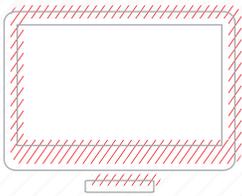
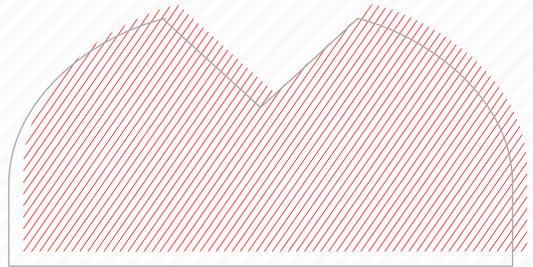
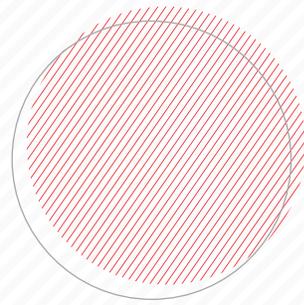
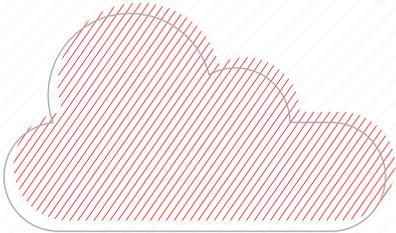
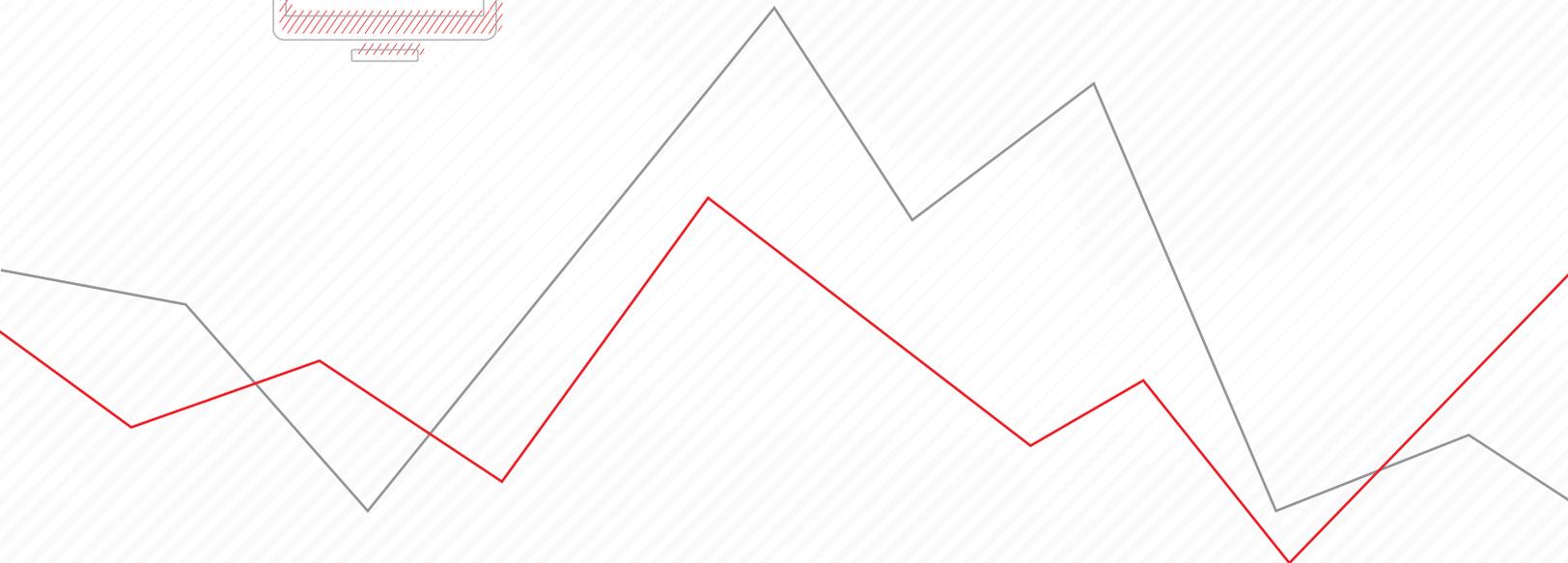


Working with the Scenario Analysis Worksheet

Morningstar DirectSM Cloud Editions



MORNINGSTAR Direct



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Working with the Scenario Analysis Worksheet

In either an Investment Workbook or Portfolio Workbook, the Scenario Analysis worksheet shows how one or more accounts, funds, or portfolios would perform if conditions from a past market event were to recur.

This section covers the following topics and exercises:

- ▶ [What can I discover using the Scenario Analysis Worksheet? \(page 4\)](#)
- ▶ [What scenarios are shown on the Scenario Analysis worksheet? \(page 5\)](#)
- ▶ [How are the scenario analysis values calculated? \(page 7\)](#)
- ▶ [Exercise 1: Display just one scenario at a time \(page 9\)](#)
- ▶ [Exercise 2: Apply a benchmark to the Scenario Trends component \(page 12\)](#)
- ▶ [Exercise 3: Add a fund for comparison \(page 13\)](#)
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- ▶ [Exercise 5: Find the drawdown for a fund during a scenario \(page 15\)](#)
- ▶ [What is the Global Multi-Asset Risk Model? \(page 18\)](#)
- ▶ [Exercise 6: Use the Global Multi-Asset Risk Model to compare fixed-income funds \(page 19\)](#)
- ▶ [Exercise 7: Find the day the maximum drawdown would be reached in a scenario \(page 27\)](#)
- ▶ [Exercise 8: Create a screen to find emerging markets funds \(page 30\)](#)
- ▶ [Exercise 9: Evaluating the potential impact of two scenarios on emerging markets funds \(page 32\)](#)
- ▶ [Exercise 10: Create a custom worksheet \(page 36\)](#)

 Note: This exercise guide makes use of content you created in the [Creating Screens](#) guide. If you did not create the content as part of those exercises, use a list or screen you created.

The Scenario Analysis worksheet shows how one or more accounts, funds, or portfolios would perform if conditions from a past market event were to recur. For example, in mid-2011, the U.S. Congress and the President faced off in a showdown over whether to increase the debt ceiling to continue borrowing to fund the government. The issue was resolved four months later, but the intervening dispute took a toll on equity and fixed income investments alike.

What would happen if the same risk premia were applied to a portfolio today, given its exposure to the 36 factors in the Morningstar Global Risk Model?

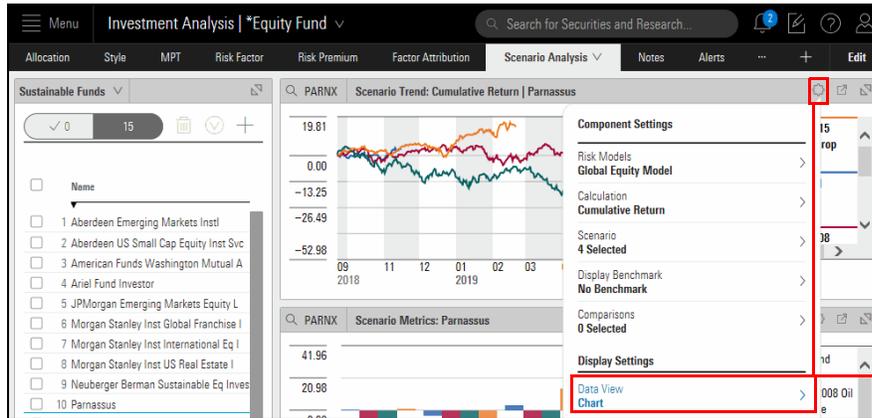
Overview

What can I discover using the Scenario Analysis Worksheet?

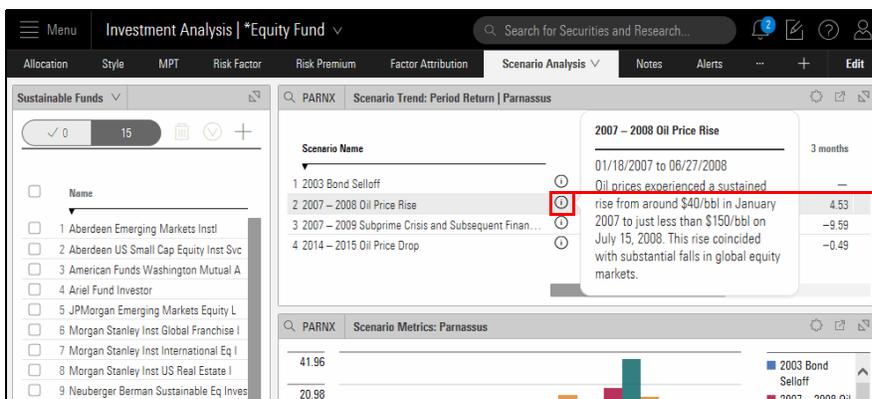
The Scenario Analysis worksheet shows four pre-defined scenarios by default, but several others are also available. Not all scenarios are shown at once, in order to make the components easier to read.

What scenarios are shown on the Scenario Analysis worksheet?

The following table describes the available pre-defined scenarios, but you can also see the description of a scenario by changing the Scenario Trend component's **Data View** setting to **Table** and **hovering the cursor** over the **information icon** for a scenario.



Start by converting this component to a table



Then hover the cursor over a scenario's information icon to see its description

Group Name	Scenario Name	Scenario Description
Global Macro	2003 Bond Selloff	In 2003, from June 12 to August 31, bond markets saw their largest sell-off since 1994. The U.S. dollar, Yen, and Euro yields all increased sharply. Ten-year U.S. Treasury yields increased from 3.11% on June 13 to over 4.40%, Japanese government bond yields rose 50 basis points, and bunds rose 70 basis points. Yields continued to rise at longer maturities until late August in Japan. Little direct impact was seen on equity markets during this time period, and the relative price of financial institutions did not move substantially as compared to the rest of the equity market.
	2007–2008 Oil Price Rise	From January 18, 2007 to June 2, 2008, oil prices experienced a sustained rise from around \$40/bbl to just less than \$150/bbl on July 15, 2008. This rise coincided with substantial falls in global equity markets.
	2007–2009 Subprime Crisis and subsequent Financial Crisis	This scenario follows the track of the subprime crisis and subsequent banking crisis and recession (October 2007–February 2009). In October 2007, Ben Bernanke delivered a speech suggesting that the banking system was healthy, but that the ultimate implications for financial markets were uncertain. Over the next year, approximately a million houses entered foreclosure. Credit markets froze through the successive bank failures worldwide. The S&P 500 fell 57% over this time period.
	2014–2015 Oil Price Drop	From June 2014 to January 15, 2015, the price of oil fell from around \$115/bbl to below \$70/bbl, after around five years of reasonably stable prices. Equity markets rose during this time.
US Focus	2006 Amaranth Hedge Fund Collapse	On September 18, 2006, the founder of the Amaranth Advisors hedge fund advised investors that the fund had lost 50% of their assets in the month-to-date, and a total of \$6.6bn losses by the end of September. The fund essentially had a large losing bet on North American natural gas prices. Ultimately the collapse did not cause substantial systematic distress in financial markets as counterparties quickly stepped in to stabilize the natural gas market.
	2011 Debt Ceiling	The US Public Debt Acts impose a limit on the total borrowings of the U.S. government. In May 2011, the U.S. Congress delayed raising the debt ceiling for a time, which caused some speculation around the possibility of a default on the U.S. debt. The U.S. suffered its first credit rating downgrade from S&P on August 5, 2011, and both Moody's and Fitch moved to a negative outlook. The downgrade was associated with substantial falls in world equity market prices. But bond prices rose, and yields on 10-year Treasuries moved from 2.56% to 2.34% by the time the ceiling was raised at the end of September 2011.

Group Name	Scenario Name	Scenario Description
Emerging Markets	2004 Emerging Market Crisis	In May 2004, a substantial increase in U.S. Treasury long-term yields appeared to drive substantial increases in emerging market spreads, especially for the most risky credits. This caused large falls in many emerging market equity markets over a two-week period.
	2006 Emerging Market Selloff	In May and June 2006, emerging market equities suffered their worst decline since the 1998 Russian debt crisis. This correction occurred after strong increases in those markets in the earlier part of the year. Developed markets were less affected. The Nikkei-225 fell approximately 15%, the Eurofirst-300 just over 9%, and the S&P 500 by 6%.
European Markets	2010 Greek Crisis	In April 2010, after a series of scandals that revealed that Greek government debt statistics were unreliable, all major credit rating agencies downgraded Greek government debt to junk. On May 2, 2010, the IMF, European Commission, and European Central Bank provided an EUR 110B loan to cover repayments of Greek government debt, contingent on the implementation of austerity measures to reduce public spending and increase tax revenue. The measures triggered a general strike in Greece on May 5 and ongoing political instability. The outstanding Greek government debt was largely held by Greek and other European banks, and the crisis provoked a sell-off in European financial sector equities.

The Scenario Analysis components use a fund's exposure to the 36 factors in the Morningstar Global Risk Model. In concert with the fund's constituents, the factors calculate the probable impact of past market events on a fund, should they re-occur in the future. Note the following:

- ▶ The Global Risk Model formula can be applied only to equity-based funds, and
- ▶ The Global Multi-Asset Risk Model formula can be applied to fixed-income funds and equity-based funds.

How are the scenario analysis values calculated?

For each scenario calculation, the following inputs are used:

- ▶ a scenario generation date (for example, the current date)
- ▶ a scenario start date and end date (for example, the start and end dates of the 2003 bond sell-off event)
- ▶ a sequence of daily factor premia from the start date to the end date of the scenario, and
- ▶ the exposures for the current portfolio as of the scenario generation date.

From these inputs, a single time series of returns whose length is the time between the start date and the end date is produced, along with the following collection of time series descriptive statistics:

- ▶ returns
- ▶ standard deviation
- ▶ max drawdown
- ▶ alpha, and
- ▶ tracking error.

To calculate the time series return and other statistics, the following calculation is used:

1. Multiply the portfolio weights by the risk factor exposure matrix to produce 36 portfolio-level exposures.
2. For each day in the time series, multiply the 36 portfolio exposures by the 36 premia for that day, and total the result to calculate an expected portfolio return. Together, these construct a portfolio return series.
 - ☞ Note: A return value is not calculated for weekends and global holidays (such as New Year's Day), but a return is calculated for other market holidays.
3. Calculate a variety of time series metrics (for example, max drawdown) for these various risk factor premia.

Although four pre-defined scenarios are depicted by default, you can isolate as many or as few as you want in the components on the Scenario Analysis worksheet. In this exercise, you will show just the 2003 Bond Selloff scenario. You will select a fund from the Passive Mid-Cap Value screen. (If you do not already have this screen, you can [create it now](#). You can also use another list or screen containing fixed-income funds.)

Exercise 1: Display just one scenario at a time

Do the following:

1. If the **Passive Mid-Cap Value** screen appears on the Home page for you, you can click it. Otherwise, **hover the mouse** over the **Menu** icon, then select **Lists & Screens**.

The screenshot shows the 'Lists & Screens' section of the Morningstar interface. It contains a table of investment screens and lists. The 'Passive Mid-Cap Value Funds' screen is highlighted with a red box. A callout box points to it with the text: "If this screen is available on your Home page, click to select it". Below the table is a navigation bar with a 'Menu' icon highlighted in red. A callout box points to the 'Menu' icon with the text: "If you do not see the screen on the Home page widget, access this page via the Menu icon".

Lists & Screens			Model
Large cap funds	List	07/12/2017	Name
Environmentally Focused Cl...	Screen	06/21/2017	Model1
Passive Mid-Cap Value Funds	Screen	06/21/2017	Model2
Gold-Rated Large Cap Funds	List	06/21/2017	Fund Lin
Growth Stocks	Screen	06/21/2017	Cornerst
Stocks to Watch	List	06/19/2017	
DOL Bargains	List	06/19/2017	
Global Equity Best Ideas	List	06/01/2017	
Gold Rated Large Cap Funds	Screen	06/01/2017	
My Three Stocks	List	06/01/2017	
US Equity ETFs	List	05/04/2017	

2. Click the **Passive Mid-Cap Value Funds** screen. (If you do not have this screen, use another list or screen containing equity-based funds.)
 3. When prompted to select a workbook, click **Equity Fund**. The workbook opens.
 4. Select the **Scenario Analysis** worksheet. This worksheet contains two components:
 - ▶ Scenario Trend, and
 - ▶ Scenario Metrics.
- 🔗 Note: The components in a worksheet always reflect data for the selected item in the left-hand pane. For these exercises, you can leave the top item selected, so long as it displays data in the components on the Scenario Analysis worksheet.

The top screenshot shows the 'Investment Analysis | *Equity Fund' interface. The 'Scenario Analysis' tab is highlighted in red. Below the tabs is a table of funds with columns for Name, Ticker, SecId, Morningstar Category, Total Ret % Rank Cat 3Y mo-end, Morningstar Rating 3Y, Morningstar Sustainability Rating, Morningstar Analyst Rating, and Morningstar Category Primary Benchmark.

The bottom screenshot shows the same interface with a 'View Worksheet' dropdown menu open. The 'Scenario Analysis' option is highlighted in red. A red callout box points to the ellipsis icon in the top right of the interface, stating: "... use the Ellipsis icon to see additional worksheets". Another red callout box points to the 'Scenario Analysis' option in the dropdown, stating: "If this worksheet does not automatically show...".

5. In the Scenario Trend component at the top of the worksheet, click the **Component Settings** icon. The Component Settings menu opens.
6. Click **Scenario > Pre-defined Scenarios**, then **deselect** all except the 2003 Bond Selloff.

7. Click **Done**.

Use the Component Settings icon to select this item

Then select this option

Be sure only this scenario is selected

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

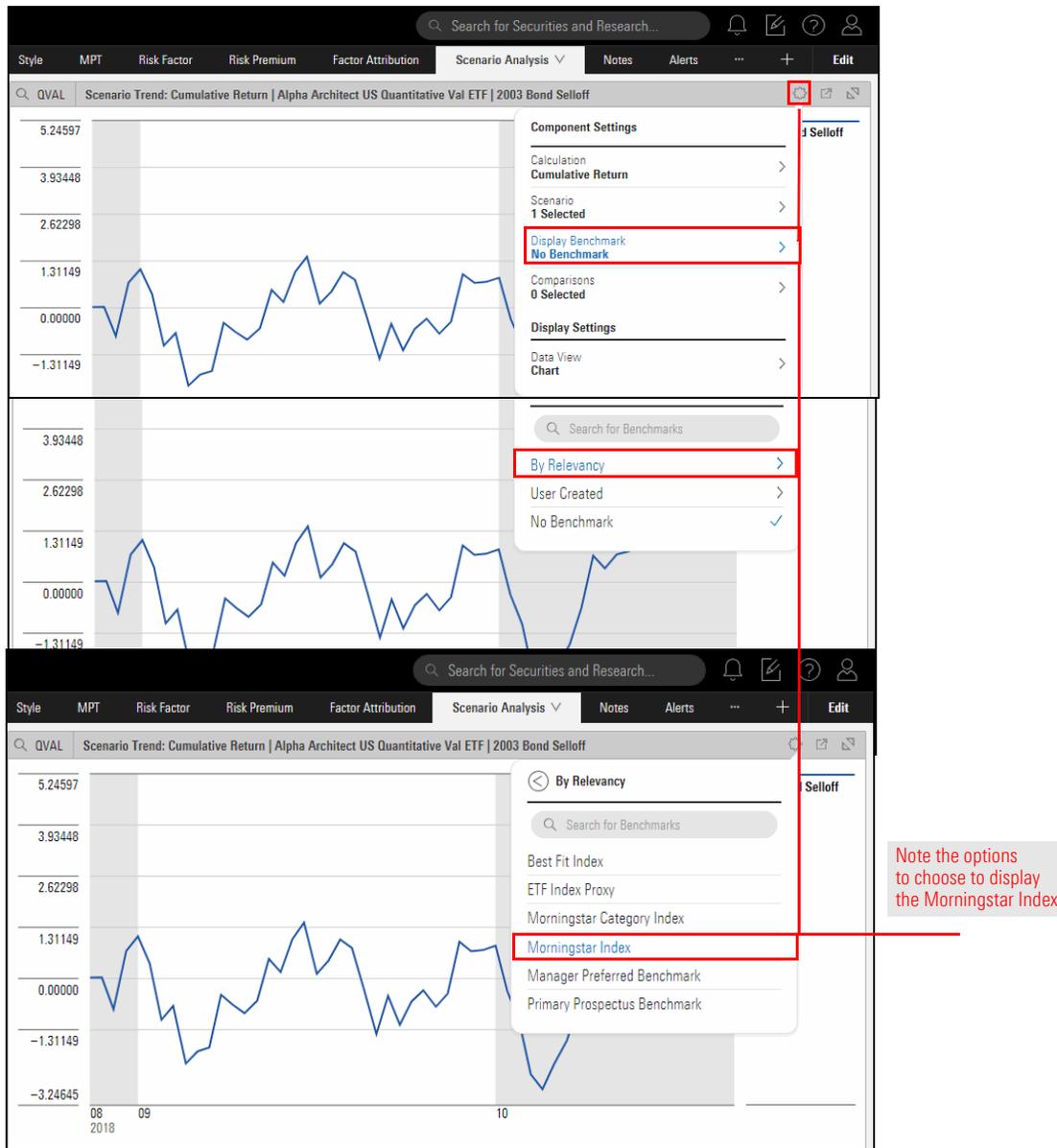
Note: The Scenario Metrics component at the bottom of the Scenario Analysis worksheet is not affected by the change you made in the Scenario Trend component.

Isolating a single scenario makes the time series chart easier to read, but it is difficult to determine the quality of the fund’s performance by this metric alone. To compare it to its Morningstar Index, do the following:

Exercise 2: Apply a benchmark to the Scenario Trends component

Note: When a benchmark is used in the Scenario Trends component, only one scenario (the topmost selected scenario) at a time can be displayed.

1. In the Scenario Trends component at the top, click the **Component Settings** icon.
2. Click the **Display Benchmark** option, then select **By Relevancy > Morningstar Index**.

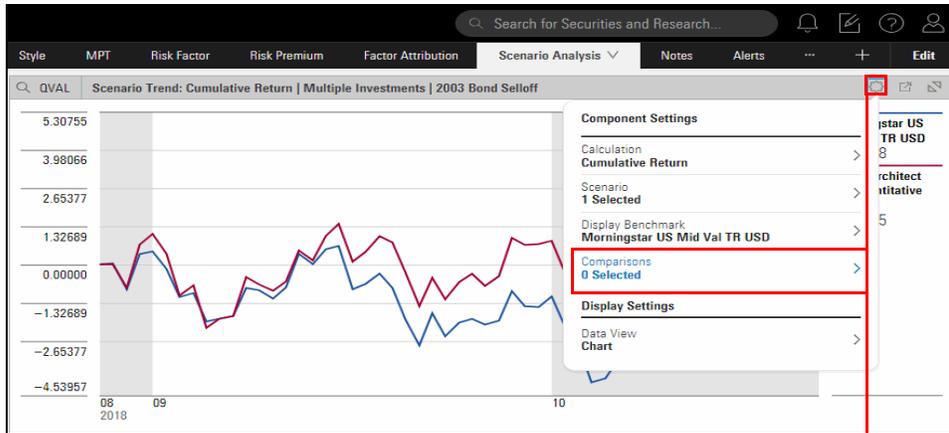


3. Click away from the Component Settings menu to close it. Would the fund outperform the benchmark if this scenario were to reoccur?

The benchmark is a nice contrast to the fund in focus, but you can also select up to eight other funds for comparison. Do the following:

Exercise 3: Add a fund for comparison

1. In the Scenario Trends component at the top, click the **Component Settings** icon. The Component Settings menu opens.
2. Click the **Comparisons** option.
3. In the **Search all Securities** field, type **TRMCX**, and click the name of the fund when it appears.
4. Click **Done**.



5. **Click away** from the Component Settings menu to close it. Did the fund in focus outperform the T. Rowe Price fund?

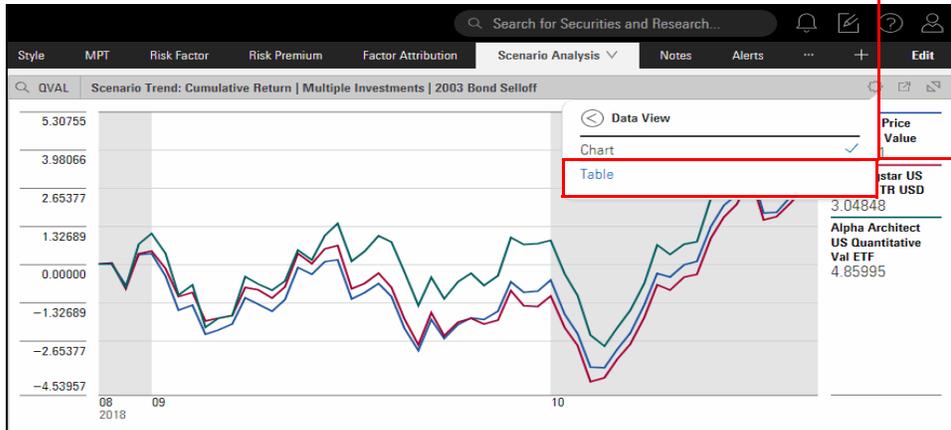
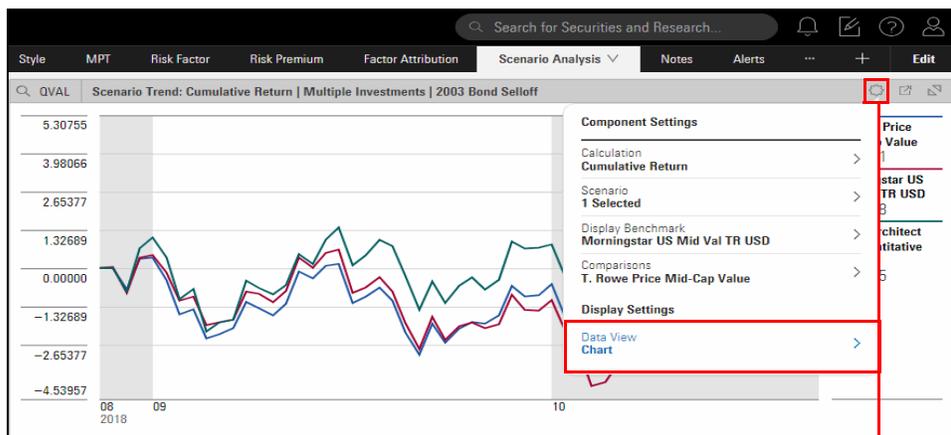
You can move your mouse over the time series line in a chart to see the return values at any point in time, but seeing the data in a table might be easier than trying to find information for a specific time period within the scenario.

Exercise 4: Convert the chart to a table

Note: By default, the data shown in a chart reflects a calculation based on the cumulative return of an investment in the scenario. When you switch to displaying the information as a table, the default calculation switches to showing you period return for an investment.

To convert the chart to a table, do the following:

1. Click the **Component Settings** icon in the Scenario Trends component at the top. The Component Settings menu opens.
2. Click the **Data View** option, then select **Table**.



3. **Click away** from the Component Settings menu to close it. Note that for the 2003 Bond Selloff scenario, data appears only for the 1 week, 1 month, and 2 months data columns (because that is how long the bond selloff lasted). Other scenarios will show data in the table reflecting the duration of the scenario.

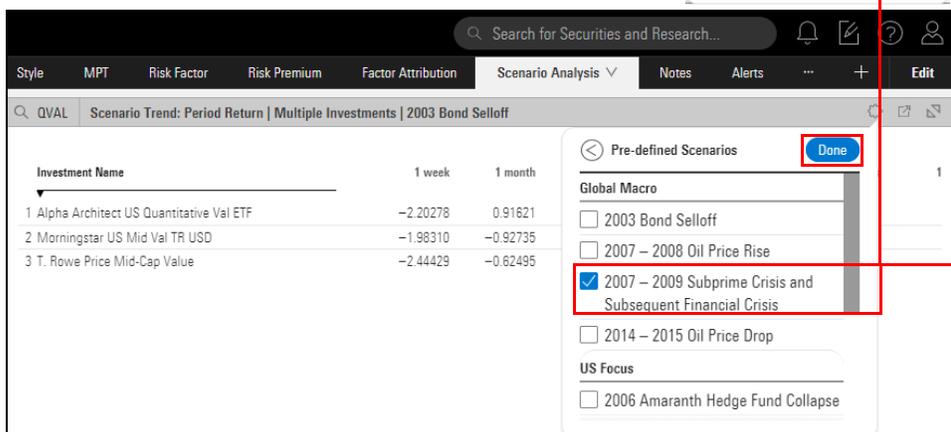
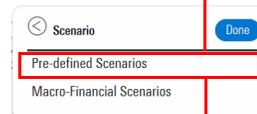
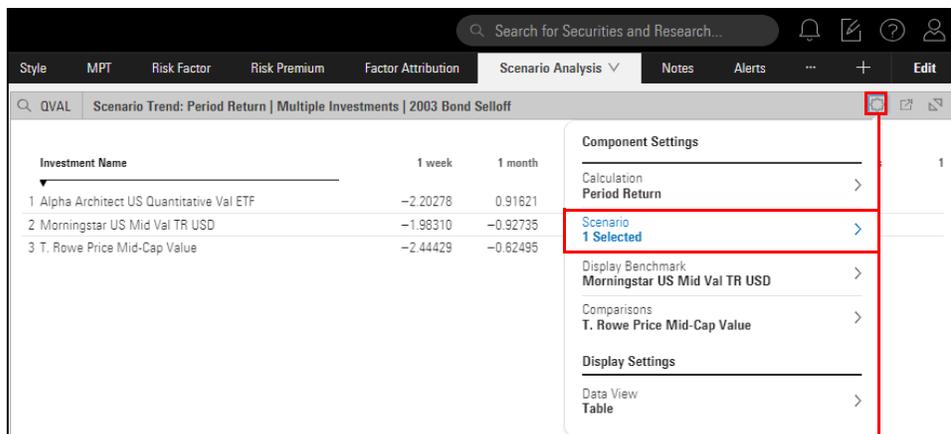
The default calculation setting for the Scenario Trend component shows you the cumulative return for a fund as a time series. You can instead opt to see either the return of \$10K (that is, you can see what \$10,000 invested at the beginning of the scenario becomes at the end of the scenario), a series of period returns, or the drawdown a fund experiences from peak to trough during a scenario.

Exercise 5: Find the drawdown for a fund during a scenario

This exercise shows you how to display the drawdown value for the 2007–2009 Subprime crisis and subsequent Financial Crisis. The drawdown is calculated daily in table view, and encompasses over 500 market days in this scenario, so finding the final drawdown value is easier when the component displays a chart. (The table display is useful if you want to find the day the maximum drawdown was reached for a fund during a scenario, which is explored in the next exercise.)

To find the drawdown a fund suffered by the end of the 2007-2009 financial crisis, do the following:

1. Click the **Component Settings** icon in the Scenario Trend component at the top. The Component Settings menu opens.
2. Click **Scenario > Pre-defined Scenarios**, then deselect the **2003 Bond Selloff**, and select the **2007–2009 Subprime Crisis and Subsequent Financial Crisis**.
3. Click **Done**.



Note the options to choose to display this scenario

4. Click the **Calculation** option, then select **Drawdown**.

The screenshot shows the 'Scenario Analysis' tab in a software interface. A table lists three investments: Alpha Architect US Quantitative Val ETF, Morningstar US Mid Val TR USD, and T. Rowe Price Mid-Cap Value. A dropdown menu is open, showing 'Calculation' options: 'Period Return' (highlighted with a red box), 'Scenario 1 Selected', 'Display Benchmark Morningstar US Mid Val TR USD', 'Comparisons T. Rowe Price Mid-Cap Value', and 'Display Settings Table'.

Investment Name	1 week	1 month
1 Alpha Architect US Quantitative Val ETF	3.93105	-5.18273
2 Morningstar US Mid Val TR USD	4.22590	-5.51221
3 T. Rowe Price Mid-Cap Value	3.99110	-4.64404

The screenshot shows the same interface as above, but the dropdown menu is now expanded to show 'Calculation' options: '10K Growth', 'Cumulative Return', 'Drawdown' (highlighted with a red box and a checkmark), and 'Period Return'.

Investment Name	1 week	1 month
1 Alpha Architect US Quantitative Val ETF	3.93105	-5.18273
2 Morningstar US Mid Val TR USD	4.22590	-5.51221
3 T. Rowe Price Mid-Cap Value	3.99110	-4.64404

Note the options to choose to select this option

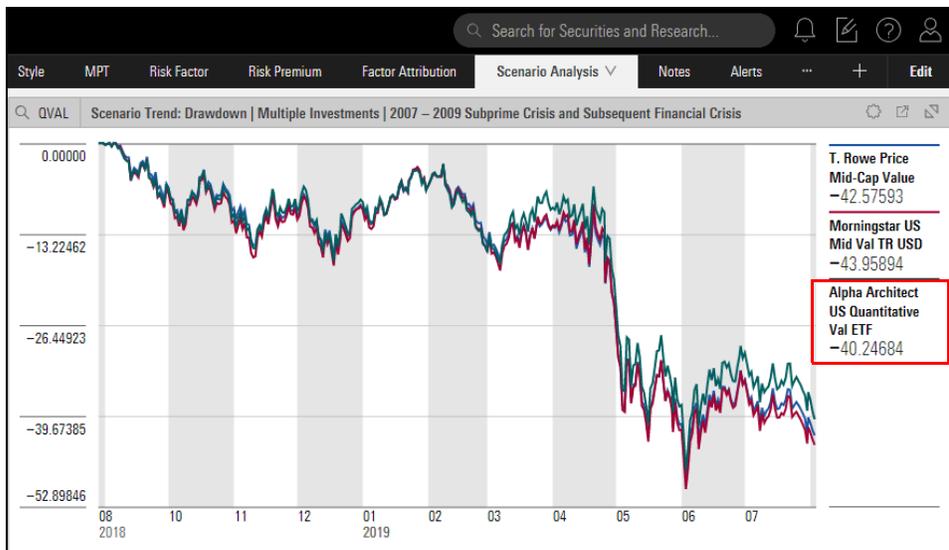
5. Click the **Data View** option, then select **Chart**.

Time Period	T. Rowe Price Mid-Cap Value	Morningstar US Mid Val TR USD	Alpha
1 08/29/2018	0.00000	0.00000	
2 08/30/2018	0.00000	0.00000	
3 08/31/2018	0.00000	0.00000	
4 09/01/2018	-0.32299	-0.25694	
5 09/02/2018	-0.11521	-0.18007	
6 09/03/2018	0.00000	0.00000	
7 09/04/2018	-0.44221	-0.49926	
8 09/05/2018	0.00000	0.00000	
9 09/06/2018	-0.02149	-0.08313	
10 09/07/2018	-0.55442	-0.61157	
11 09/08/2018	-0.35590	-0.52954	

Time Period	T. Rowe Price Mid-Cap Value	Morningstar US Mid Val TR USD	Alpha
1 08/29/2018	0.00000	0.00000	0.00000
2 08/30/2018	0.00000	0.00000	
3 08/31/2018	0.00000	0.00000	0.00000
4 09/01/2018	-0.32299	-0.25694	-0.24761
5 09/02/2018	-0.11521	-0.18007	-0.19059
6 09/03/2018	0.00000	0.00000	0.00000
7 09/04/2018	-0.44221	-0.49926	-0.52156
8 09/05/2018	0.00000	0.00000	0.00000
9 09/06/2018	-0.02149	-0.08313	-0.12238
10 09/07/2018	-0.55442	-0.61157	-0.82208

Note the options to choose to select this option

6. **Click away** from the Component Settings menu to close it. What would the final value be for the fund in focus?



What would the value be at the end of the scenario?

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 and fixed-income 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.

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 $\leq 2,000$.

☞ Note: ADRs are not eligible.

At this time, the following fixed-income funds are excluded from coverage:

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

To learn more about the Morningstar Global Multi-Asset Risk Model, please read [Morningstar Risk Model Methodology](#).

What is the Global Multi-Asset Risk Model?

In this exercise, you will compare the results for two fixed-income funds under different scenarios. The Equity Fund workbook should still be open.

Do the following:

1. In the **Equity Fund** workbook, open the screen **Analyst-Rated Fixed-Income Funds**. If you do not have this screen, [create it now](#).
2. Select the **Scenario Analysis** worksheet.
3. At the far-right of the worksheet tabs, click **Edit** to open the Component Library.

Exercise 6: Use the Global Multi-Asset Risk Model to compare fixed-income funds

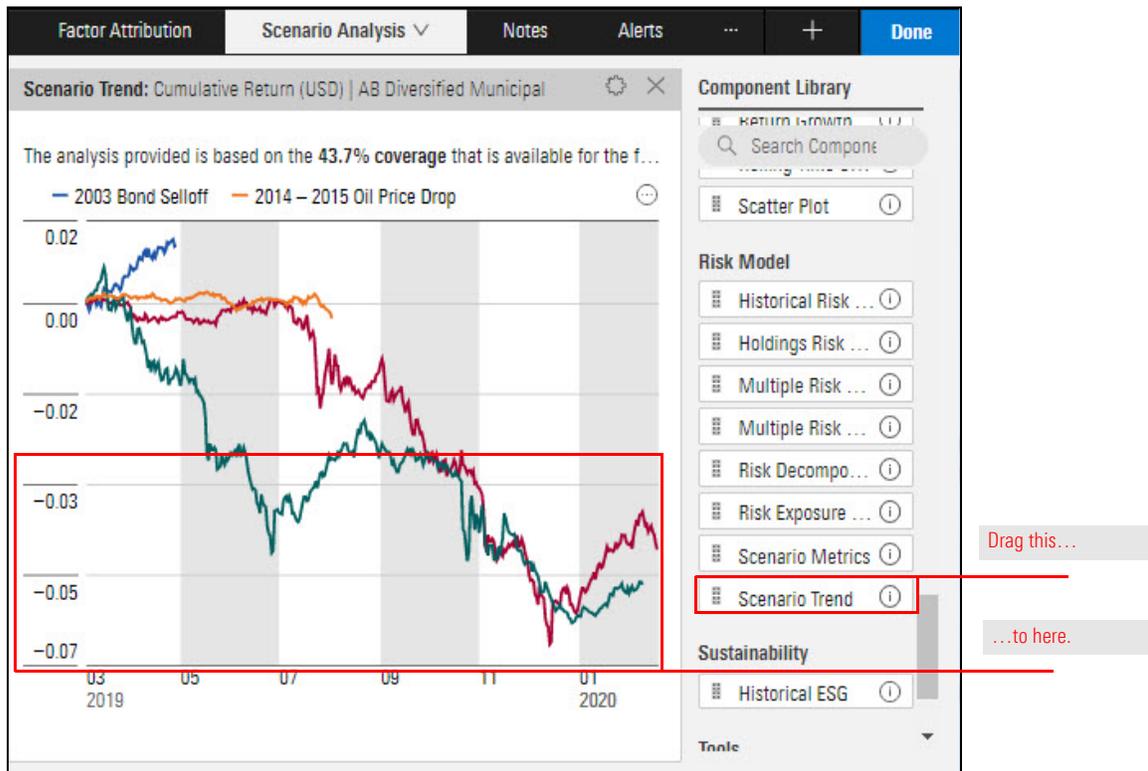
The screenshot displays the Morningstar Scenario Analysis tool. On the left, a list of 14 fixed-income funds is shown, with 'AB Diversified Municipal' selected. The main area is divided into two panels. The top panel, 'Scenario Trend: Cumulative Return (USD) | AB Diversified Municipal', shows a line chart from 2019 to 2020. The y-axis ranges from -0.07 to 0.02. Two scenarios are plotted: '2003 Bond Selloff' (blue line) and '2014-2015 Oil Price Drop' (orange line). Both show a downward trend. The bottom panel, 'Scenario Metrics: (USD) | AB Diversified Municipal', shows a bar chart for 'Alpha' and 'Tracking Error'. The y-axis ranges from -0.07 to 0.03. Two scenarios are compared: '2003 Bond Selloff' (blue bars) and '2007-2008 Oil Price Rise' (red bars). A red box highlights the 'Edit' button in the top right corner of the interface, with a callout 'Click here.'

4. Delete the **Scenario Metrics** component.

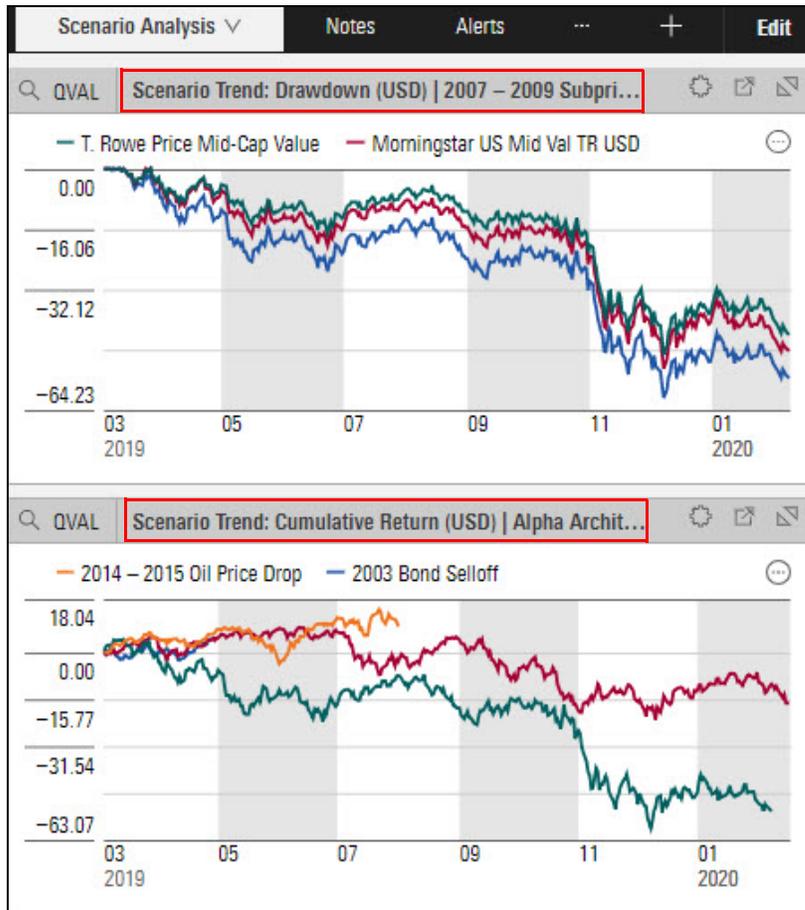
The screenshot shows the Morningstar Scenario Analysis interface. On the left is a list of 14 Analyst-Rated Fixed Income Funds. The main area contains two components: 'Scenario Trend: Cumulative Return (USD) | AB ...' and 'Scenario Metrics: (USD) | AB Diversified Muni...'. The 'Scenario Metrics' component is highlighted with a red box, and a red arrow points from a callout box to its close button (X). The callout box contains the text: 'Click here to delete the Scenario Metrics component.'

The Scenario Trend component now occupies the full component area.

- In the Component Library, **drag** the **Scenario Trend** component to the component area, placing it at the **bottom of the component area**.



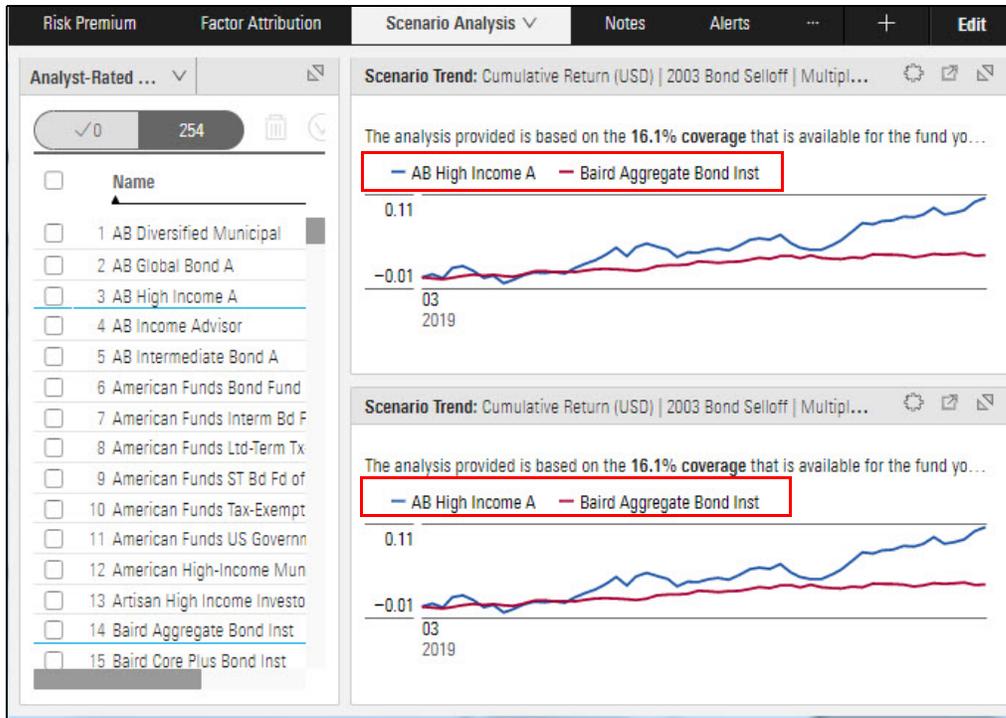
- 6. At the far-right of the worksheet tabs, click **Done** to close the Component Library.
- 7. You now have two instances of the Scenario Trend component, both displaying the same data.



Note the highlighted selections.

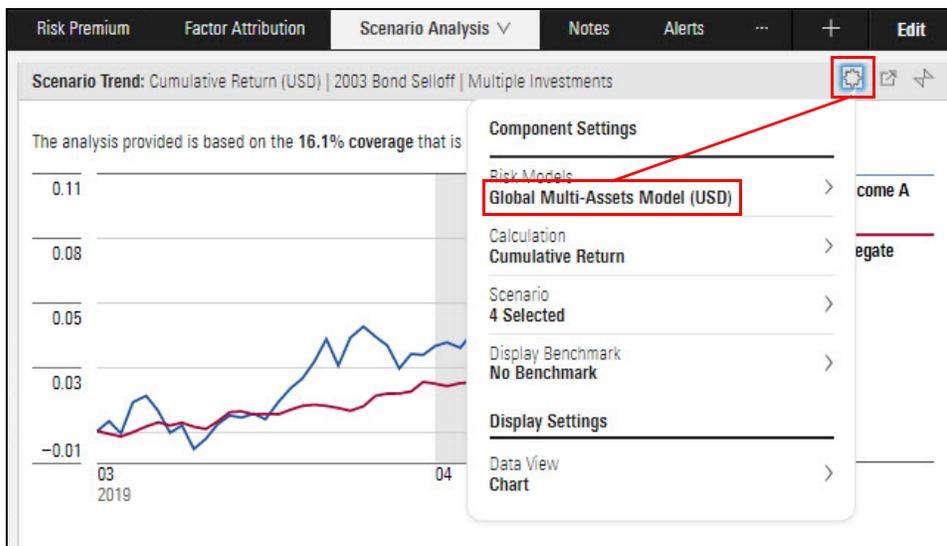
8. In the Grid, to **select two funds** you want to compare, **click one** and **<CTRL>-click the other**. Now two funds are selected and each component displays a line for each fund.

Note: At the top of each component, the text "The analysis provided is based on the XX.X% coverage that is available for the fund you are viewing" refers to the fund you selected first.



Note the highlighted selections.

9. In the top component, click the **Component Settings** icon. The Component Settings menu opens. **Note** that the **Risk Models** selection is **Global Multi-Assets Model**.



When you opened a list of fixed-income funds, one of them was automatically selected. And because it's a fixed-income fund, the Risk Model changed to the Global Multi-Asset Model.

10. From the **Component Settings** menu, select **Scenario > Pre-defined Scenarios**. Clear the checkboxes for the following:

- ▶ **2007–2008 Oil Price Rise**
- ▶ **2007–2009 Subprime Crisis and Subsequent Financial Crisis**, and
- ▶ **2014–2015 Oil Price Drop**.

Make sure **2003 Bond Selloff** is still selected.

The screenshot shows the 'Component Settings' menu with 'Scenario' selected, leading to 'Pre-defined Scenarios'. Under 'Global Macro', the '2003 Bond Selloff' checkbox is checked, while '2007 - 2008 Oil Price Rise', '2007 - 2009 Subprime Crisis and Subsequent Financial Crisis', and '2014 - 2015 Oil Price Drop' are unchecked. A red callout box points to the '2003 Bond Selloff' checkbox with the text: "A bond selloff would be an important concern for fixed-income funds."

11. Click **Done**, then **Click away** from the Component Settings menu to close it.

The screenshot shows the 'Scenario Trend' chart for '2003 Bond Selloff'. The chart compares two funds: 'AB High Income A' (blue line) and 'Baird Aggregate Bond Inst' (red line). The y-axis represents cumulative return in USD, ranging from -0.01 to 0.11. The x-axis shows the period from 03 2019 to 04. The blue line shows a significant upward trend, while the red line remains relatively flat. A red callout box on the right says: "Your results will not match these."

Which of the two selected funds would do better if a substantial bond selloff were to occur?

- In the bottom Scenario Trend component, click the **Component Settings** icon, then select **Scenario > Pre-defined Scenarios**. Clear the checkboxes on **all scenarios**, then select **2011 US Debt Ceiling**.

The analysis provided is based on the 16.1% coverage that is available for the fund you are ...

— AB High Income A — Baird Aggregate Bond Inst

0.11
0.08
0.05
-0.01

03
2019

Scenario Trend: Cumulative Return (USD) | 2003 Bond Selloff | Multiple Inv...

Component Settings

- Risk Models
 - Global Multi-Assets Model (USD)
- Calculation
 - Cumulative Return
- Scenario
 - 1 Selected
- Display Benchmark
 - No Benchmark
- Display Settings
 - Data View
 - Chart

Note the highlighted selections.

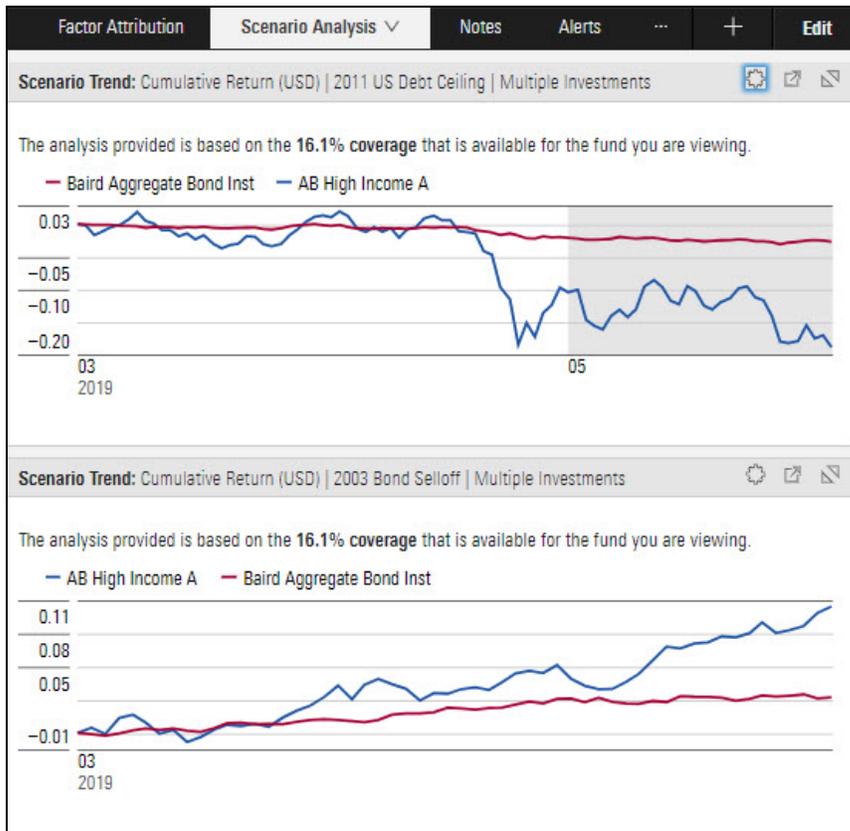
Scenario

- Pre-defined Scenarios
- Macro-Financial Scenarios

Pre-defined Scenarios Done

- 2007 – 2009 Oil Price Rise
- 2007 – 2009 Subprime Crisis and Subsequent Financial Crisis
- 2014 – 2015 Oil Price Drop
- US Focus**
- 2006 Amaranth Hedge Fund Collapse
- 2011 US Debt Ceiling
- Emerging Markets**
- 2004 Emerging Market Crisis

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



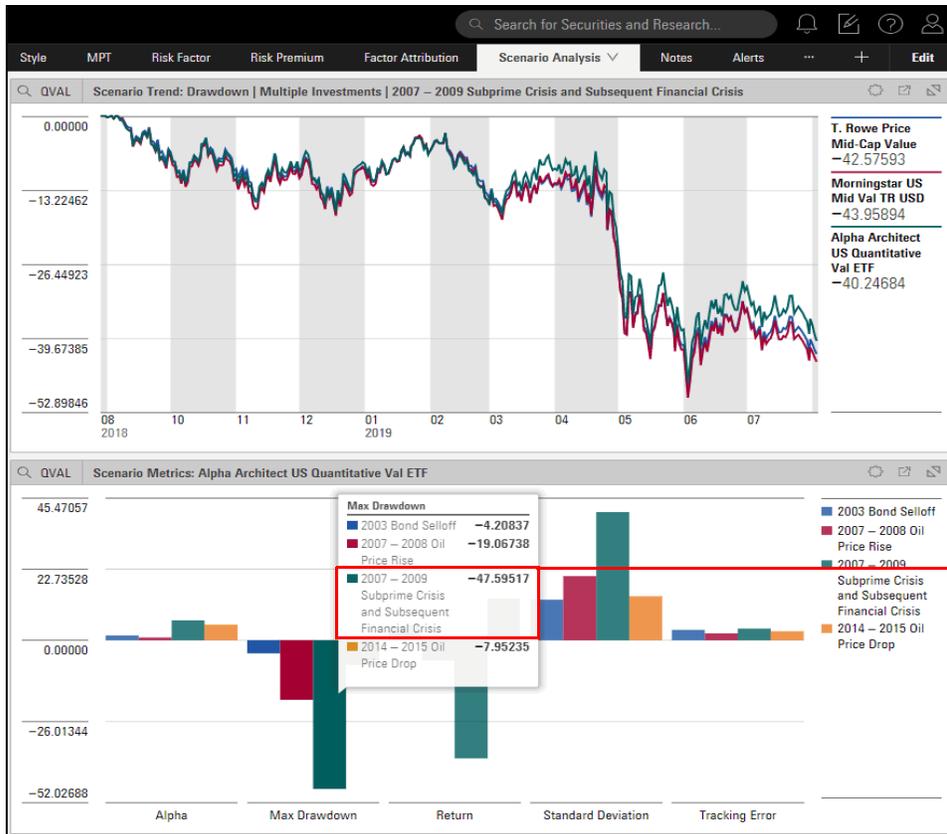
Your results will not match these.

Which of the two selected funds would do better if the United States were to experience a similar debt ceiling crisis?

The Scenario Metrics component (at the bottom of the Scenario Analysis worksheet) contains several metrics reflecting values of the fund in focus for the scenario(s) selected. One of these metrics is Max Drawdown. You can move your mouse over the bars in the Scenario Metrics component to see the value for each one. To find the day the maximum drawdown would be reached if the 2007–2009 Subprime Crisis and Subsequent Financial Crisis would be repeated for the fund in focus, do the following:

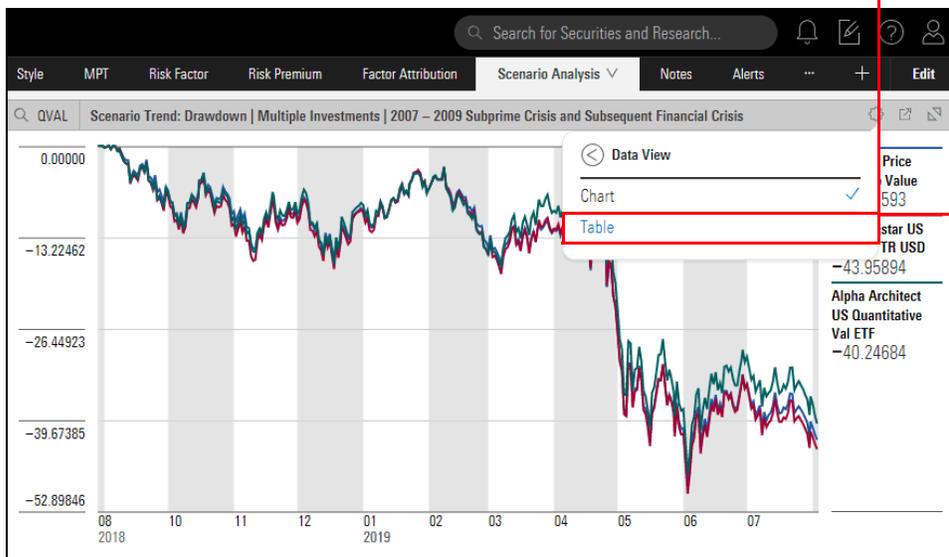
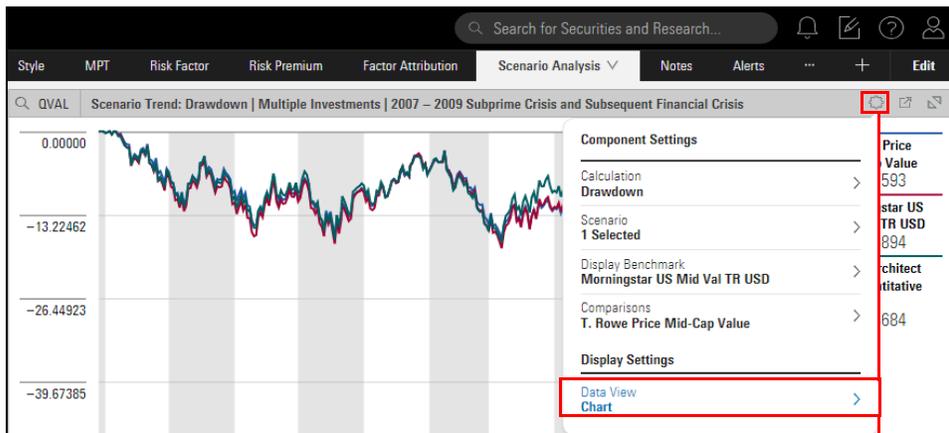
Exercise 7: Find the day the maximum drawdown would be reached in a scenario

1. In the Scenario Metrics component (at the bottom of the worksheet), move your mouse over the **Max Drawdown** bar, then write down the number you see for the 2007 – 2009 Subprime Crisis and Subsequent Financial Crisis.



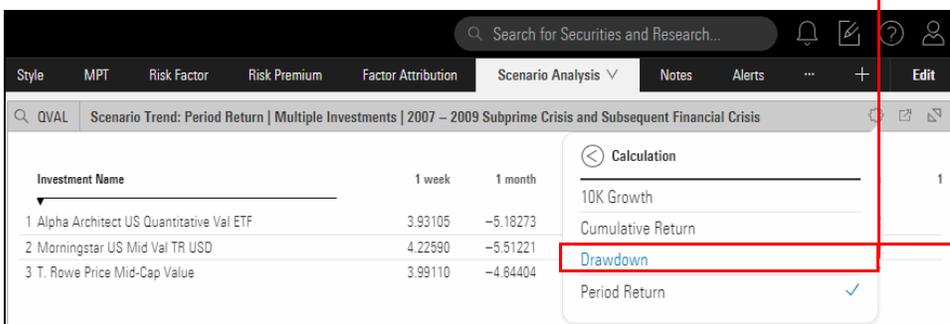
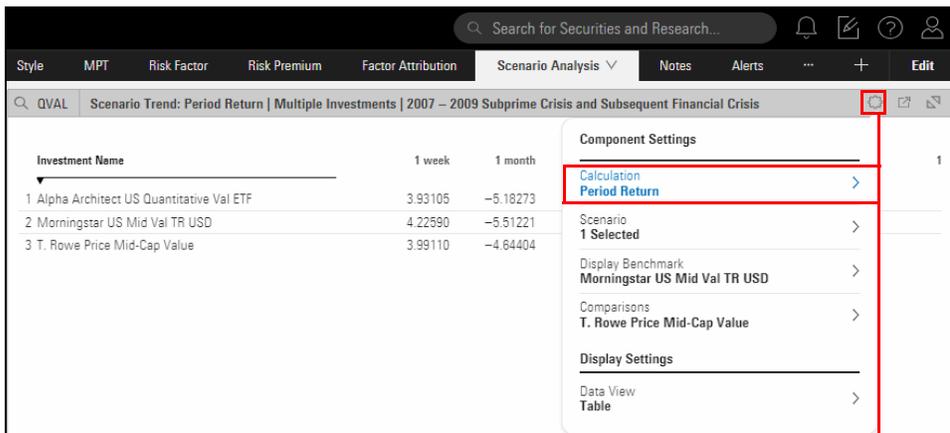
Write down the value you see here

- In the Scenario Trends component (at the top of the worksheet), use the **Components Setting** icon to switch the **Data View** to **Table**.



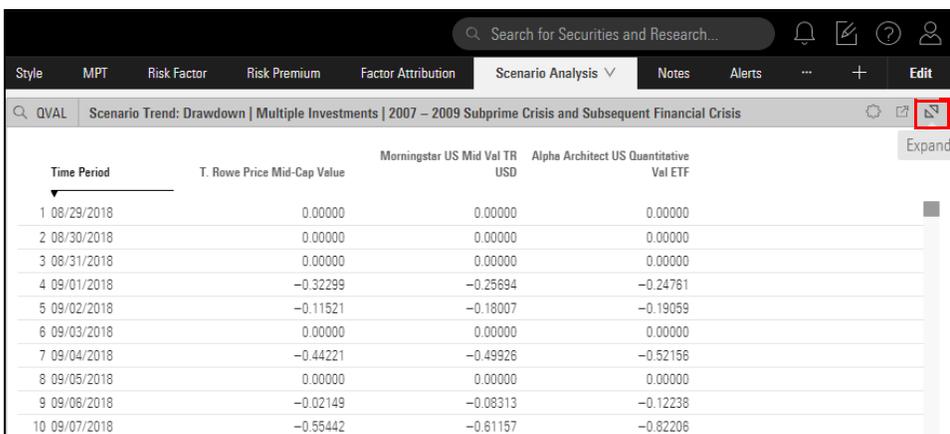
Note the options to choose to select this option

- The component should still be set to display Drawdown. If not, click the **Calculation** option and select **Drawdown**.



Be sure to select the correct calculation

- Click away from the Component Settings menu to close it.
- In the Scenario Trends component, click the **Expand** icon. The component is resized to fill the available space in the worksheet.



Use this icon to enlarge the component

- Scroll down** in the table until you find the date with the drawdown value that matches the value you wrote down in step 1.
- Click the **Collapse** icon. The component is resized to take up only half of the worksheet.

Some scenarios are better suited to particular types of investments. In this exercise, you will use a screen to find emerging markets funds and see what impact the two scenarios related to those investments would have on them were the scenarios to reoccur. Do the following:

Exercise 8: Create a screen to find emerging markets funds

1. From the header, click **Create . . . Screen**. The Screener window opens.

☞ Note: When you are prompted to save the Workbook, click **Don't Save**.

The screenshot shows the Morningstar Scenario Analysis interface. The 'Create' dropdown menu is open, and the 'Screen' option is highlighted with a red box. A red arrow points from the 'Screen' option to a callout box that says 'Use this icon to create a screen'.

Time Period	T. Rowe Price Mid-Cap Value	Morningstar US Mid Val TR USD	Alpha Architect US
1 08/29/2018	0.00000	0.00000	
2 08/30/2018	0.00000	0.00000	
3 08/31/2018	0.00000	0.00000	
4 09/01/2018	-0.32299	-0.25894	
5 09/02/2018	-0.11521	-0.18007	
6 09/03/2018	0.00000	0.00000	
7 09/04/2018	-0.44221	-0.49926	
8 09/05/2018	0.00000	0.00000	
9 09/06/2018	-0.02149	-0.08313	

2. Select the following Investment Type options:
 - ▶ **Closed- End Fund**
 - ▶ **Exchange-Traded Fund**, and
 - ▶ **Open-End Fund**.
3. Click **OK**.
4. In the Add Criteria area, search for and select **Domicile**, then choose **United States**. (To see the option for United States, you can either filter for "United States," or move through the available pages of options until you see it.)
5. Click **OK**.
6. In the Add Criteria area, search for and select **Morningstar Category**.

☞ Note: Remember, you can find this data point by searching for the word **peer**.
7. Select the **Diversified Emerging Mkts** category.
8. Click **OK**.
9. In the Add Criteria area, search for and select **Oldest Share Class**. The option for **Yes** should be selected.
10. Click **OK**.

11. In the Add Criteria area, search for and select **Asset Allocation - Malaysia**.

Be sure the criteria you have match these settings

Note the term to search for, and the data point to select

12. Select **Regional Equity**.

13. Leave the Operator as Greater than or Equal to, and enter **50** as the Value.

14. Click **OK**.

15. Click **Done**.

16. Save the screen as **Emerging Markets**.

Use this menu to save the screen

	Ticker	SecId	Morningstar Category	
	Hi Div ETF	EEMD	F00000ZC72	Diversified Emerging Mkts
		SNEMX	FOUSA00KC8	Diversified Emerging Mkts
		EMPYX	F00000SKJM	Diversified Emerging Mkts
		ABIEX	F00000MLC0	Diversified Emerging Mkts
	5 AB FlexFee Emerging Markets Growth Adv	FFEYX	F00000SKJY	Diversified Emerging Mkts
	6 Acadian Emerging Markets Investor	AEMGX	FOUSA00B60	Diversified Emerging Mkts
	7 Advisory Research Emerging Mkts Opps	ADVMX	F000002QCQ	Diversified Emerging Mkts

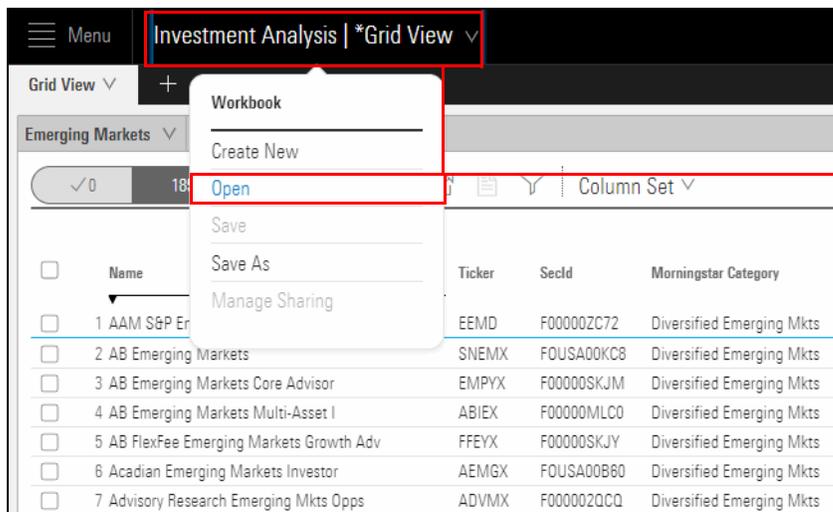
Now that you have found emerging markets funds, you can use the Scenario Analysis worksheet to evaluate them. In this exercise, you will include two scenarios in both components on the Scenario Analysis worksheet, and display two metrics (Alpha and Max Drawdown) in the Scenario Metrics component. Max Drawdown allows you to see the actual loss for each fund in the scenario, while Alpha shows you whether the manager added any value in spite of the loss.

Exercise 9: Evaluating the potential impact of two scenarios on emerging markets funds

Do the following:

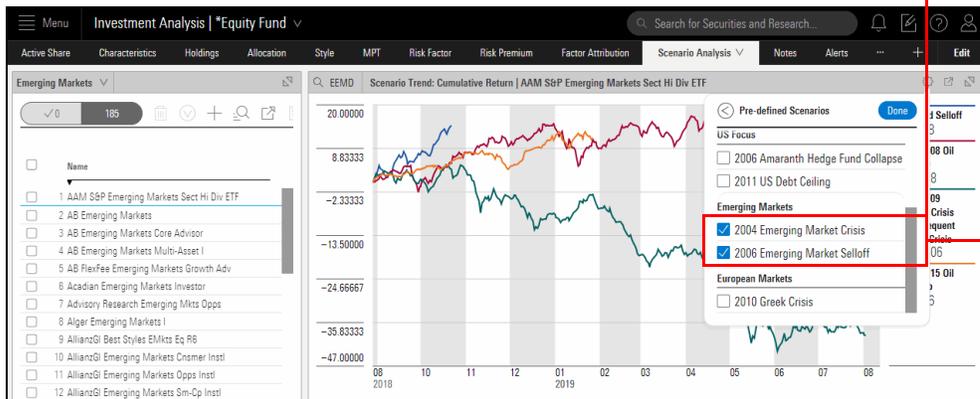
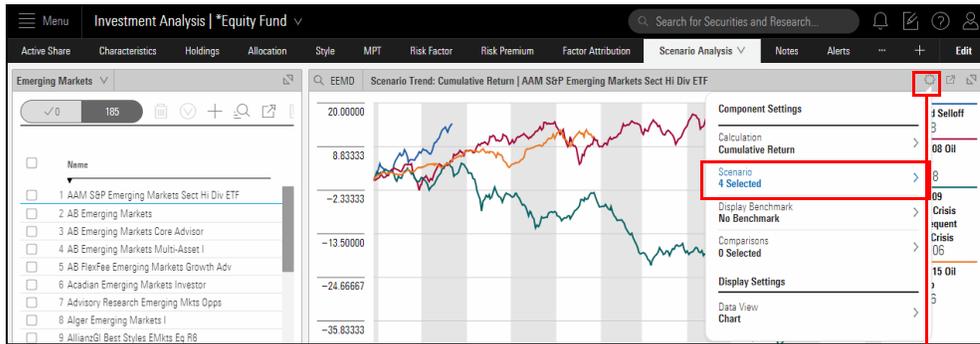
1. Use the **Workbook** menu at the top of the window to open the **Equity Fund** workbook.

Note: When prompted to save the workbook, click **Don't save**.



2. Open the **Emerging Markets** screen you just saved.
3. Select the **Scenario Analysis** worksheet. You will make changes to both components on this worksheet.

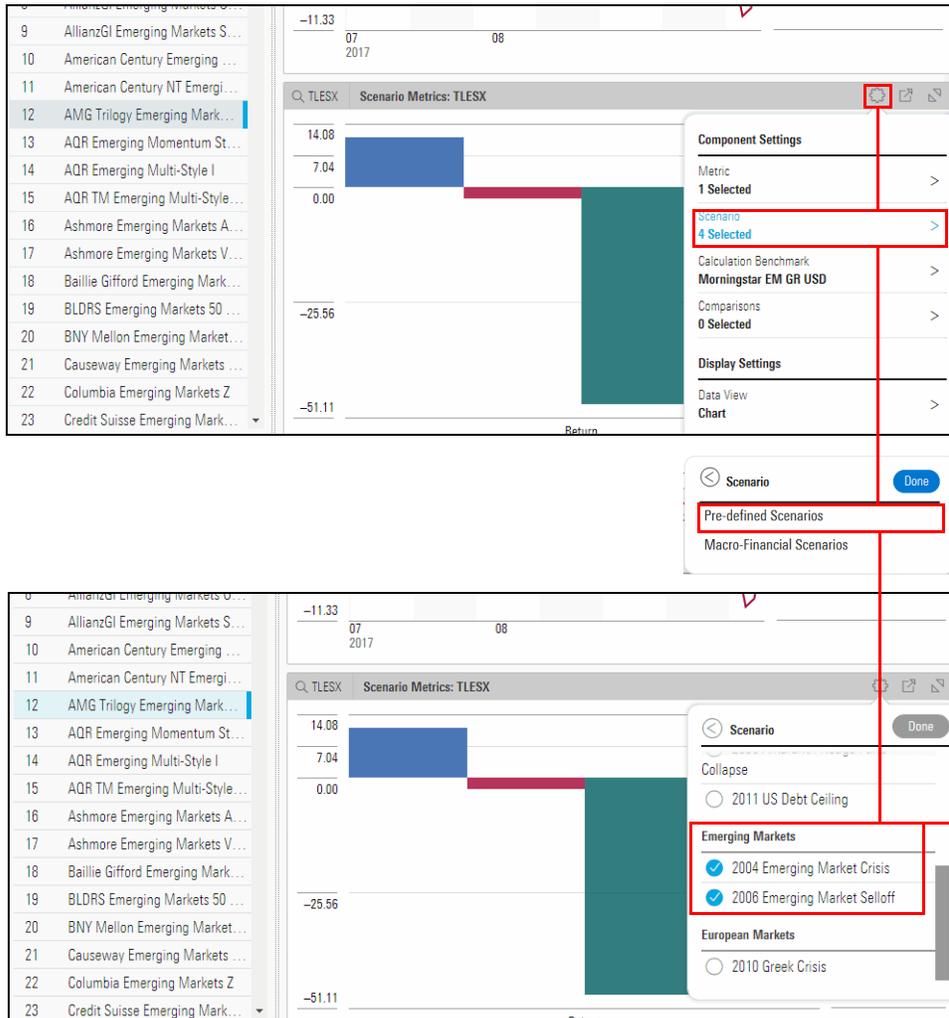
- Use the **Components Settings** icon in the Scenario Trends component (at the top of the worksheet) to display only the **2004 Emerging Markets Crisis** and the **2006 Emerging Markets Selloff**.



You will have to scroll down to find these scenarios; be sure to deselect the other scenarios

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

- In the Scenario Metrics component (at the bottom of the worksheet), use the **Components Settings** icon to display only the **2004 Emerging Markets Crisis** and the **2006 Emerging Markets Selloff**.



- Click **Done**.
- In the Scenario Metrics component at the bottom of the worksheet, use the **Components Settings** icon to change the **Metric** to show **Alpha** and **Max Drawdown**.

10. Click **Done**.

The image shows two screenshots of the Morningstar Scenario Metrics tool. The top screenshot displays a list of emerging market funds on the left and a bar chart titled 'Scenario Metrics: TLESX' on the right. The chart shows a return of -11.33 for 07 2017 and 08 2017. A 'Component Settings' menu is open, showing 'Metric' as '1 Selected', 'Scenario' as '2 Selected', and 'Calculation Benchmark' as 'Morningstar EM GR USD'. The bottom screenshot shows the same tool with a 'Metric' selection menu open, highlighting 'Alpha' and 'Max Drawdown' with a red box. A callout box points to this selection with the text 'Only these metrics should be selected'. The chart in the bottom screenshot shows returns for 'Alpha' (1.39) and 'Max Drawdown' (-6.93).

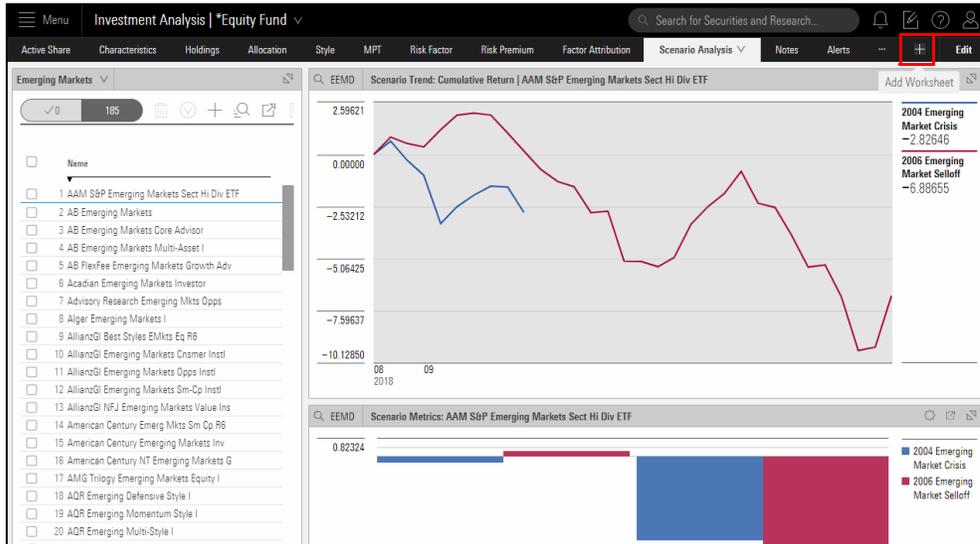
11. Click away from the Component Settings menu to close it.
12. Click the **name** of different investments in the Grid View component to see how they would be impacted by these two events. Which managers add Alpha even in a scenario where the fund loses money?

Important information about a fund can be gleaned by combining the Scenario Trend component with the Risk Exposure Snapshot component (found by default on the Risk Factor worksheet in the Equity Fund Template workbook). This arrangement allows you to see not only what the returns for a fund would be in a scenario, but also how the portfolio’s particular exposures to different factors explain the results.

Exercise 10: Create a custom worksheet

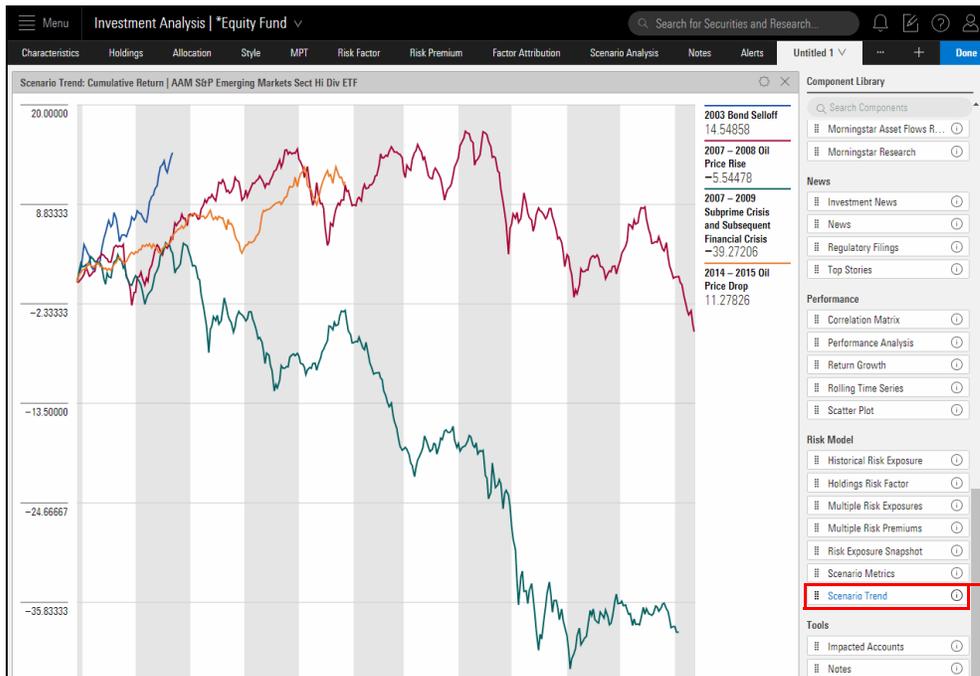
To create a custom worksheet displaying these two components, do the following:

1. The Equity Fund workbook should still be open. Click the **Add Worksheet** icon.



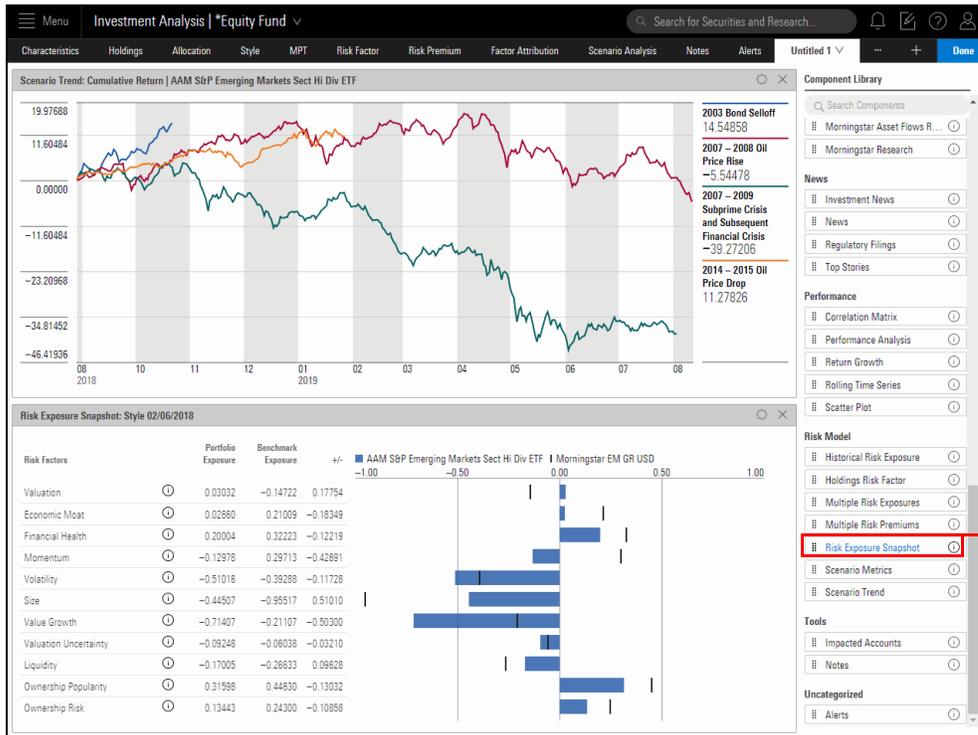
Use this icon to add a worksheet to the workbook

2. From the Edit Components panel, scroll down to the **Risk Model** section, then drag-and-drop the **Scenario Trend** component onto the worksheet.



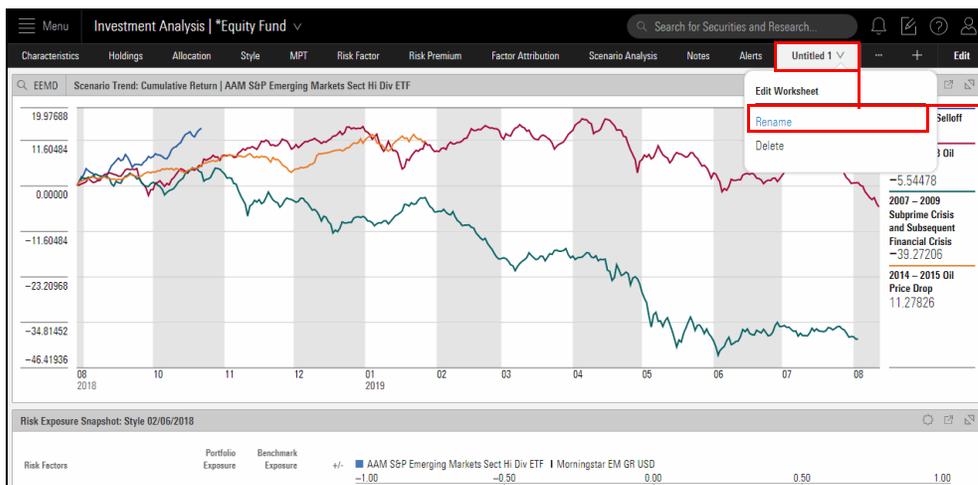
Drag-and-drop this component onto the worksheet

- From the Edit Components panel, drag-and-drop the **Risk Exposure Snapshot** component beneath the Scenario Trends component.



Be sure to drop this component beneath the Scenario Trend component

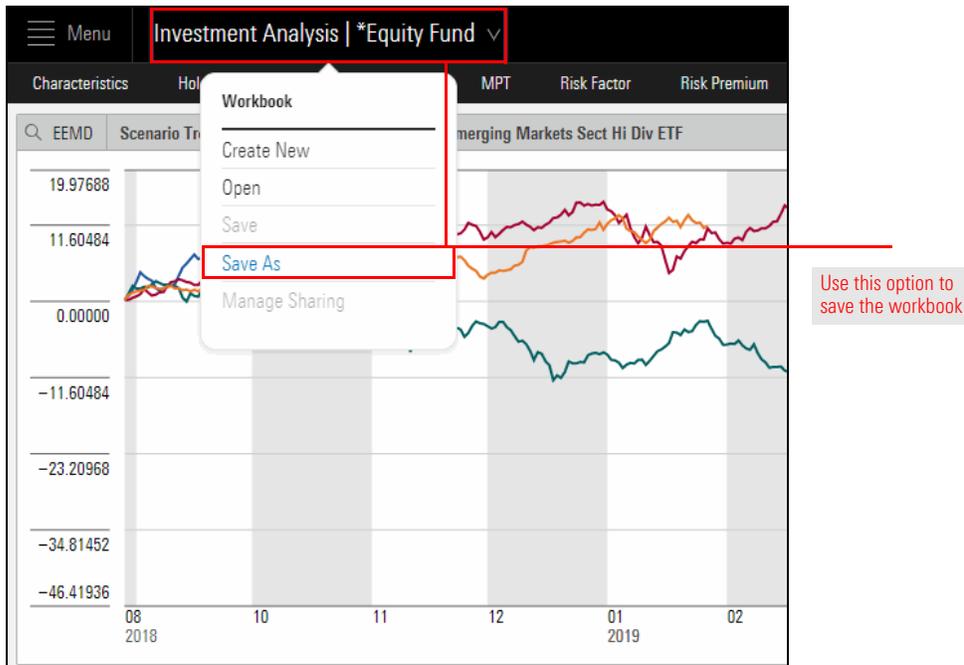
- Click **Done**.
- Click the **worksheet tab**, and select **Rename**.



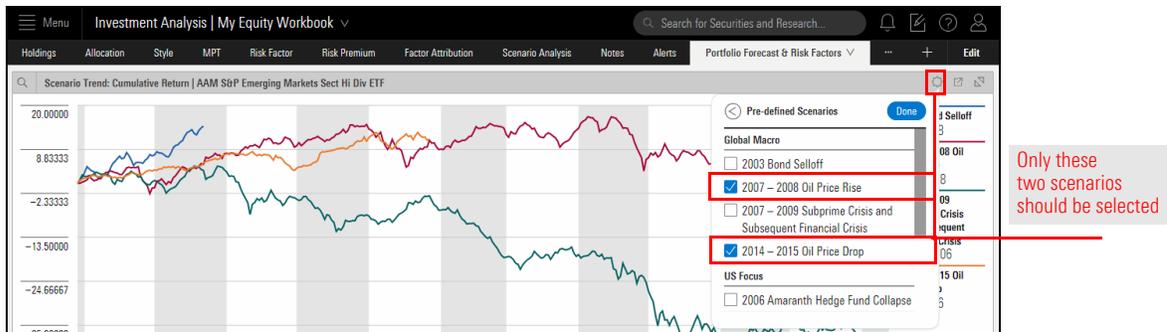
Use this option to rename the worksheet

- Name the worksheet **Portfolio Forecast & Risk Factors**, then click **Save**.

- To save the custom worksheet you created, from the **workbook menu**, select **Save As**.

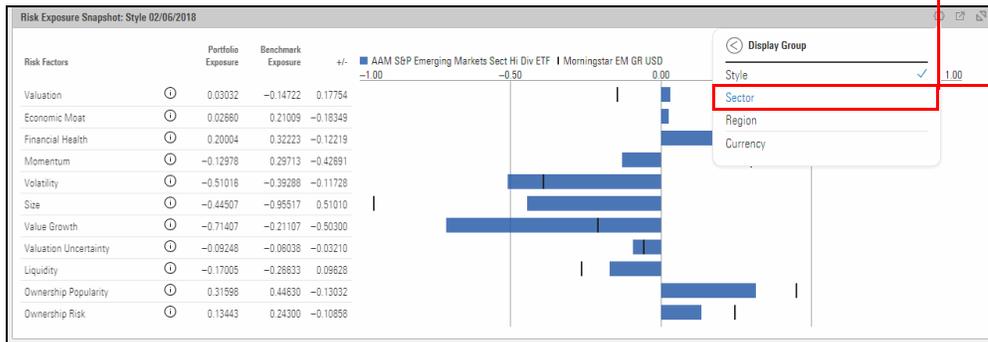
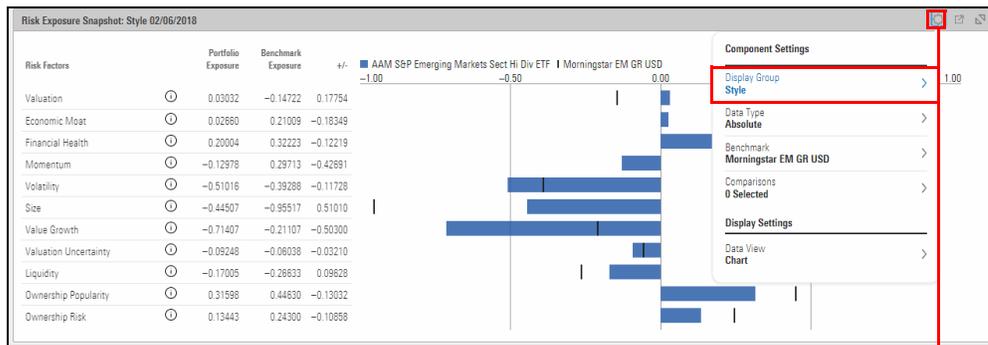


- Name the workbook **My Equity Workbook**, then click **Save**.
- In the Scenario Trend component, use the **Component Settings** icon to display only the **Oil Price Drop** and **Oil Price Rise** scenarios.



- Click away from the Component Settings menu to close it.

- In the Risk Exposure Snapshot component, use the **Component Settings** icon to change the **Display Group** from Style to **Sector**.



Change the Display Group setting to this option

- Click away from the Component Settings menu to close it.
- Click the **name** of different funds in the focus panel, to see how their exposure to different sectors (particularly the Energy sector) impacts their performance in the Scenario Trend component at the top of the worksheet.