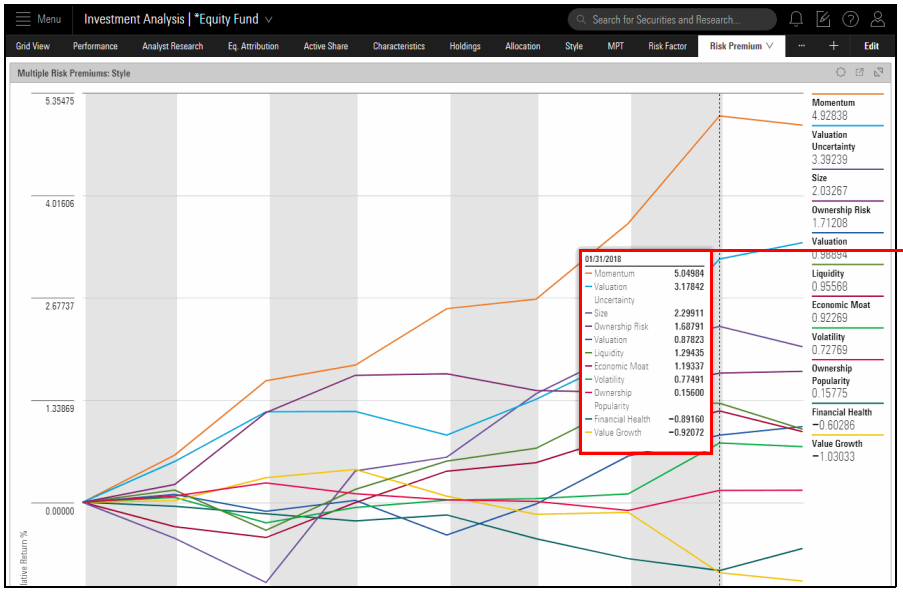


6. Click the **Start Date** option, then **scroll up** to select **1 Year**.



7. Click **Done**. The component updates.

8. Click the **Component Settings** icon to close the menu.



Move your cursor over the chart to view exact numbers for each month in the time period

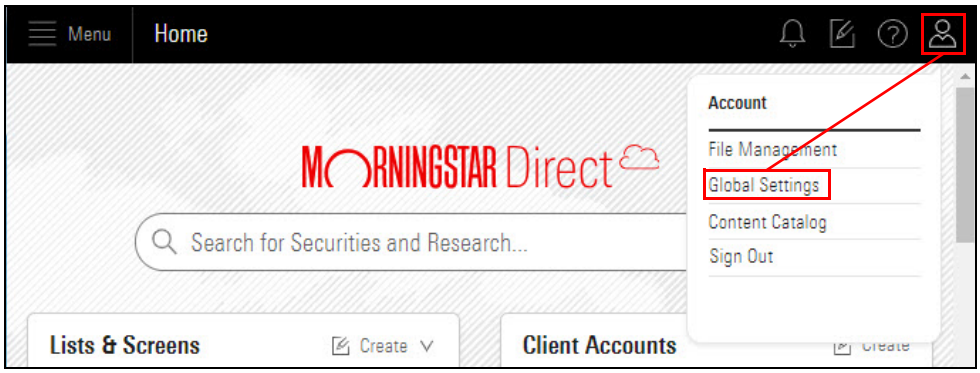
Take note of the risk factor with the highest and lowest returns for the past year. Will the funds from a screen or list you open (or create) reflect high exposure to the factors with strong returns, and low exposure to the factors with the weakest return? Or will the manager have taken a different approach?

Exercise 2: Change the number of decimal points for the display

In Global Settings, the default number of decimal points is 2, which is too small to display meaningful data for the factor exposures in the Global Multi-Asset Risk Model. In this exercise, to prepare for working with the Global Multi-Asset Risk Model, you will change the decimal place setting to 5. This change will impact nearly every numeric data point in the web-based version of Morningstar Direct, so consider changing this value back to 2 once you are done examining data for the Global Multi-Asset Risk Model.

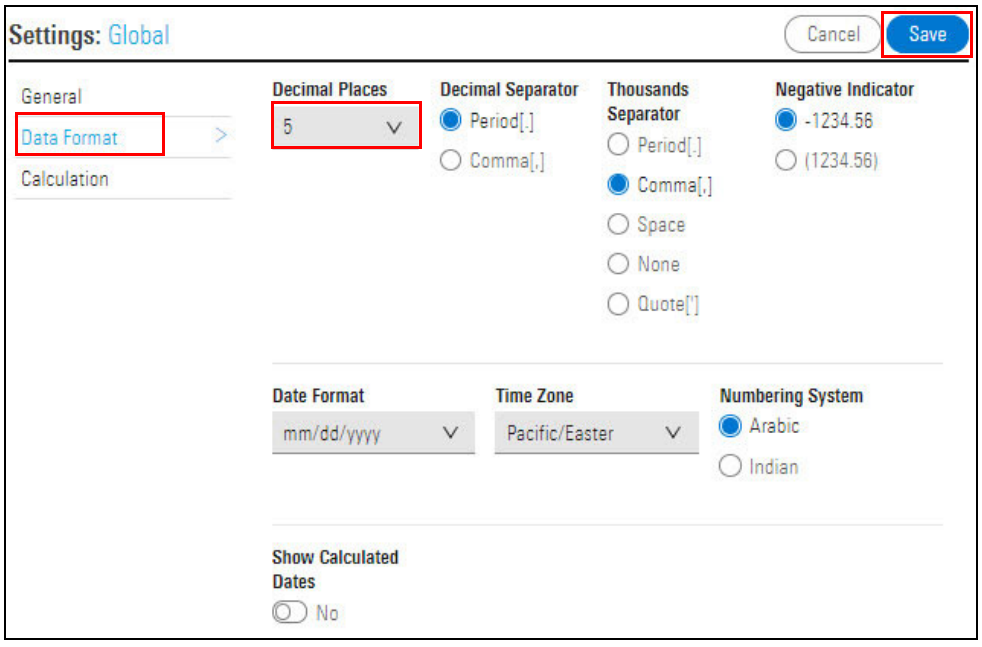
Do the following:

1. On the header, click the **Account** icon, then select **Global Settings**. The Global Settings window opens.



Note the highlighted selections.

2. Select **Data Format**. The Data Format options are displayed
3. From the **Decimal Places** drop-down field, select **5**.



Note the highlighted selections.

4. Click **Save**. The Global Settings window closes.

Exercise 3: Use the Multiple Risk Premiums component to display multiple sets of Yield Curve risk factors

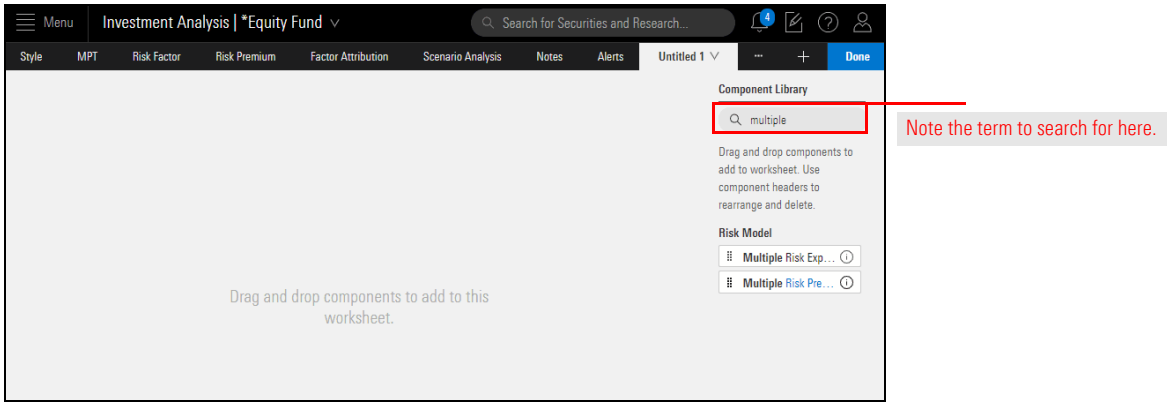
In this exercise, you will do the following:

- Add a new worksheet to the Equity Fund workbook with four instances of the Multiple Risk Premiums component
- Display the Global Multi-Asset Risk Model in each component
- Display a different set of yield curve factors in each component, and
- Save the worksheet and workbook with a unique name.

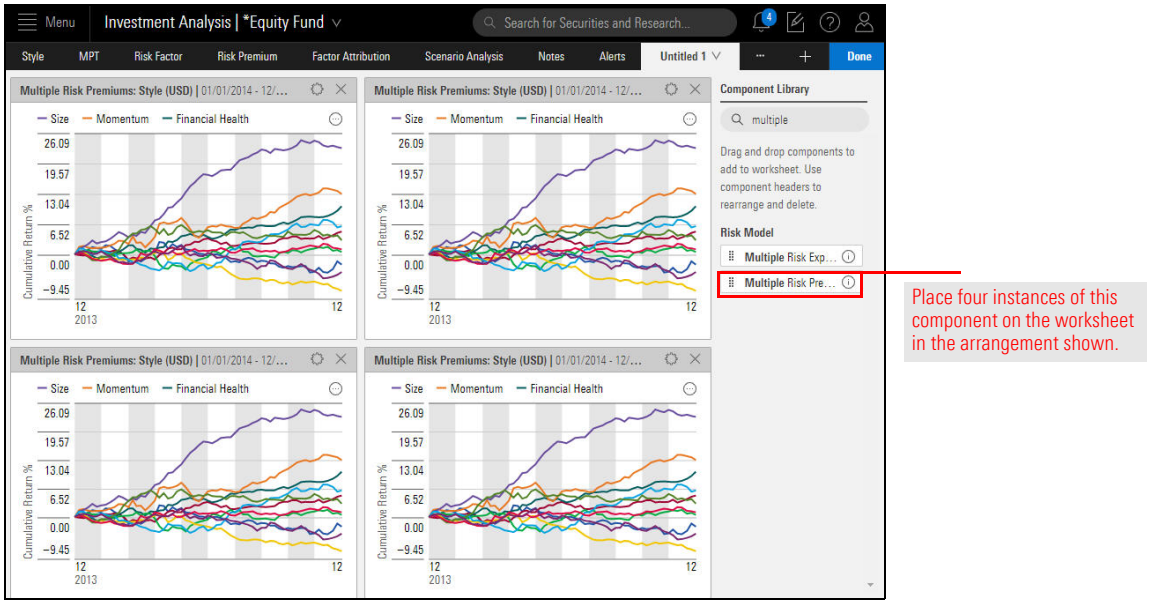
The Equity Fund workbook should still be open. Do the following:

1. Click the **Add Worksheet** icon.

2. In the **Search Component** field, type **Multiple**.

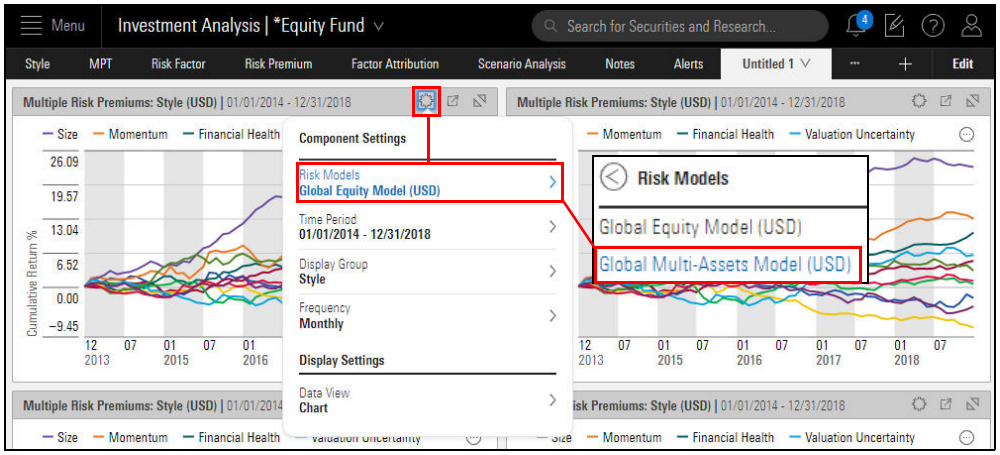


3. **Drag-and-drop four** instances of the **Multiple Risk Premiums** component onto the worksheet. (By default, these show data for the Style factors, but you will change this.)



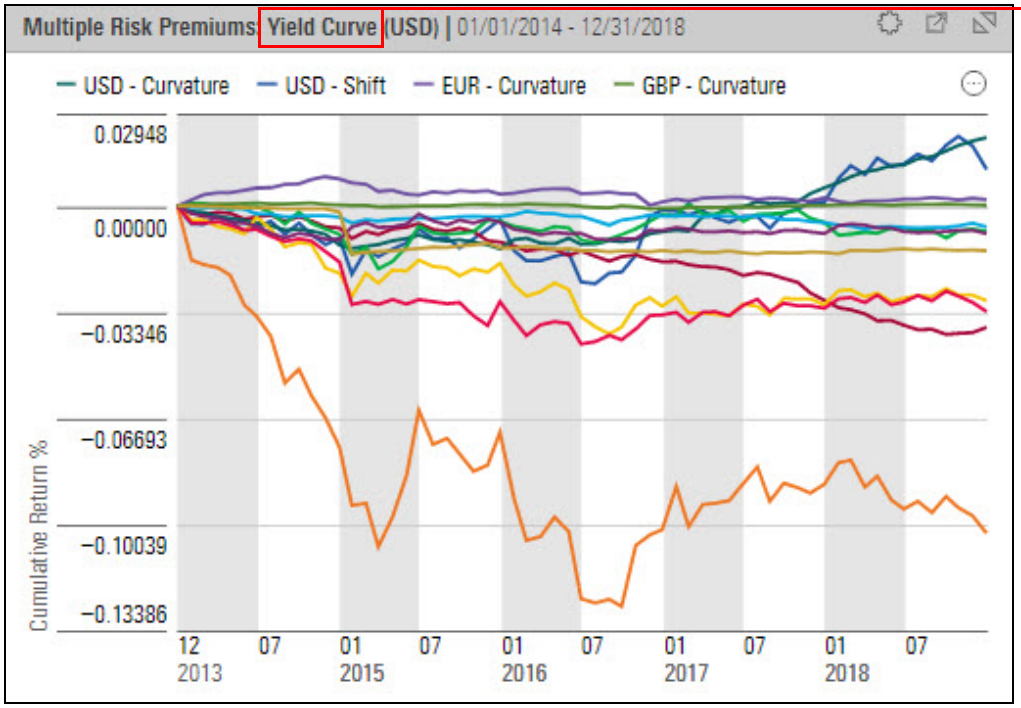
4. Click **Done** to close the Component Library.

5. In the top-left component, click the **Component Settings** icon and select **Risk Models** > **Global Multi-Asset Model**.



Note the highlighted selections.

The Risk Premiums in the component now reflect the Yield Curve factors.

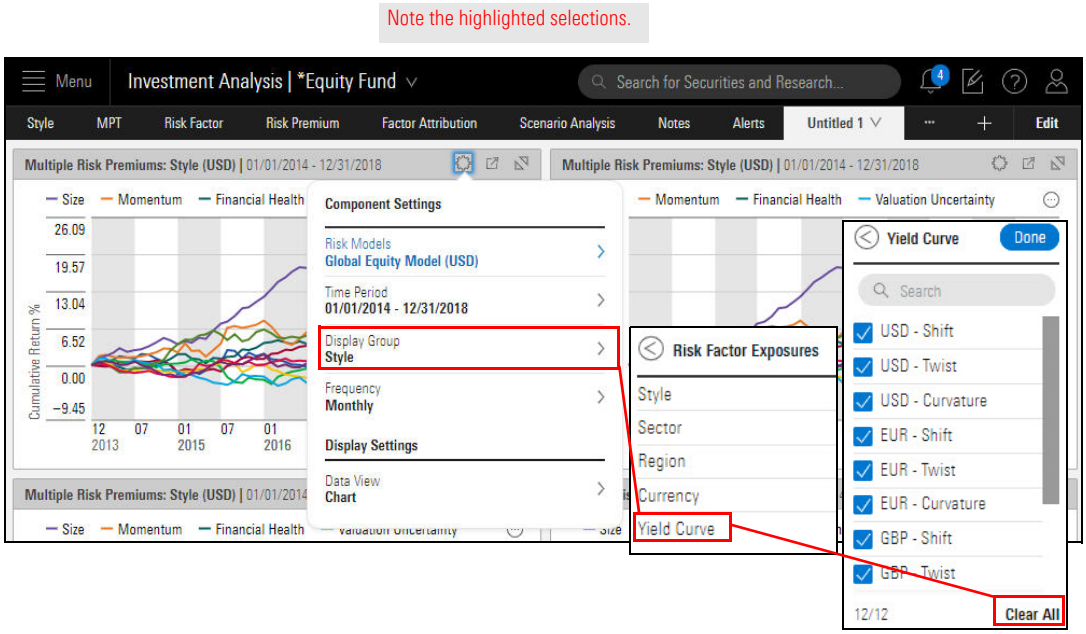


Note the new risk factors shown in the component.

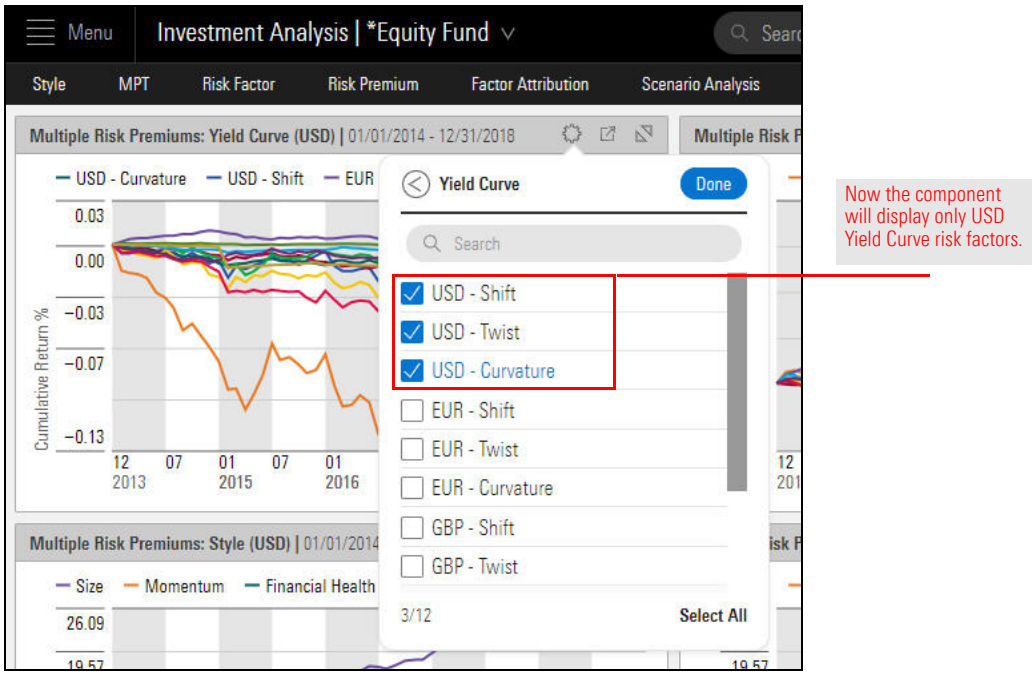
6. From the **Component Settings** menu, select **Display Group** > **Yield Curve**. In the Yield Curve menu, all risk factors are checked.

   ☞ Note: Factors from only one display group at a time can be shown in a component.

7. Click **Clear All**. All risk factors are deselected.

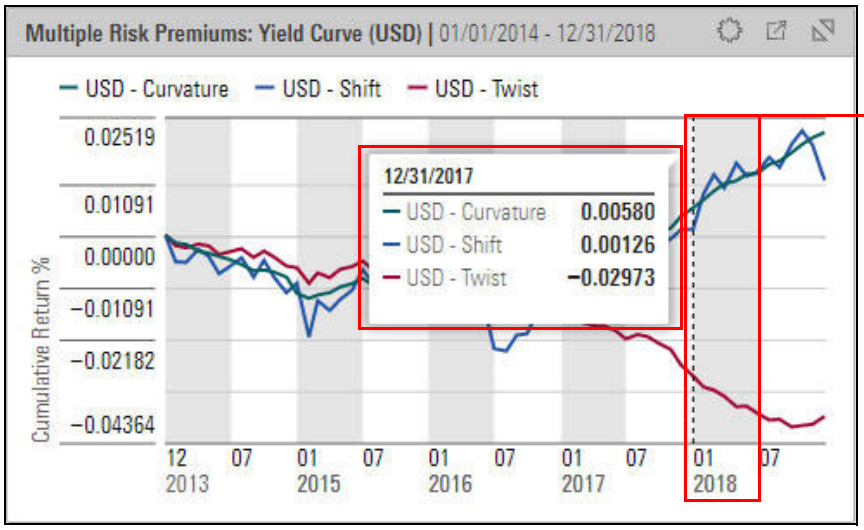


8. Click the **checkbox** for each **USD Yield Curve risk factor**.



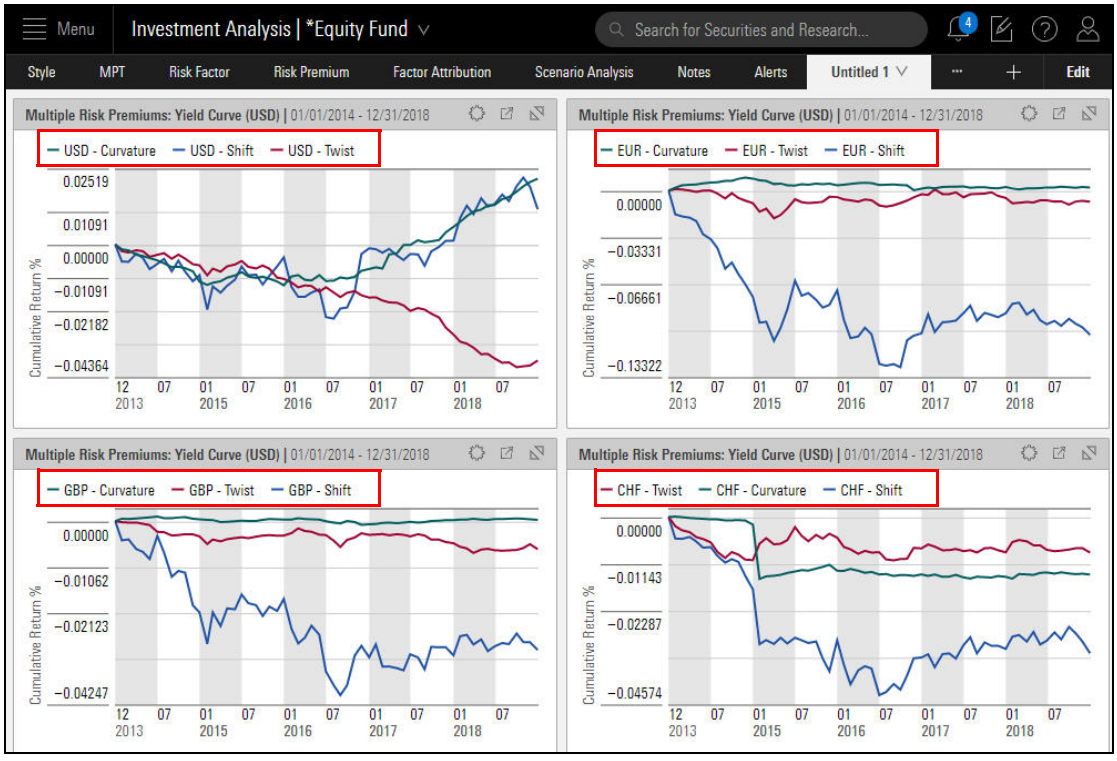
9. Click **Done**.

10. Click away from the Component Settings menu to close it.
11. **Hover the cursor** over the **chart** to view the data for a particular date. A popup reveals the specific data for that date.

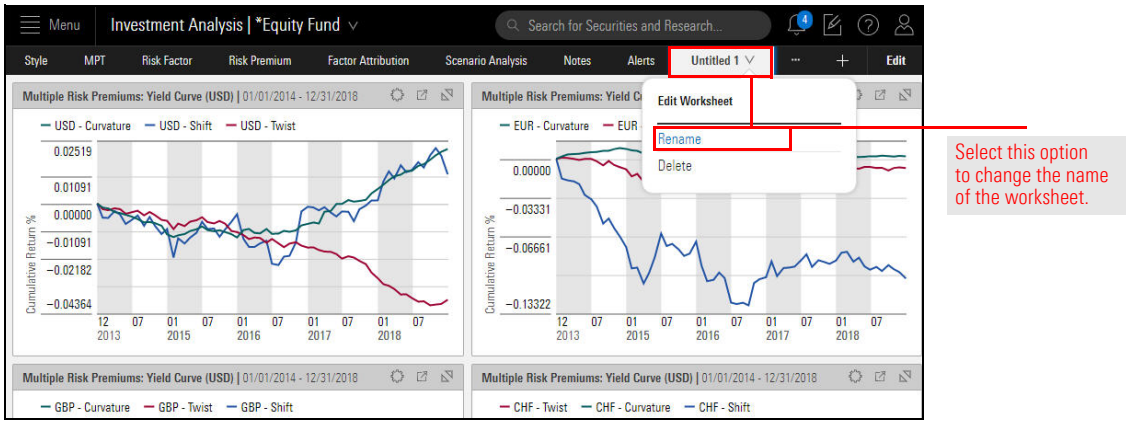


12. In the remaining three components on the new worksheet, **repeat** step 5 through step 10, selecting a different set of **risk factors (EUR, GBP, and CHF)** in each component. Your result should look something like the following illustration.

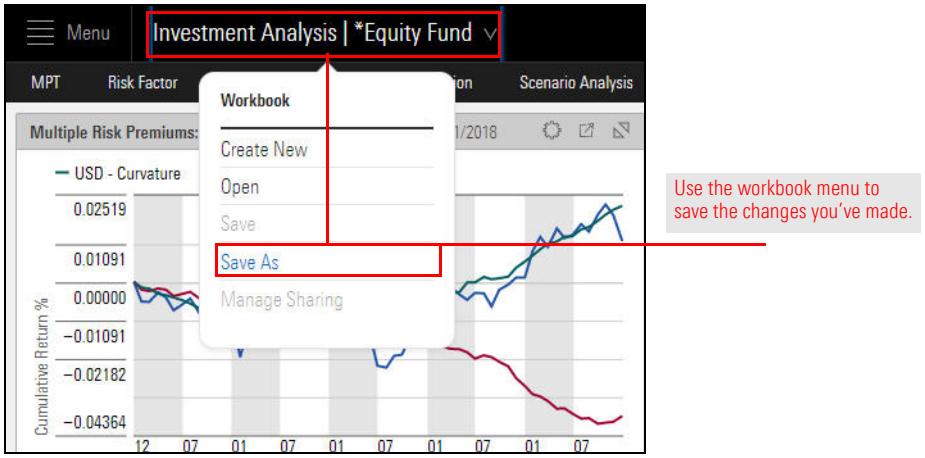
    What common trends and discrepancies do you see across the four components?



13. To rename the worksheet, click the **Untitled** tab and select **Rename**.



14. Name the worksheet **Yield Curve Risk Premiums**, then click **Save**.
15. To save the workbook, click the **workbook menu** and select **Save As**.



16. Type **Multi-Asset Risk Model** and click **Save**.

    ☞ Note: At this point, you may want to use the Global Settings menu to change the number of decimal places back to 2.

Exercise 4: Screen for large-cap equity funds

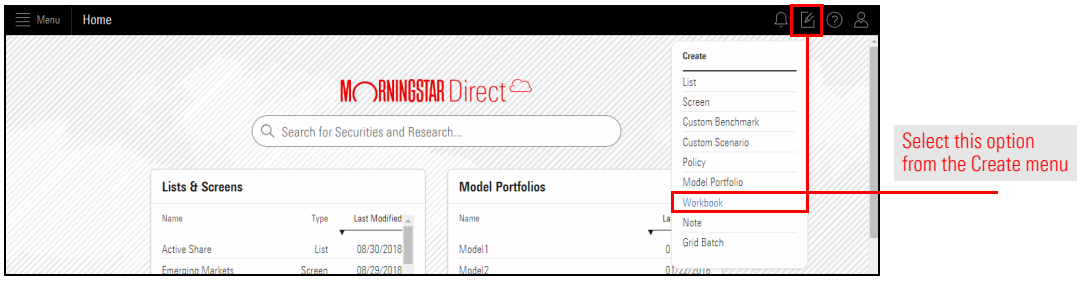
To begin understanding data from the Morningstar Global Equity Risk Model, create a screen for equity funds to be analyzed. In this exercise, the focus will be on large-cap open-end funds meeting the following criteria:

- must be a member of the US Fund Large Blend, US Fund Large Growth, or US Fund Large Value Morningstar Category
- must have at least three years of history
- must have at least $500MM in assets
- cannot be a fund-of-funds, and
- only a single share class (namely, the oldest) of each fund will be shown.

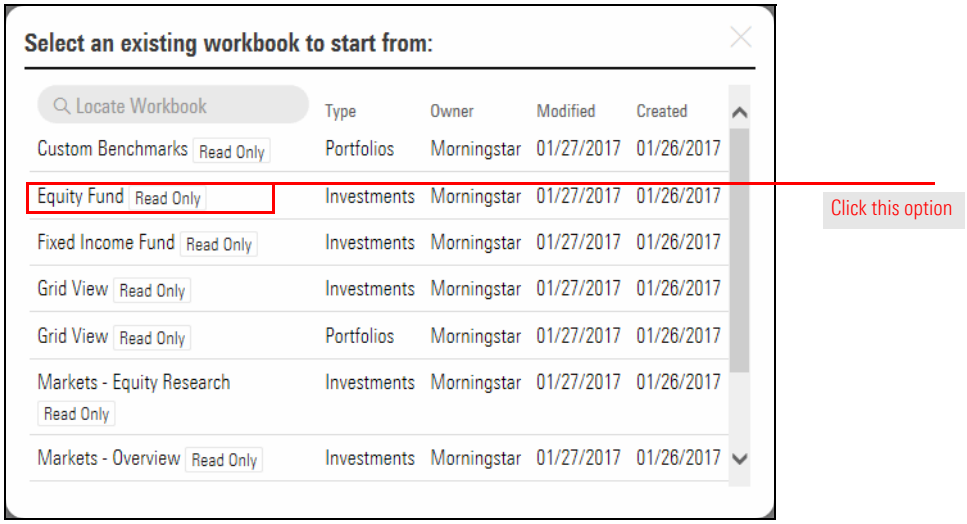
In this exercise, the first step is to create a workbook and not a screen. If you were to create a screen, the Grid View workbook would open upon completing it, and that workbook does not contain the worksheets needed to see Morningstar Global Risk Model components; the Equity Fund workbook has these. Creating a screen would require you to save the screen, open the Equity Fund workbook, and then open the saved screen. Because the Equity Fund workbook already contains several worksheets related to the Global Risk Model, creating an instance of that workbook and creating a screen from there saves several steps.

To create this screen, do the following:

1. On the header, click the **Create** icon, then select **Workbook**. The Select an existing workbook to start from window opens.

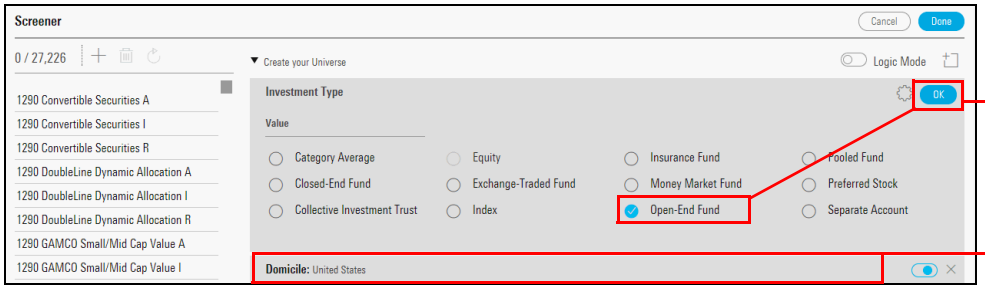


2. Click **Equity Fund**. A window opens, asking you to select a list or screen.



3. Click **New Screen**. The Screener window opens.

4. In the Investment Type area, click **Open-End Fund**, then click **OK**. The Add Criteria area for the next element to screen on opens.

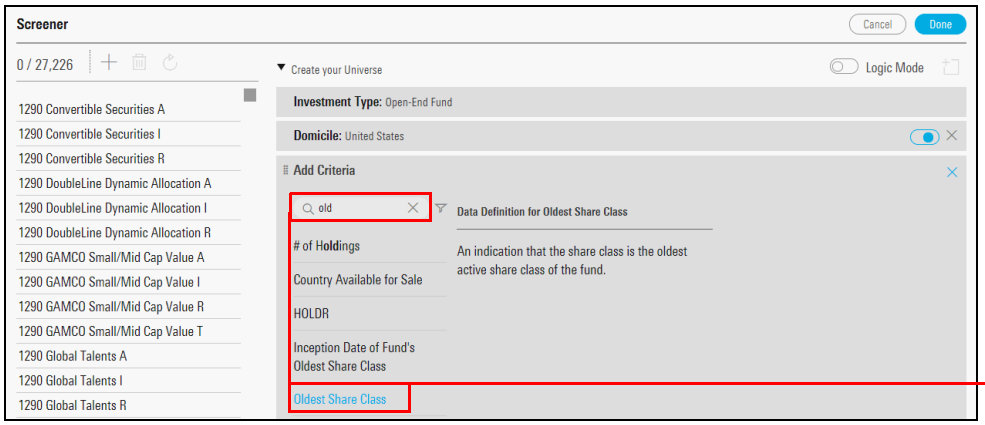


After selecting option(s) for a field, be sure to click OK

The Domicile criteria is included automatically, and is set to United States

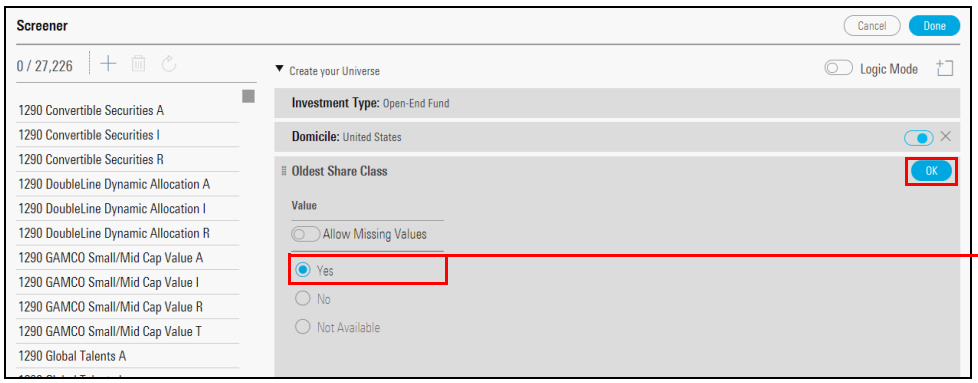
This saves you the trouble of having to filter for only those funds sold in the U.S.

5. To find a single instance of each fund, in the **Search for data points** field, type **old**. Select **Oldest Share Class**. Some additional fields now appear.



Note the search term, and the item to select

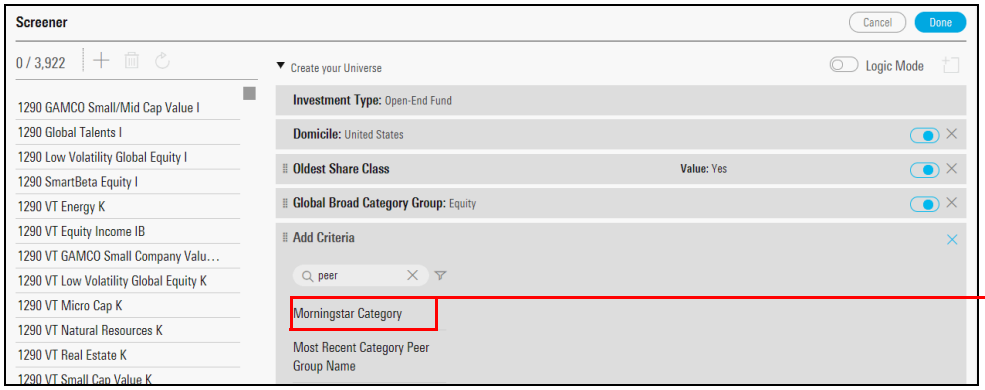
6. The option for Yes should be selected already; click **OK**.



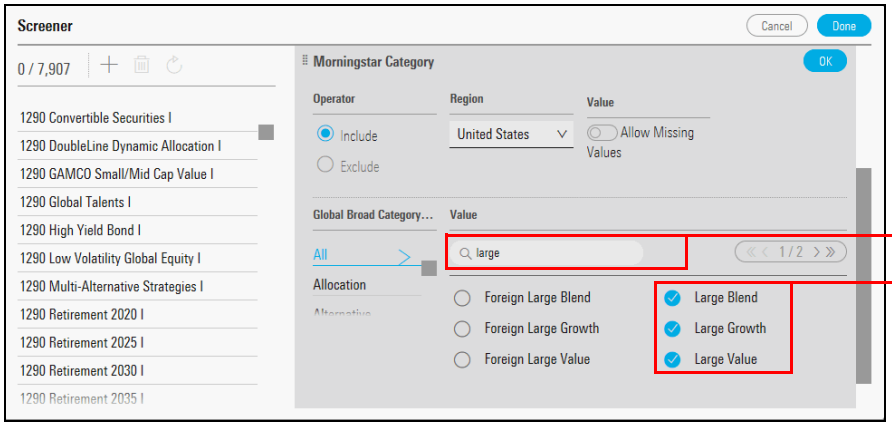
Some fields have a default option selected when you include them in a screen

7. To find large-cap funds, in the **Search for data points** field, type **peer**.

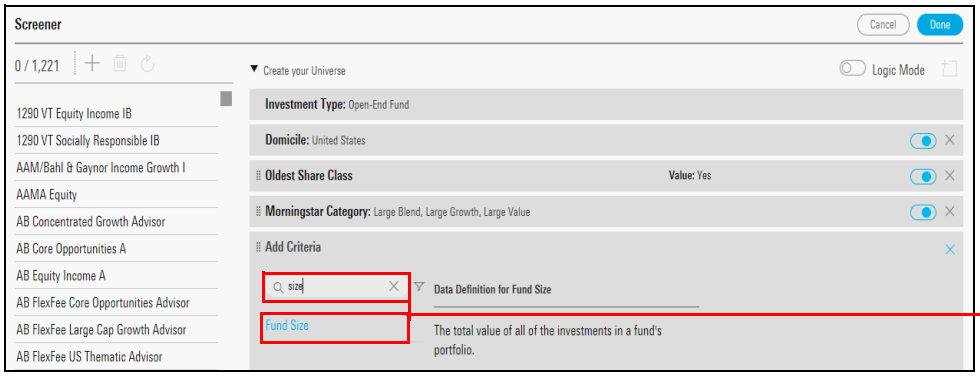
8. Select **Morningstar Category**. Some additional fields now appear.



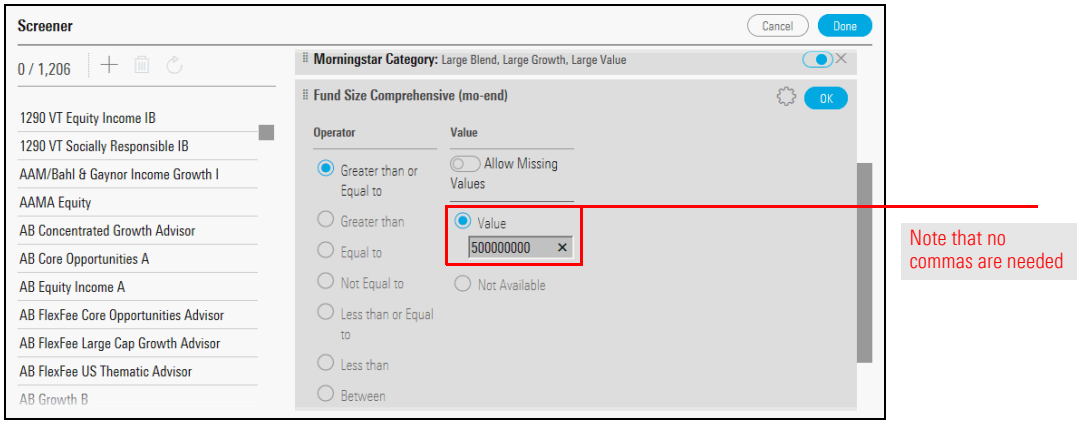
9. In the Value area **Search** field, type **large**. The list of available categories updates to match your search term.
10. Select **Large Blend**, **Large Growth**, and **Large Value**.



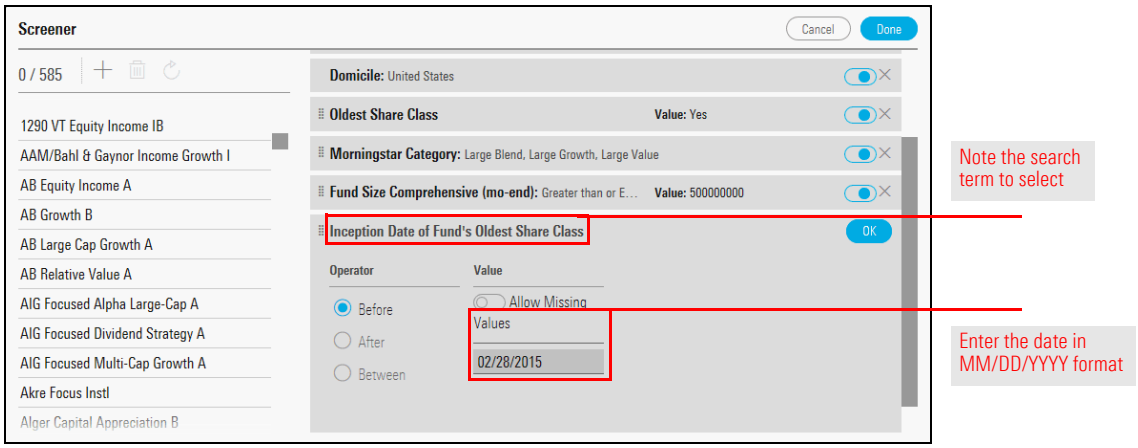
11. Click **OK**.
12. To find funds with at least $500MM in assets, in the **Search for data points** field, type **size**.
13. Select **Fund Size**.



14. The Operator field defaults to Greater than or Equal to. In the **Value** field, type **500000000**.

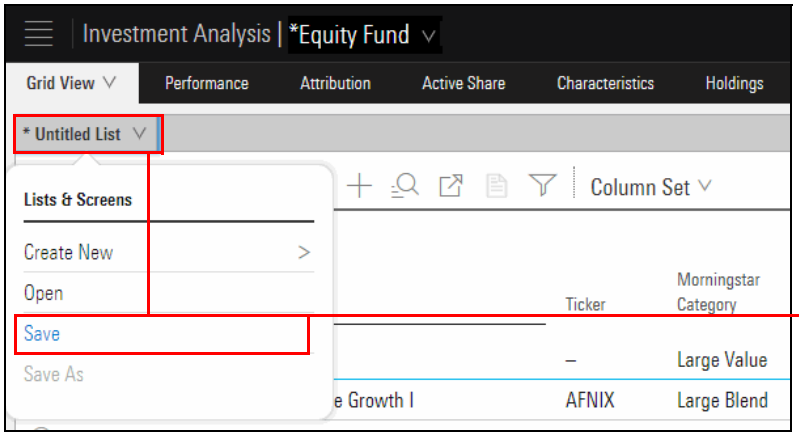


15. Click **OK**.
16. To find funds with at least three years of history, in the **Search for data points** field, type **inception**.
17. Select **Inception Date of Oldest Share Class**.
18. The Operator field defaults to Before. In the **Value** field, enter **the previous month-end date from three years ago** in MM/DD/YYYY format (Example: 02/28/2016).



19. Click **OK**.
20. Click **Done**. The Screener window closes and the Equity Fund workbook opens, displaying the Grid View worksheet.

21. Click the **Lists & Screens** menu and select **Save**. A dialog box opens.

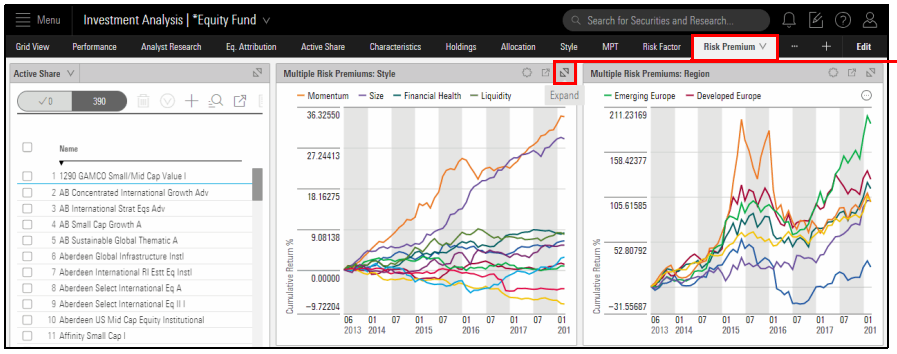


22. In the **Name** field, type **Large Cap Subset**.
23. Click **Save**. The name of the screen updates automatically.

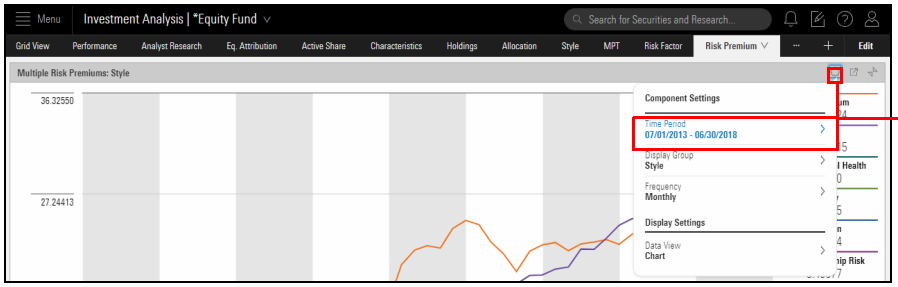
Exercise 5: Examine different factors' impact on returns

To view and analyze risk premium data, do the following:

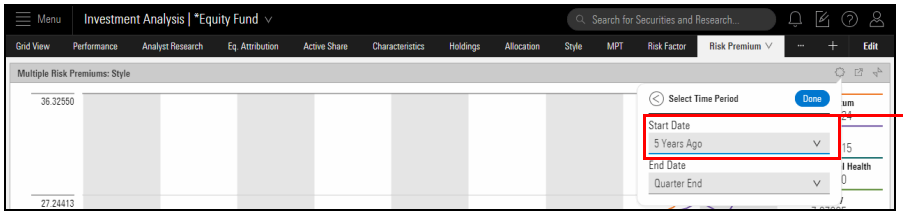
1. Click the **Risk Premium** worksheet.
2. On the **Multiple Risk Premiums: Style** component, click the **Expand** icon. The component resizes to fill the screen.



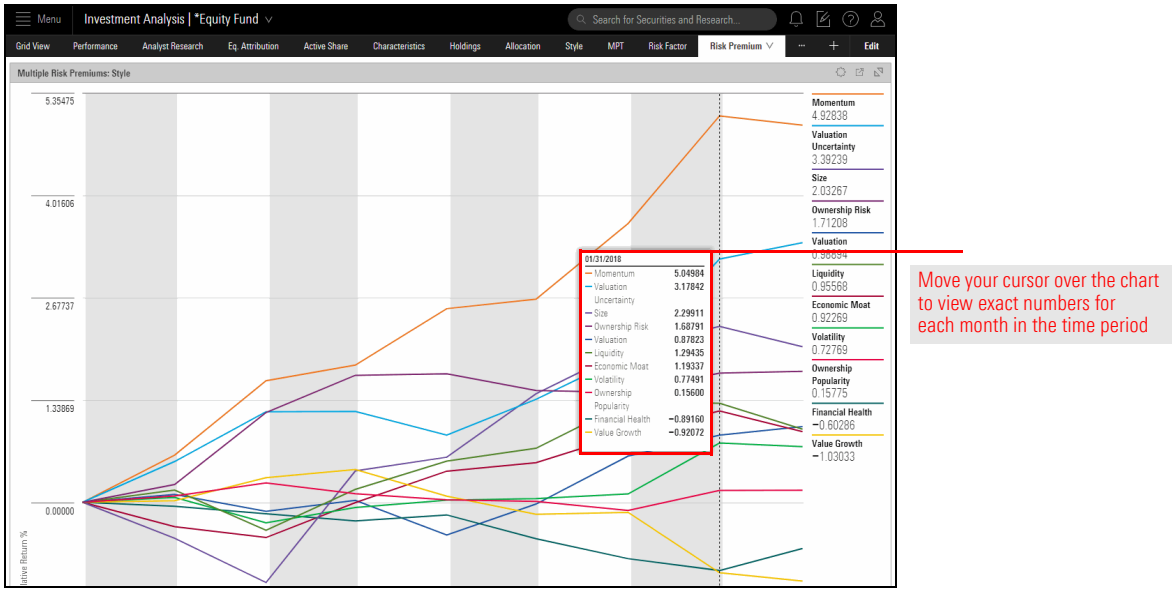
3. Click the **Component Settings** icon. The Component Settings menu opens.
4. From the Component Settings menu, select **Time Period**.



5. Click the **Start Date** option, then **scroll up** to select **1 Year**.



6. Click **Done**. The component updates.
7. Click the **Component Settings** icon to close the menu.



Take note of the risk factor with the highest and lowest returns for the past year. Will the funds from the screen reflect high exposure to the factor with strong returns, and low exposure to the factor with the weakest return? Or will the managers have taken a different approach altogether?

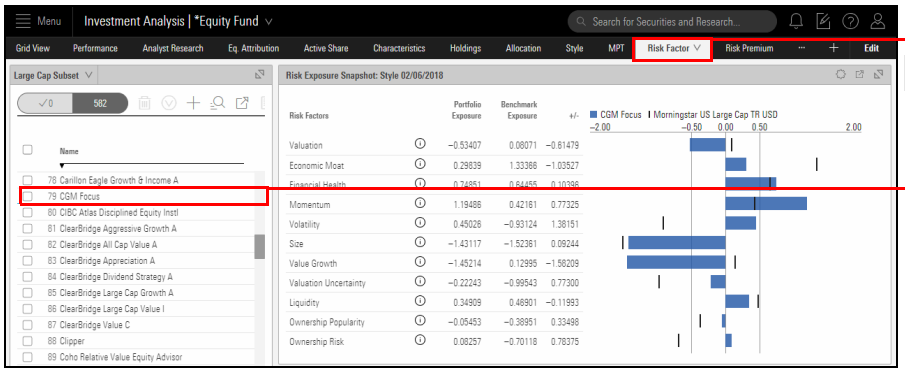
Exercise 6: Evaluate current risk factor exposures for a fund and historic risk premiums

To see the size of a fund's exposure to various risk factors and to understand how a fund's risk exposures compare to a benchmark, as well as to see its historical exposure to the risk factors, use the components on the Risk Factor worksheet.

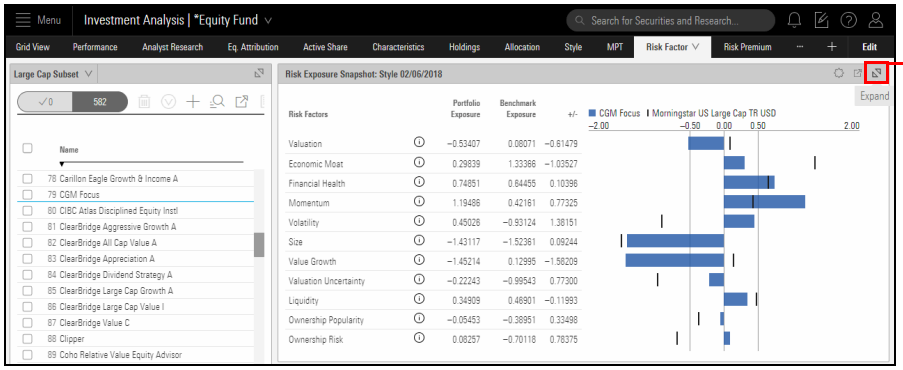
> ☞ Note: Before beginning this exercise, ensure you have constituent rights enabled via the **Content Catalog** (found under the **Account** icon on the header) to compare the holdings of the fund to the benchmark you want to use in this exercise. Your Customer Success Manager can assist you with this, if needed. Alternatively, use a Morningstar Index, or an ETF proxy.

Do the following:

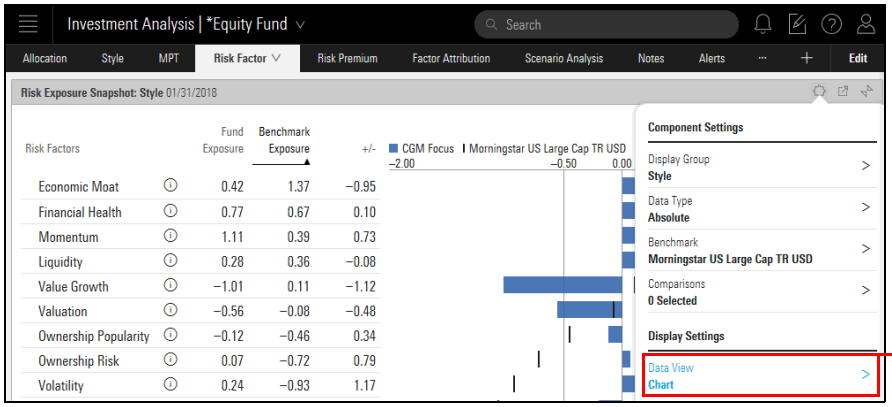
1. Select the **Risk Factor** worksheet.
2. In the Grid View, **scroll** to find the fund that had the best Total Ret % Rank Cat 1Y value from Exercise 4 on page 22.
3. Click once on the fund's **name**. A blue line should appear underneath the fund, and the other two components on the worksheet update to reflect that this is the fund in focus.



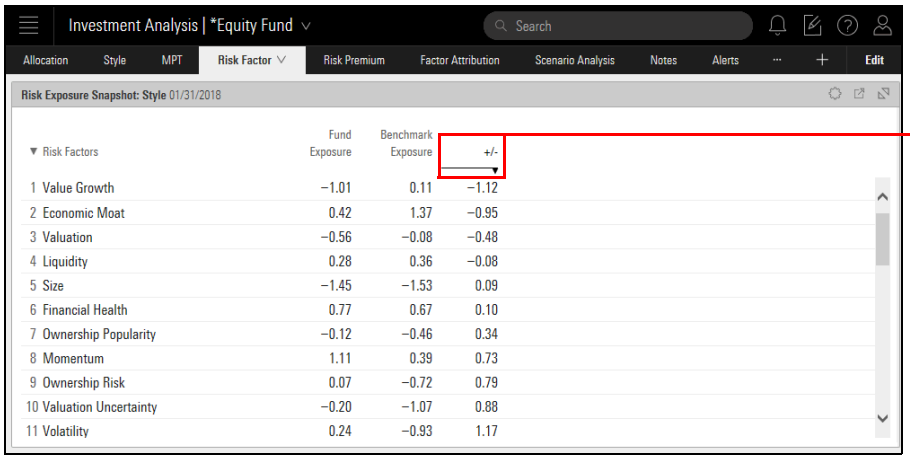
4. **Expand** the Risk Exposure Snapshot component. Note that only one set of factors (in this case, the Style factors) is shown at a time.



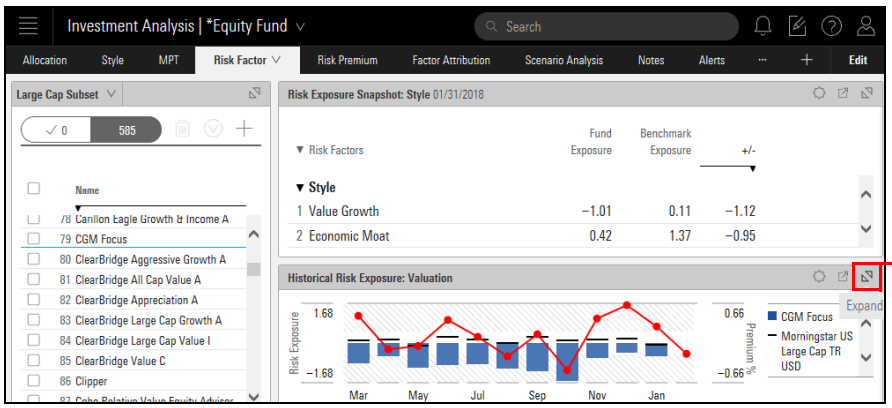
5. Click the **Component Settings** icon to change the **Data View** to a **Table**.



6. Click the **+/-** column header to sort by that column. To which factors does the fund have the greatest underexposure and overexposure compared to the benchmark? Take note of these two risk factor names.

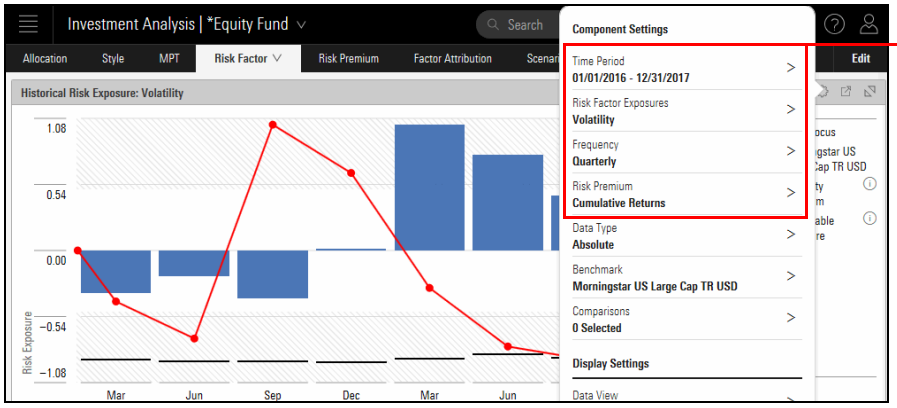


7. Click the **Expand** icon again to collapse the Risk Exposure Snapshot component.
8. **Expand** the Historical Risk Exposure component. This component shows only one risk factor at a time. You can see the fund's exposure (the blue bar), the benchmark's exposure (the black line), and the Risk Premium for the factor (the red line).



9. The chart defaults to showing data for the trailing one-year time period, and the risk premium as points in time. It can be more helpful to see the premium returns as a cumulative value, rather than as periodic returns. Additionally, the risk factor needs to be changed to reflect the information discovered in the Risk Exposure Snapshot component. A longer time horizon will be useful as well, in understanding the manager's exposure to a component. Click the **Component Settings** icon to make the following changes:

Setting	Value
Time Period	Last 2 Years
Risk Factor Exposures	Select the factor with either the greatest overexposure or underexposure from step 6 on page 29.
Frequency	Quarterly
Risk Premium	Cumulative Returns



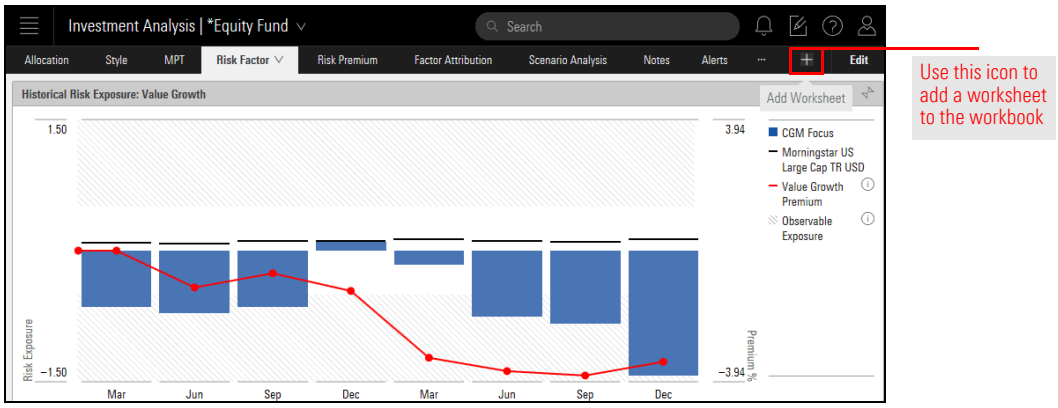
Note the settings for these fields

10. Click the **Component Settings** icon to close the menu. Consider the following questions for the risk factor being displayed:
    - Has the fund's exposure to this factor been consistently positive (or negative) during this time period?
    - Has the fund's exposure to this factor been consistently greater or less than that of the benchmark during this time period?
    - Did the manager change the fund's approach in response to the factor premium as it changed over time? Or was the approach to the factor consistent, regardless of what the factor's premium was?
11. After analyzing the manager's approach with this risk factor over time, click the **Component Settings** icon to change the **Risk Factors Exposure** value to the other risk factor from step 6 on page 29 and consider the same bulleted questions in step 10.

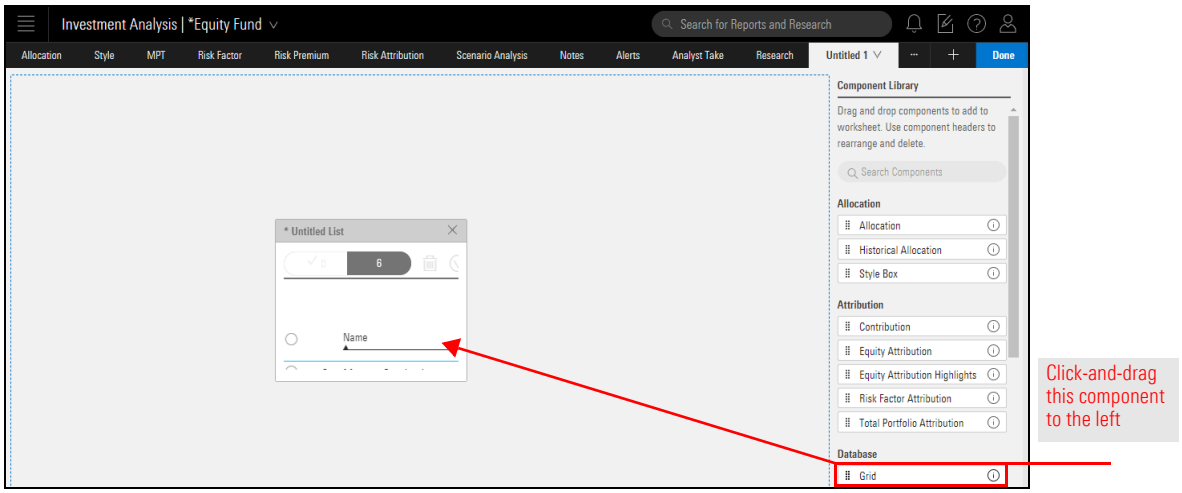
Exercise 7: Discover which holdings contribute to a fund's risk exposures

The Holdings Risk Factor, Risk Decomposition, and all Risk Exposure components provide a picture of what is happening at the fund level. But which holdings in a fund's portfolio have the greatest exposure to different risk factors? The Holdings Risk Factor component shows this information, but this component does not appear by default on any worksheet. Create a custom worksheet to display this data. Do the following:

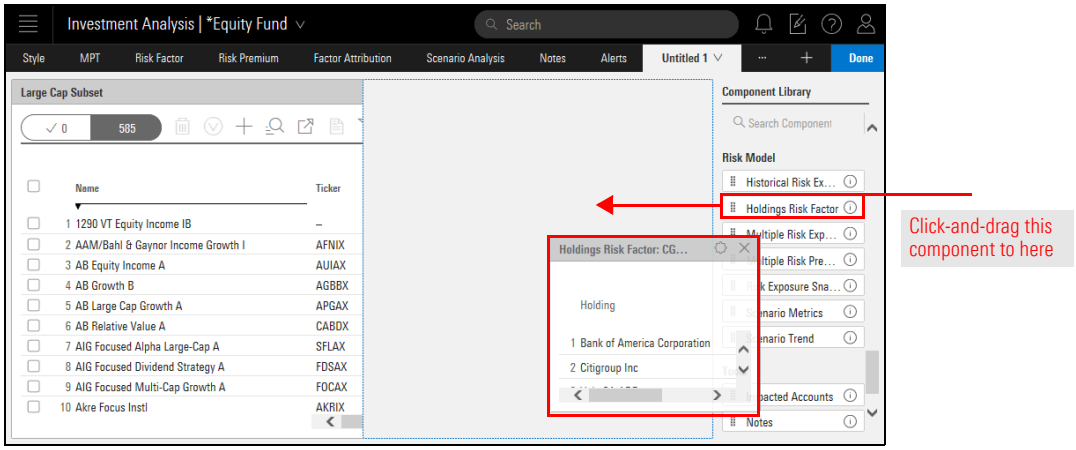
1. Near the top-right corner of the window, click the **Add Worksheet** icon (**+**). A worksheet named Untitled 1 is added, and the Component Library opens.



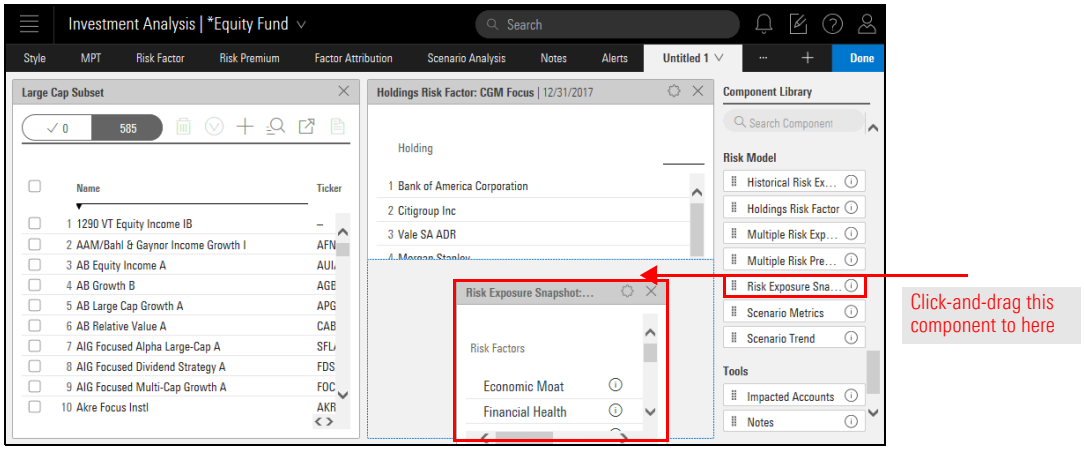
2. From the Database section, **click-and-drag** the **Grid** component to the left. The Grid View automatically appears.



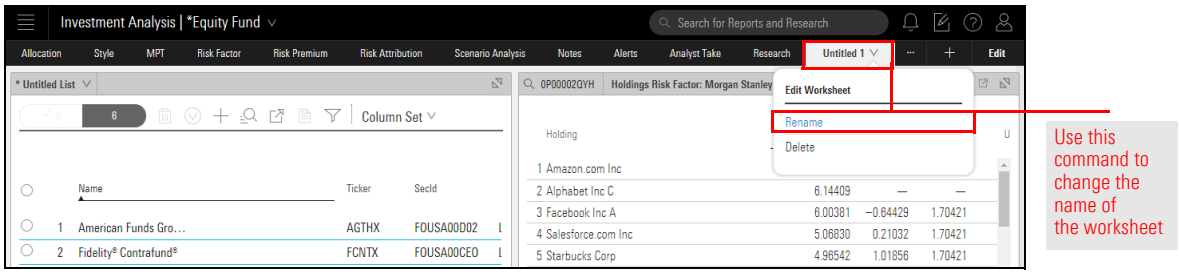
3. In the Component Library, **scroll down** and from the Risk Model area, **click-and-drag** the **Holdings Risk Factor** component into place at the right of the component you just added. The Grid component resizes.



4. In the Component Library, also under the Risk Model area, **click-and-drag** the **Risk Exposure Snapshot** and drop it below the Holdings Risk Factor component.



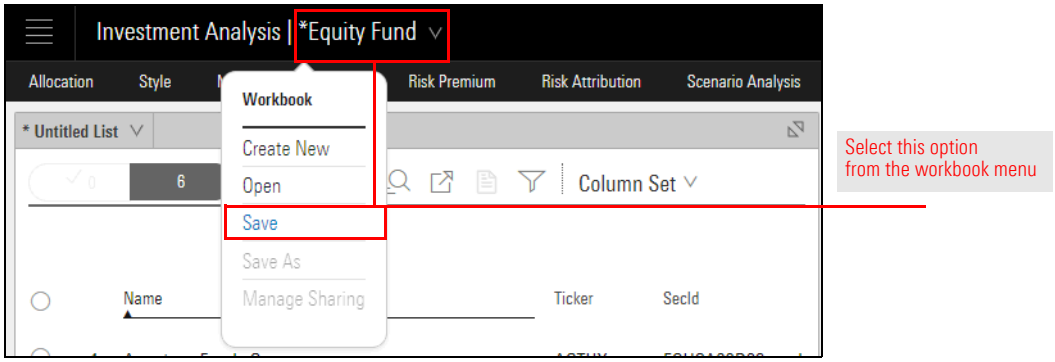
5. Click **Done**. The Component Library closes.
6. In the Untitled 1 worksheet name, click **down arrow**, then select **Rename**. A dialog box opens.



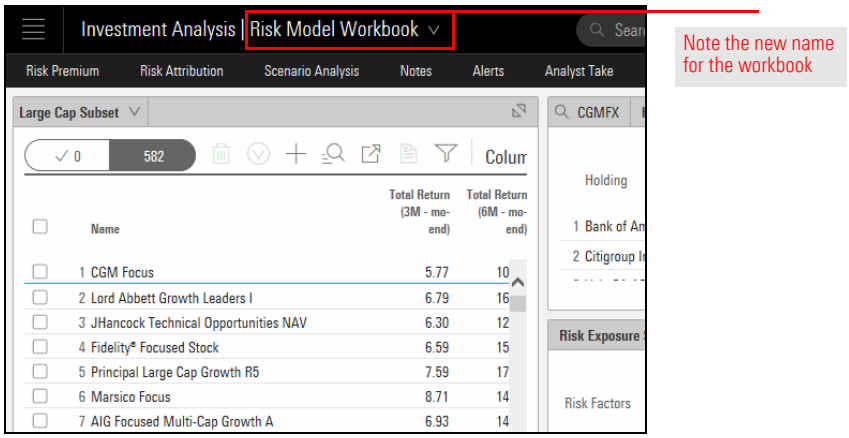
7. Enter **Holdings Risk Factors**, then click **Save**.

☞ Note: You cannot change the position of the worksheets within a workbook.

8. In the upper-left corner of the window, click ***Untitled Workbook**, then select **Save**. A dialog box opens.



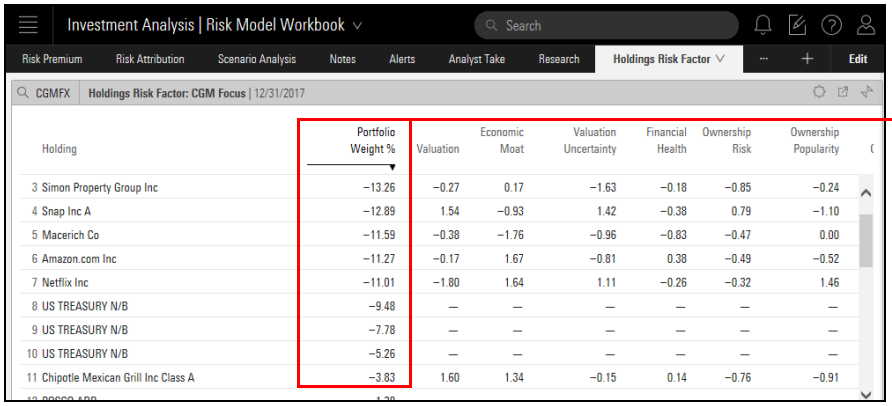
9. Enter the name **Global Risk Model Workbook**, then click **Save**. The name of the workbook updates to reflect your change.



10. **Expand** the Holdings Risk Factors component.

11. Click the **Portfolio Weight** column header to sort in descending order. The stocks held by the fund are ranked by their size in the portfolio. Among the larger holdings in the portfolio, which risk factors have significant positive and negative exposures?

    ☞ Note: Be sure to check for large short positions, too, which appear as negative numbers in the Portfolio Weight column. Short positions are subtracted from a fund's exposure to a risk factor. Therefore, what looks like a positive exposure is actually negative, and a negative exposure to a factor would be even greater.



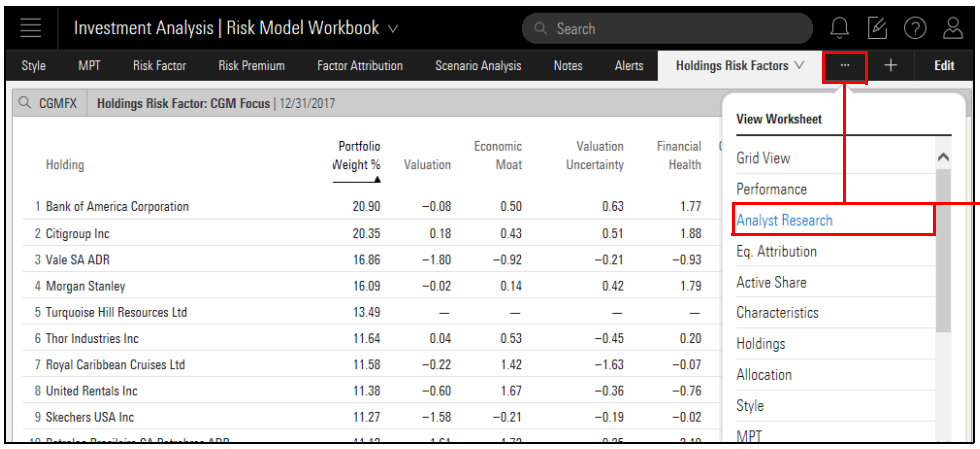
For short positions, each risk factor is subtracted from the fund's net exposure to that risk factor

12. Click the **column header** of the risk factor with the greatest overexposure relative to the benchmark (from Exercise 9 on page 36). Which holdings represent the source of this overexposure?

Exercise 8: View Morningstar research related to the funds

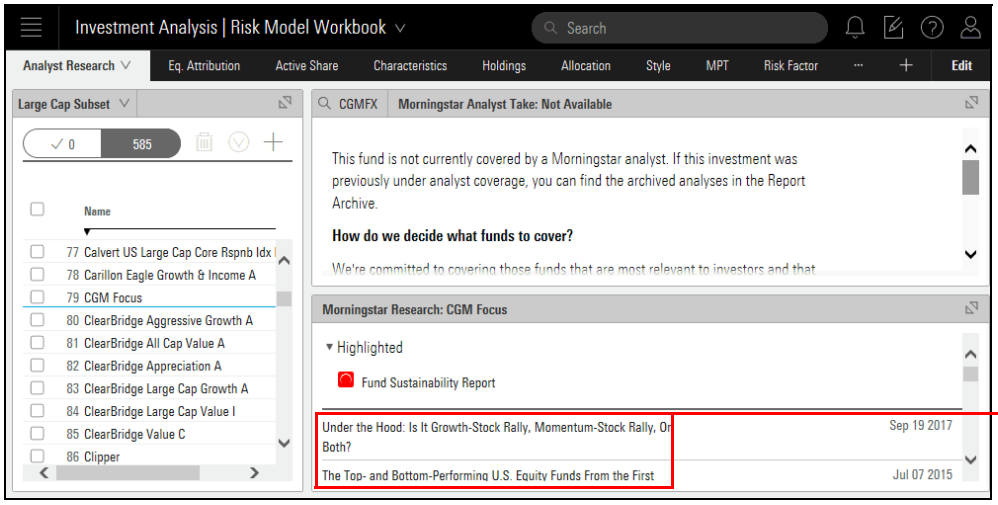
The Analyst Research worksheet offers an easy way to see what articles have been written by Morningstar analysts about the investments you are viewing in a workbook. To see this content, do the following:

1. Select the **Analyst Research** worksheet.



Depending on the size of your browser window, you may not see all worksheets available in a workbook at once; the Worksheet Navigation icon allows you to see all worksheets in a workbook

2. In the Morningstar Research component, click the **name** of an article to view it. The article opens in the component.

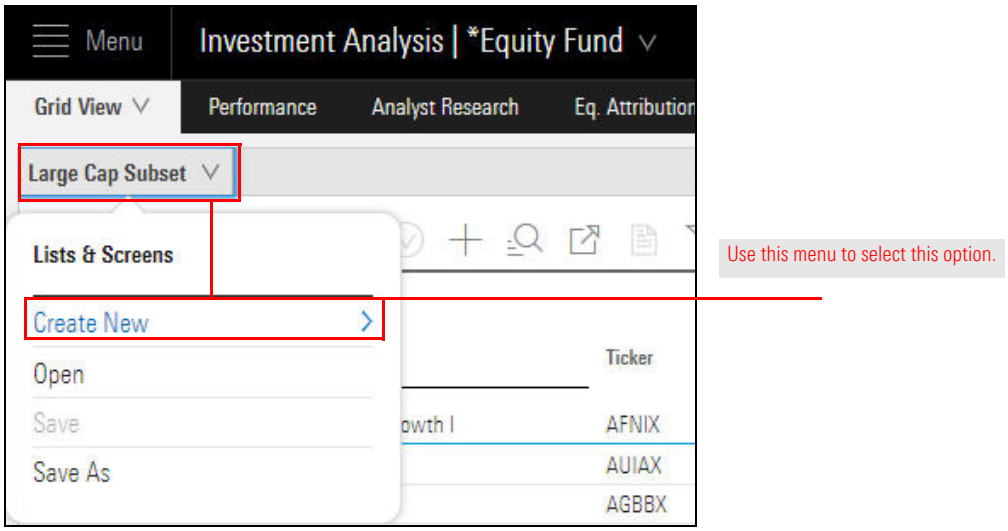


If no Morningstar Analyst report exists for a fund, you can still click an article here to read more about the fund

Exercise 9: Screen for analyst-rated fixed-income funds

To create a set of fixed-income investments you can use for evaluating the Global Multi-Asset Risk Model, do the following:

1. Select the **Grid View** worksheet.
2. From the **Lists & Screens** menu, select **Create New** > **Screen**.



3. Select the following criteria for the screen:

Data Point	Operator	Value(s)
Investment Type	n/a	▸ Exchange-Traded Fund ▸ Open-End Fund
Domicile	n/a	United States
Morningstar Category	Include	▸ Bank Loan ▸ Corporate Bond ▸ Emerging Markets Bond ▸ High Yield Bond ▸ High Yield Muni ▸ Inflation-Protected Bond ▸ Intermediate Government ▸ Intermediate-Term Bond ▸ Long Government ▸ Long-Term Bond ▸ Multisector Bond ▸ Muni National Interm ▸ Muni National Long ▸ Muni National Short ▸ Muni Single State Interm ▸ Muni Single State Long ▸ Muni Single State Short ▸ Nontraditional Bond ▸ Short Government ▸ Short-Term Bond ▸ Ultrashort Bond ▸ World Bond
Morningstar Analyst Rating	Include	▸ Bronze ▸ Gold ▸ Silver
Oldest Share Class	n/a	Yes

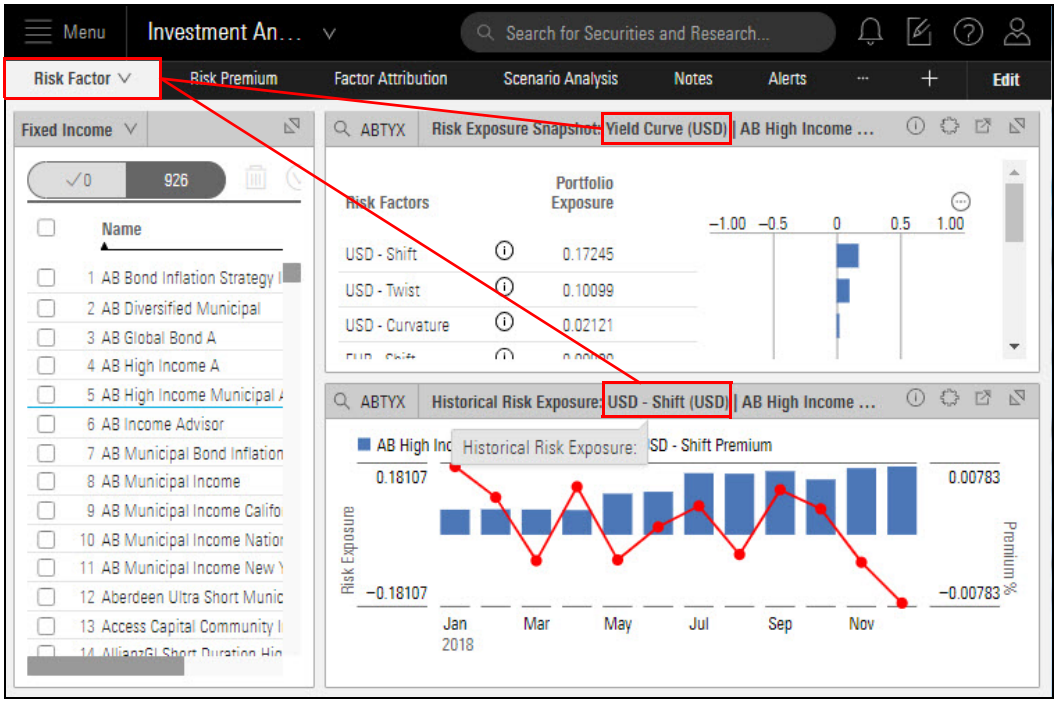
4. After entering the criteria, click **Done**.
5. Use the **Lists & Screens** menu to **save** the screen with the name **Analyst-Rated Fixed Income Funds**.

Exercise 10: Access the Multi-Asset Risk Model components on the Risk Factor worksheet

In this exercise, you will change the components on the Risk Factor worksheet to display the Multi-Asset Risk Model to evaluate the funds in the screen you just created.

Do the following:

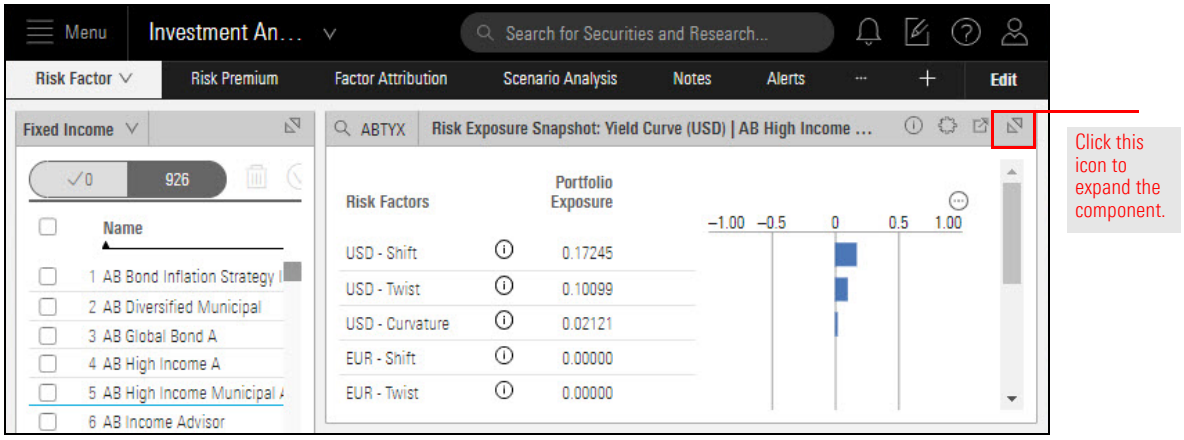
1. Be sure the Analyst-Rated Fixed Income Funds screen is open.
2. Select the **Risk Factor** worksheet. Note the following:
   - The Risk Exposure Snapshot component displays the Yield Curve factors, and
   - The Historical Risk Exposure component displays the Shift factor.



Note the highlighted selections.

3. Select a **fund**.

4. In the **Risk Exposure Snapshot** component, click the **Expand** icon. The component resizes to fill the screen.

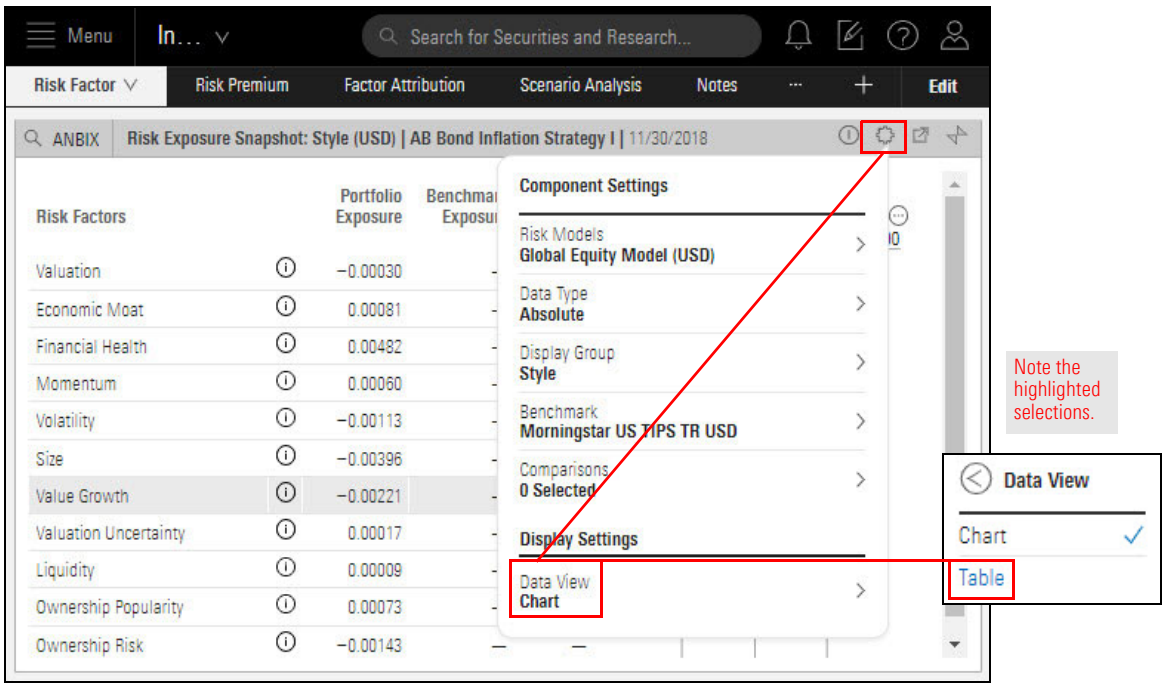


Exercise 11: Display data from two risk models

In this exercise, you will learn to simultaneously view data from two Global Risk Models in the Risk Exposure Snapshot. The Equity Fund workbook should still be open and displaying the expanded Risk Exposure Snapshot component.

Do the following:

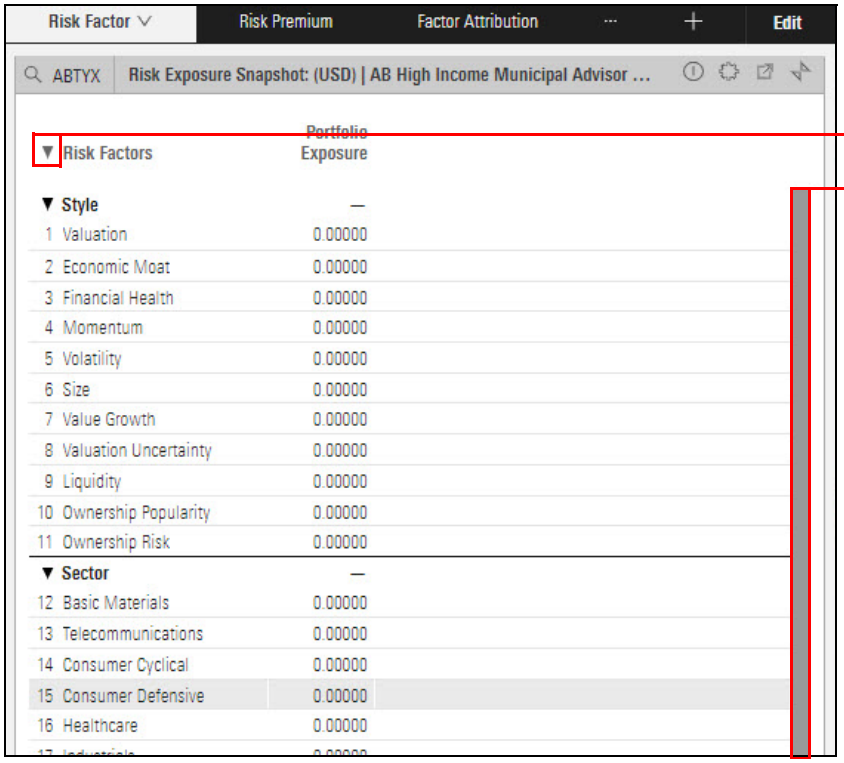
1. In the Risk Exposure Snapshot, click the **Component Settings** icon and select **Data View** > **Table**.



2. Click the **Component Settings** icon to close the menu.

3. In the table view, you can see all risk factors (including those from the Global Equity Risk Model). However, because your selected fund contains only fixed-income investments, the Equity Global Risk Model factors display 0.00000.

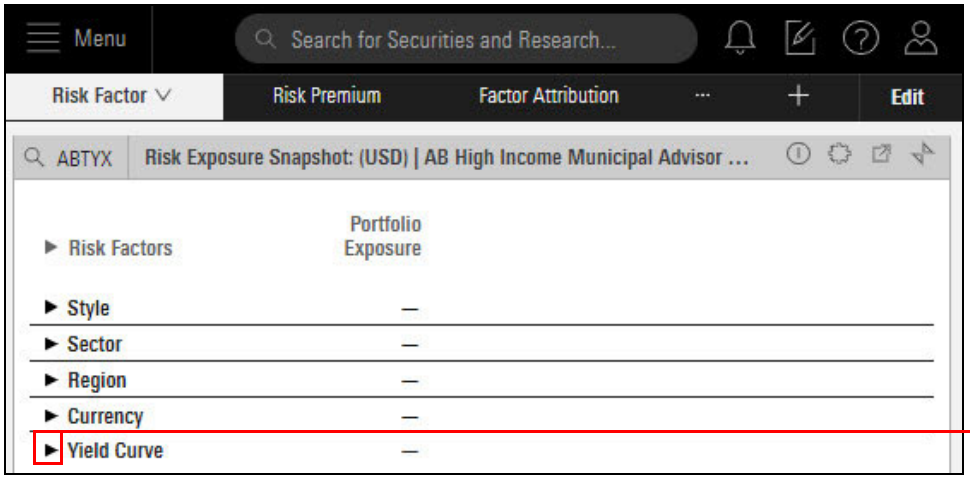
   At the top of the component, click the **down arrow** at the top of the Risk Factors column to collapse all premiums.



Click this icon to collapse all premiums.

All Style, Sector, Region, Currency, and Yield Curve premiums and their risk factors are available in the table view. You might need to **scroll down** to see the others.

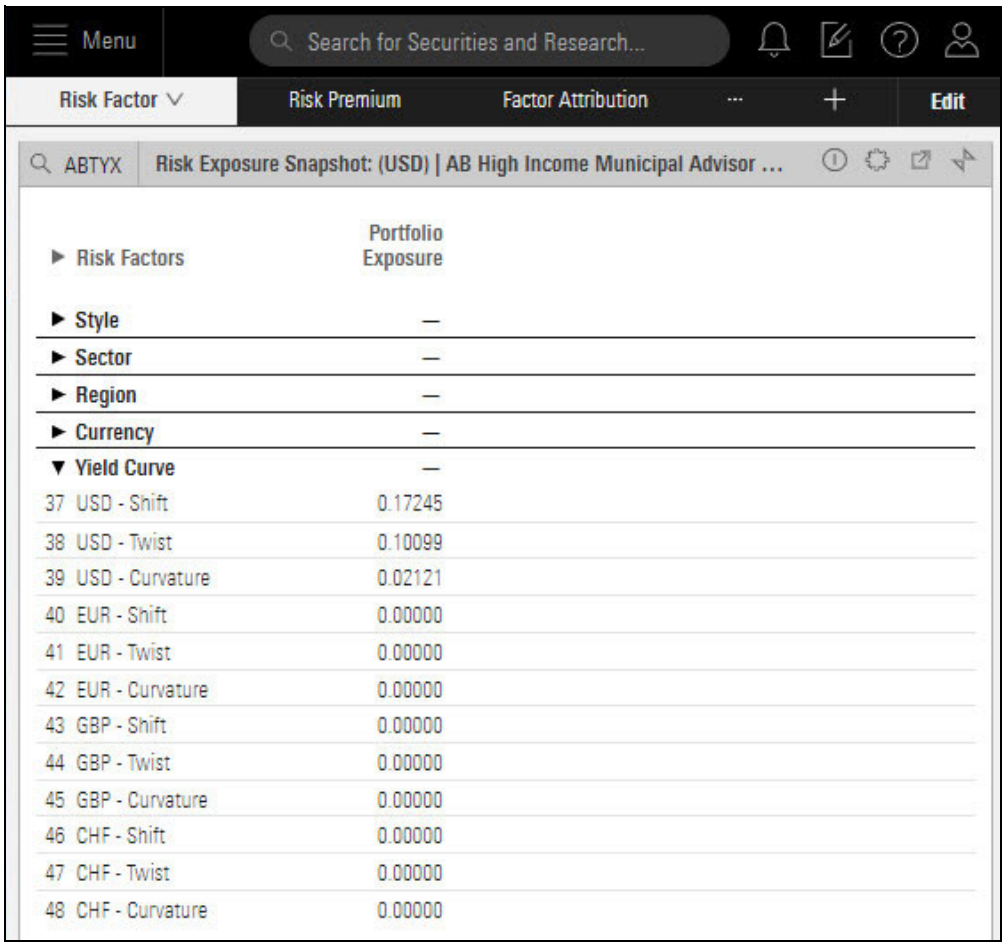
4. Click the **right-facing arrow** in the Yield Curve row to display its risk factors.



Click this icon to expand Yield Curve.

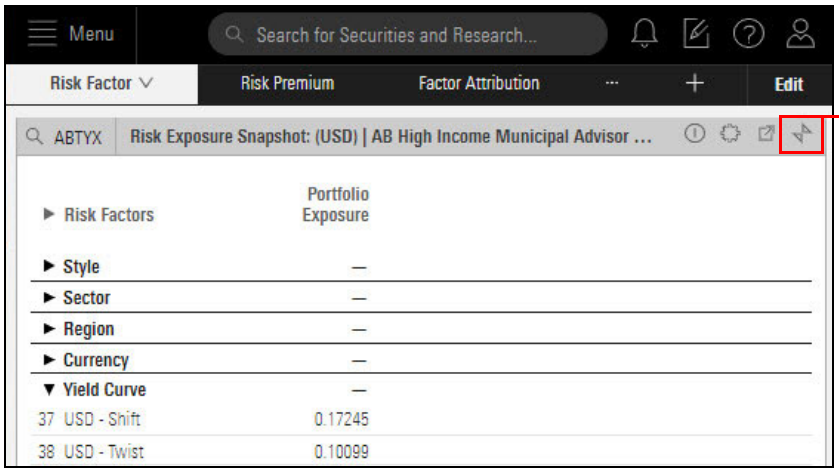
Only the Yield Curve risk factors are displayed.

In your results, which risk factor indicates the greatest impact? Which indicates the least impact?



Your results should look something like this.

5. In the upper-right corner of the component, click the **Collapse** icon. The component returns to its original size.



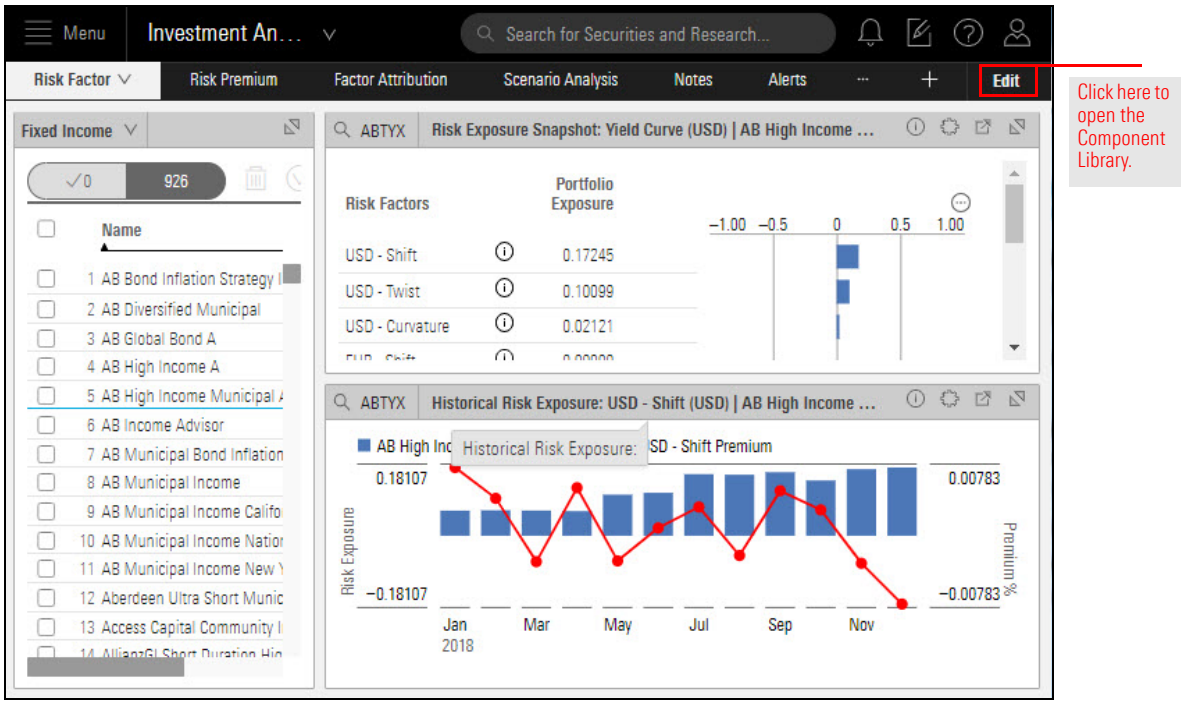
Click this icon to collapse the component.

Exercise 12: Examine historical risk exposure in fixed-income funds

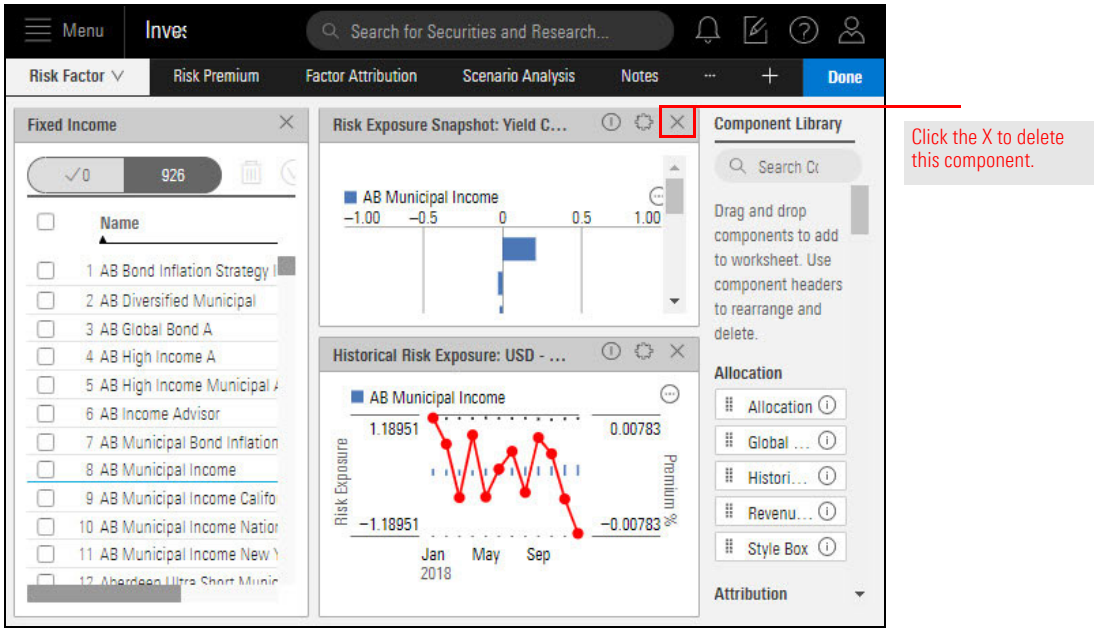
In this exercise, you will use the Historical Risk Exposure component to examine the past Yield Curve risk factors for fixed-income funds. The Equity Fund workbook should still be open and displaying the Risk Factor worksheet.

Do the following:

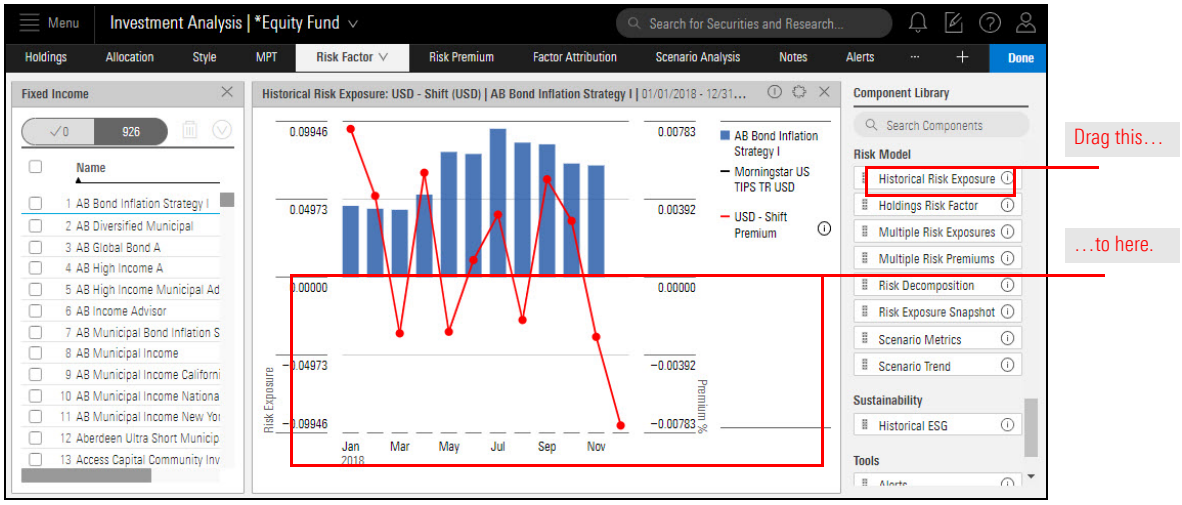
1. In the upper-right corner of the window, click **Edit** to open the **Component Library.**



2. **Delete** the **Risk Exposure Snapshot** component.

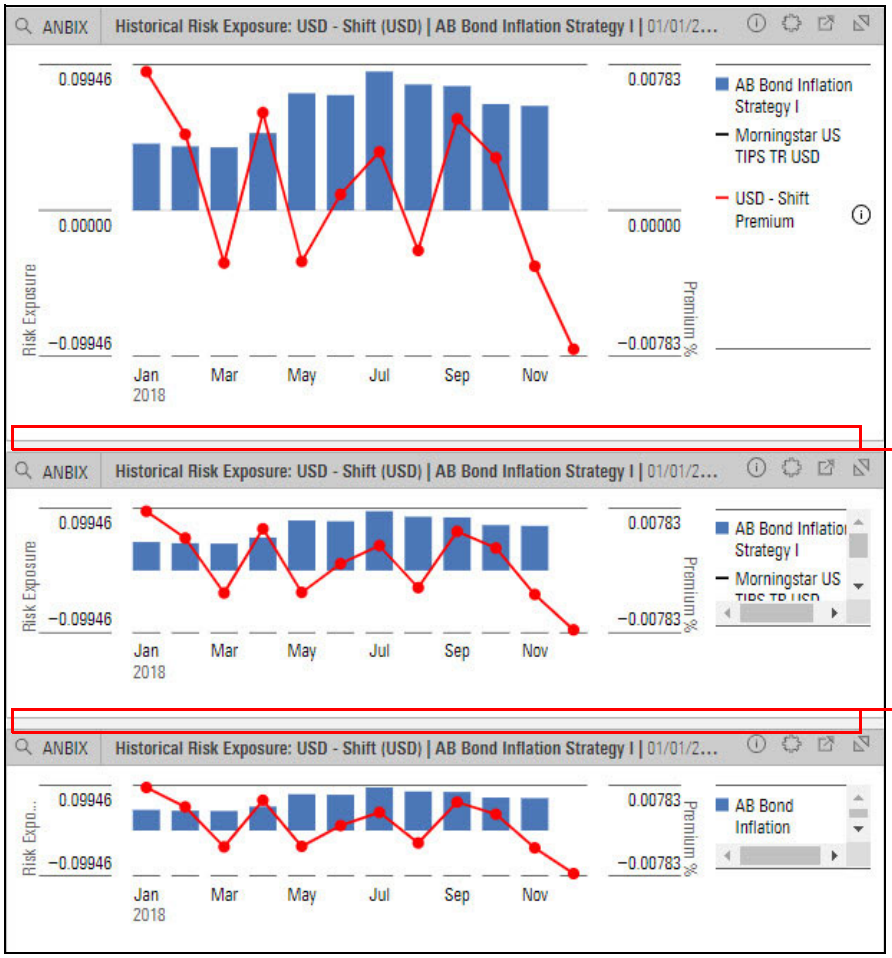


3. In the Component Library, **drag** the **Historical Risk Exposure** component into the component area, placing it at the bottom of the existing Historical Risk Exposure component. You now have two instances of the Historical Risk Exposure component.



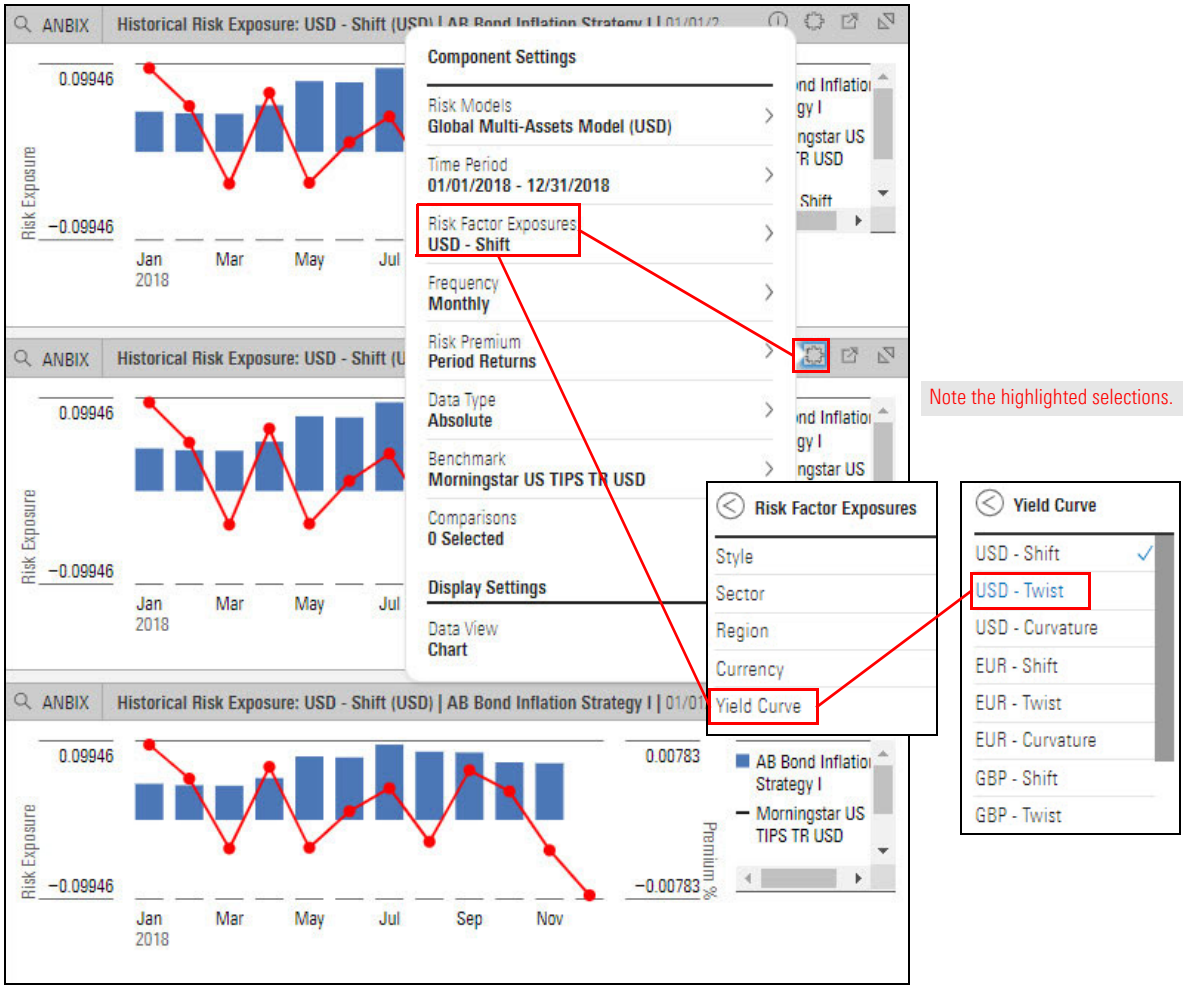
4. **Create** a third instance of the **Historical Risk Exposure** beneath the second Historical Risk Exposure component.

5. In the upper-right corner of the window, click **Done** to close the **Component Library**. You see three instances of the Historical Risk Exposure component, all displaying the USD Yield Curve Shift data.

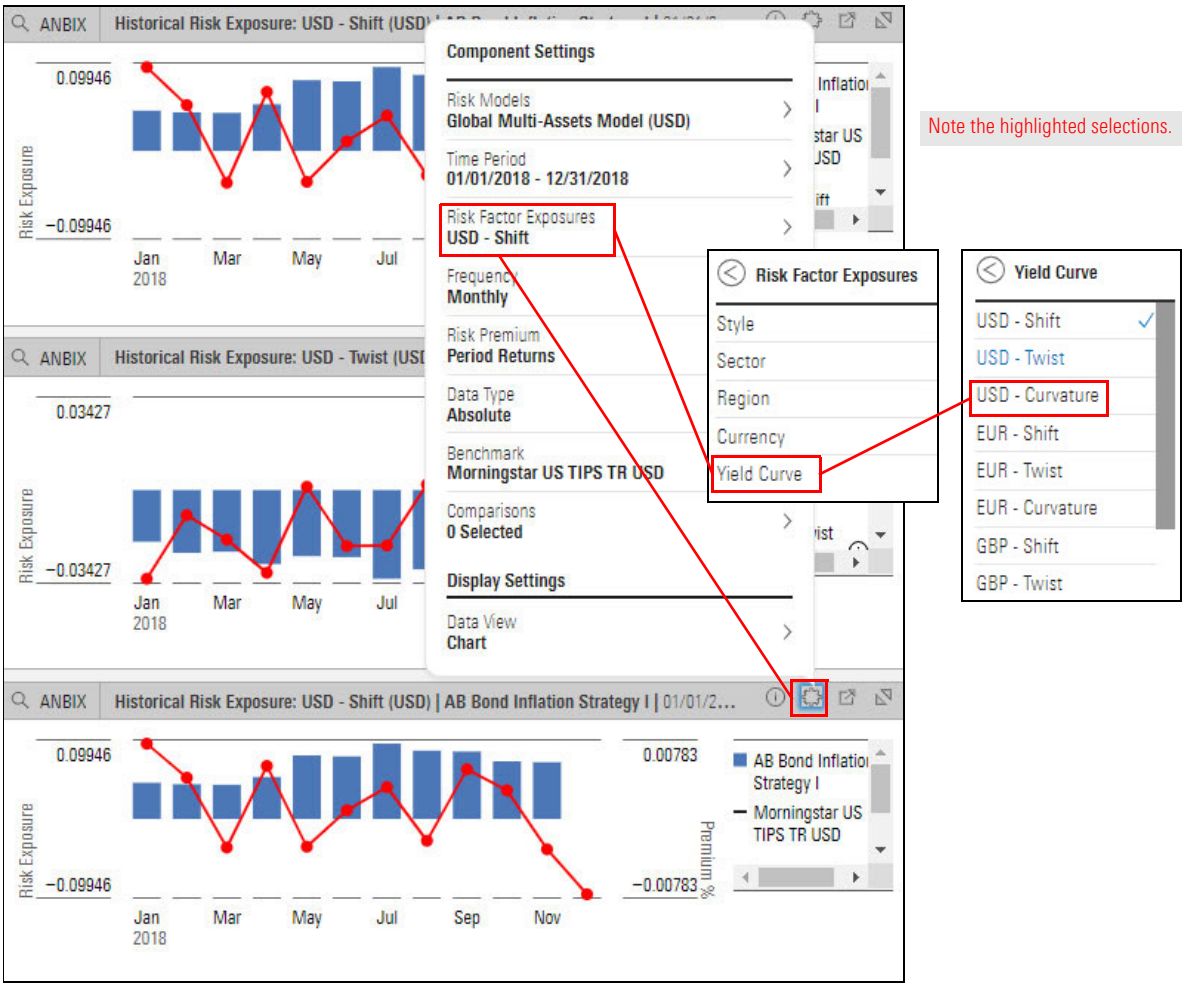


You might want to drag these separators up and down to make all three components the same size (more or less).

6. In the middle component, click the **Component Settings** icon and select **Risk Factor Exposures** > **Yield Curve** > **USD - Twist**.

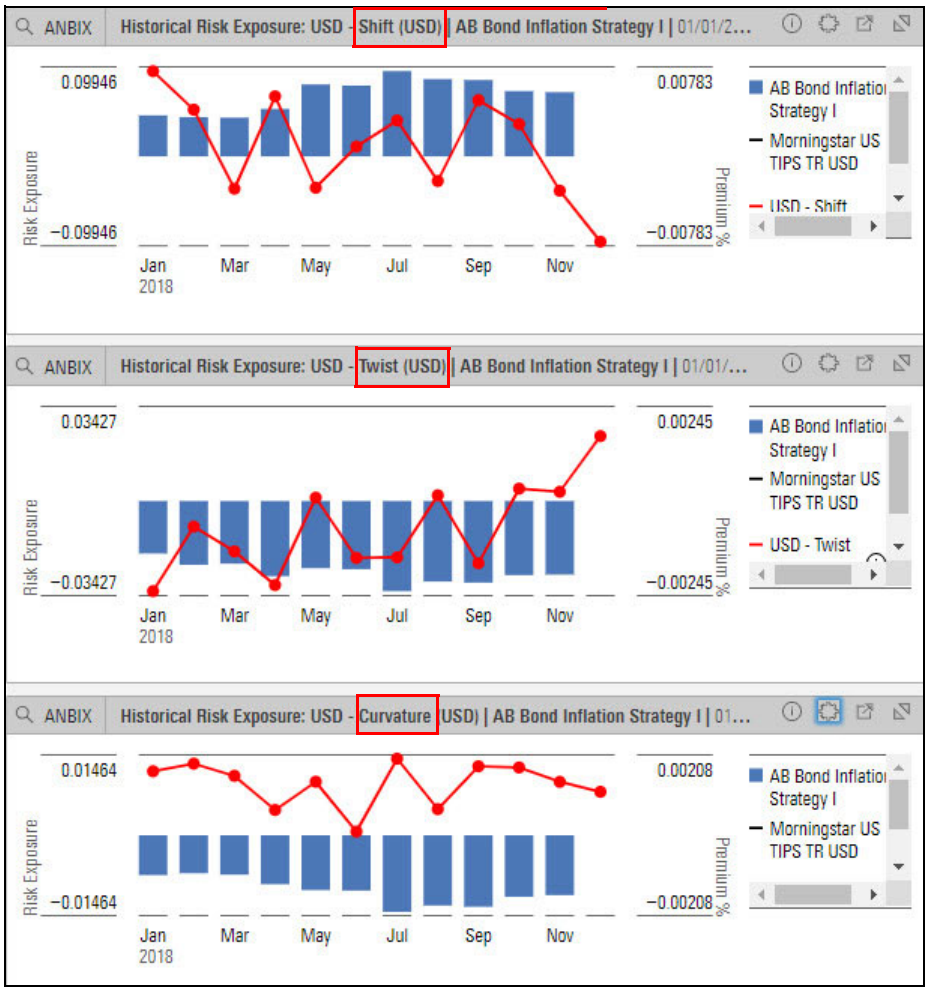


7. In the bottom component, click the **Component Settings** icon and select **Risk Factor Exposures** > **Yield Curve** > **USD - Curvature**.



8. Click the **Component Settings** icon to close the menu.

   Each of the Historical Risk Exposure components shows a different risk factor—Shift, Twist, and Curvature—for the same fund, covering the same time period.



Note the highlighted selections.

Exercise 13: Examine the UK and Eurozone regional models

The UK and Eurozone regional models do the following:

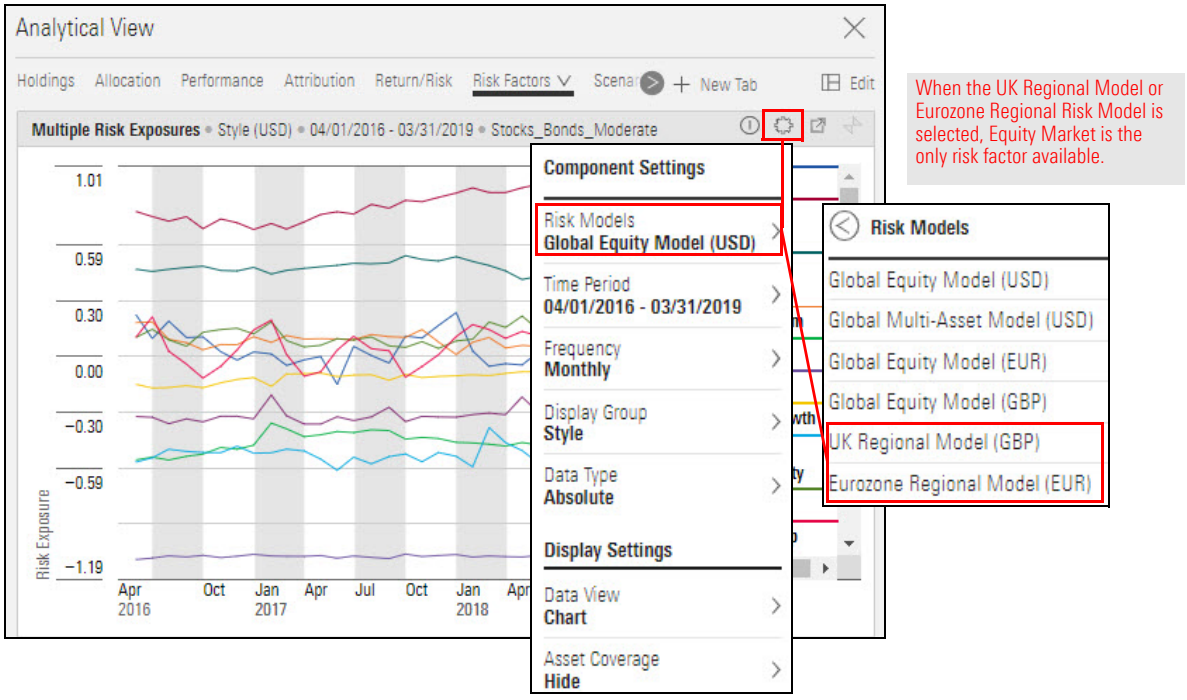
- Account for region-specific market conditions using the underlying Morningstar Global Risk Model methodology, and
- Help regional asset managers analyze their portfolios of local securities with more accuracy and forecast risk attributed to the local market factors.

The UK and Eurozone regional models are found in the following risk model components:

- Historical Risk Exposures
- Holdings Risk Factor
- Multiple Risk Exposures
- Multiple Risk Premiums
- Risk Decomposition, and
- Risk Exposure Snapshot.

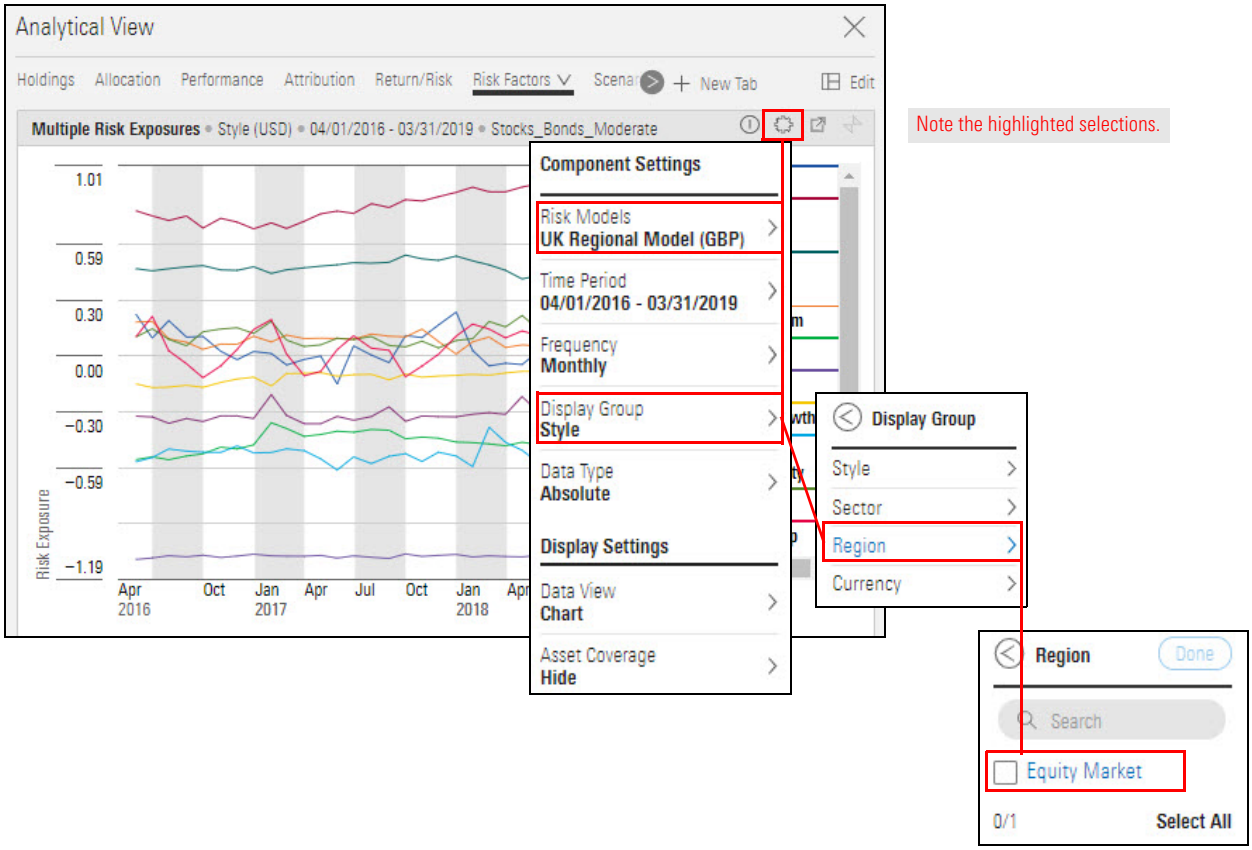
To access the UK and Eurozone Regional Models, do the following:

1. In one of the supported Risk Model components, click the **Component Settings** menu.
2. Select **Risk Models**.
3. Select one of the following:
   - **UK Regional Model**, or
   - **Eurozone Regional Model**.



4. **Click away** from the Component Settings menu to close it.

Note that when the UK Regional Model or Eurozone Regional Risk Model is selected, Equity Market is the only risk factor available in Component Settings > Display Group > Region.



Exercise 14: Use the Equity Market risk factor

The Equity Market risk factor improves the data surfaced by various Sector and Region factors by doing the following:

- approximates the overall equity market return over the designated time period, and
- strongly correlates with a broad-based market index (FTSE All World Index for the global equity model).

The Equity Market factor is found in the Region premium in the following risk model components:

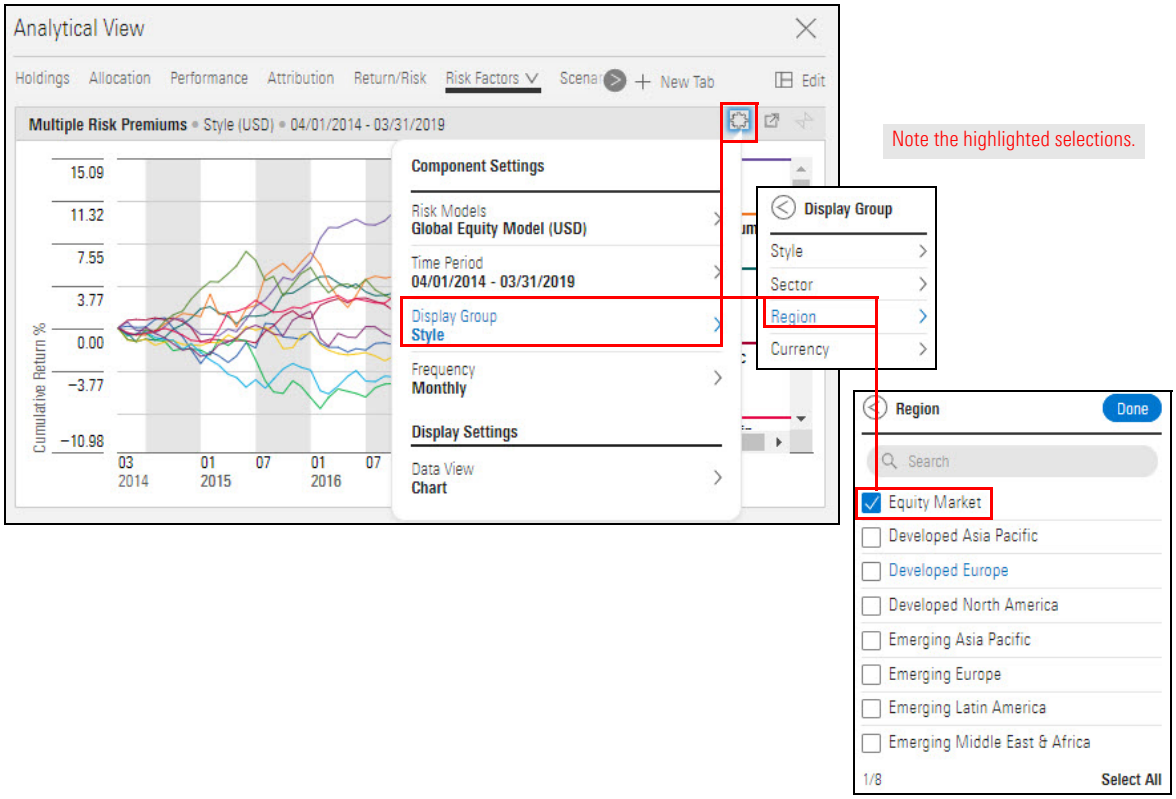
- Historical Risk Exposures
- Holdings Risk Factor
- Multiple Risk Exposures
- Multiple Risk Premiums
- Risk Decomposition, and

  ☞ Note: The Risk Decomposition component defaults to display all risk factors, including the Equity Market factor.

- Risk Exposure Snapshot.

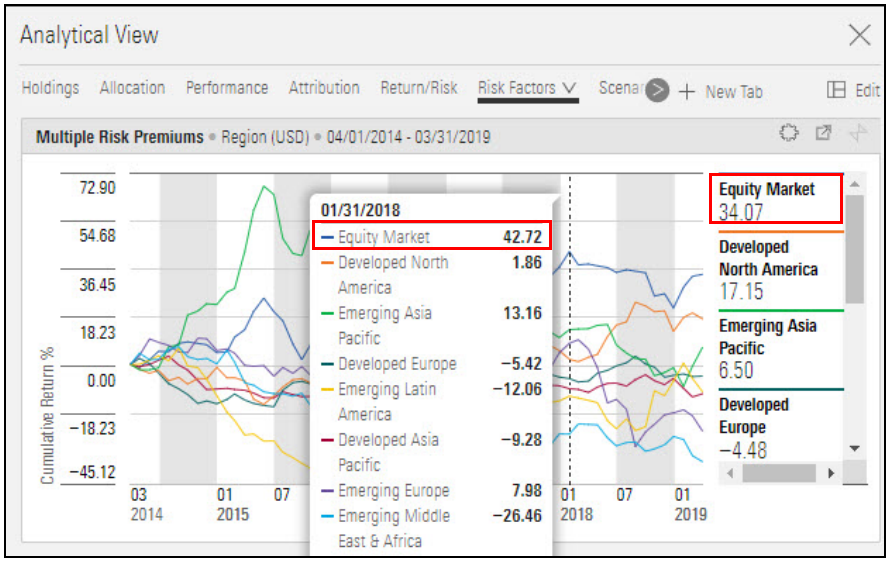
To access the Equity Market factor, do the following:

1. In one of the supported Risk Model components (with the exception of Risk Decomposition), click the **Component Settings** menu.
2. Sector **Display Group** > **Region** > **Equity Market**.



3. Click **Done**.
4. **Click away** from the Component Settings menu to close it.

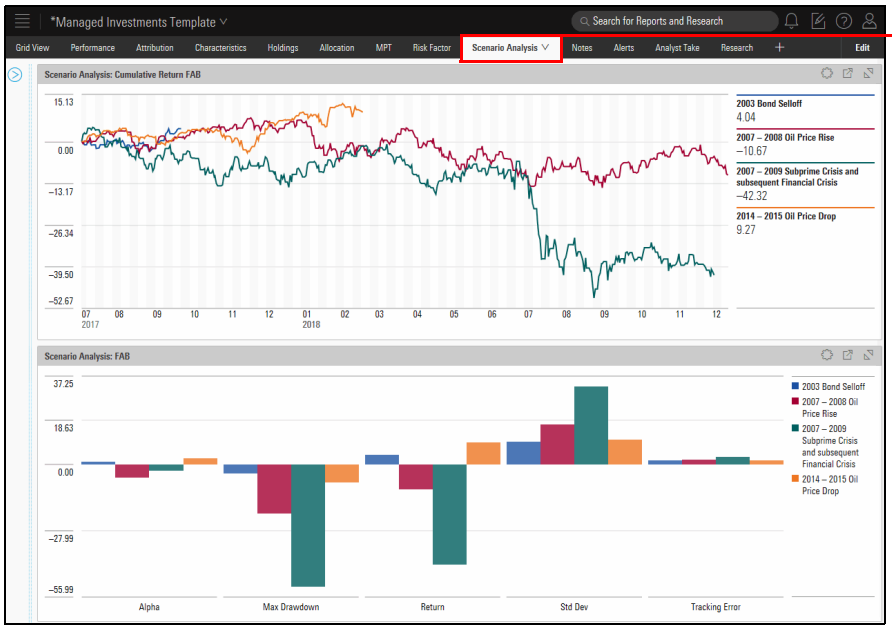
   The following image shows all regions.



Note the highlighted selections.

How can I learn more about using the Morningstar Global Risk Models?

In addition to using the worksheets and components mentioned in this guide, be sure to also read the Working with the Scenario Analysis Worksheet to familiarize yourself with that capability. The components on this worksheet use data from the Morningstar Global Risk Models based on past market events o predict a fund's future performance if certain market conditions should arise again.



Note the components available on this worksheet