Working with the Scenario Analysis Worksheet

Morningstar DirectSM Cloud Editions



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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)
- Exercise 4: Convert the chart to a table (page 14)
- 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?

What can I discover using the Scenario Analysis Worksheet?

Overview

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.



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:

How are the scenario analysis values calculated?

- \blacktriangleright 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.

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**.

Lists & Screens			Model	
Large cap funds	List	07/12/2017	Name	
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Growth Stocks	Screen	06/21/2017	Cornerste	
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		
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- 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.

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0	2	First Trust RBA Quality Income ET	ſF	QINC	F00000S85E	Mid-Cap Va		24 ★	***	-	-	S&P 500 TR U	ISD
0	3	Global X SuperDividend™ US ETF		DIV	F00000P26T	Mid-Cap Va		93 ★	*	-	-	S&P 500 TR U	ISD
0	4	Guggenheim RBP® Dividend A		TV	F00000LIMI	Mid-Cap Va		45 ★	**	-	-	S&P 500 TR U	ISD
0	5	Guggenheim RBP® Dividend C		TV	F00000LIMJ	Mid-Cap Va		60 ★	**	-	-	S&P 500 TR U	ISD
0	6	Guggenheim RBP [®] Dividend I		TVEIX	F00000LIMK	Mid-Cap Va		37 ★	**	-	-	S&P 500 TR U	ISD
0	7	Guggenheim RBP® Dividend P		TV	F00000LIML	Mid-Cap Va		43 ★	**	-	-	S&P 500 TR U	ISD
0	8	NuShares ESG Mid-Cap Value ET	F	Ν	F00000XTV7	Mid-Cap Va				-	-	S&P 500 TR U	ISD
0	9	Oppenheimer Mid Cap Revenue I	ETF	RWK	FOUSA06PHE	Mid-Cap Va		32 ★	**	-	-	S&P 500 TR U	SD
0	10	PowerShares Contrarian Opportu	inities ETF	CNTR	F00000QLPM	Mid-Cap Va		62 ★	*	-	-	S&P 500 TR U	ISD
0	11	PowerShares High Yld Eq Div Ach	niev™ ETF	PEY	FEUSA04AD3	Mid-Cap Va		1 ★	****	-	Neutral	S&P 500 TR U	ISD
0	12	PowerShares High Yld Eq Div Ach	niev™ ETF	PEY	FEUSA04AD3	Mid-Cap Va				-	Neutral	S&P 500 TR U	ISD
0	13	PowerShares Russell Midcap Pur	e Val ETF	РХ	FEUSA04ADC	Mid-Cap Va		51 ★	**	-	-	S&P 500 TR U	ISD
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- 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.



- 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:

- 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.

Exercise 2: Apply a benchmark to the Scenario Trends component



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.

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.

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.

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

4. Click the Calculation option, then select Drawdown.

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



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 \leq 500
- Sector-size rank ≤ 250
- Sector-region-size rank ≤ 50
- Sector-country-size rank \leq 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



4. Delete the Scenario Metrics component.

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Risk Premium Factor Attribution	Scenario Analysis ∨ Notes Alerts	··· + Done
Analyst-Rated Fixed Income F \times	Scenario Trend: Cumulative Return (USD) AB 5	Component Library
V0 254 Name 1 AB Diversified Municipal 2 AB Global Bond A 3 AB High Income A 4 AB Income Advisor 5 AB Intermediate Bond A 6 American Funds Bond Fund 7 American Funds Interm Bd F 8 American Funds ST Bd Fd of 10 American Funds ST Bd Fd of 11 American Funds US Governr 12 American High-Income Mun 13 Artisan High Income Investo 14 Baird Aggregate Bond Inst	The analysis provided is based on the 43.7% coverage - 2003 Bond Selloff 0.02 -0.07 03 2019 Scenario Metrics: (USD) AB Diversified Muni The analysis provided is based on the 43.7% coverage 2003 Bond Selloff 2007 - 2008 Oil Price Rise 0.03 -0.07 Alpha Tracking I	that C Search Cor Drag and drop components to add to worksheet. Use component headers to rearrange and delete. Allocation H Allocation H Allocation Click here to delete the Scenario Met component. Error H Contribu C

The Scenario Trend component now occupies the full component area.

5. 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.





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 in based on the XX.X% coverage that is available for the fund you are viewing" refers to the fund you selected first.



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.



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



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

12. 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**.



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



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

 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.



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



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

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ZIVIOITI	ingstal 00					Drawdow	/n				

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

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				Morningstar US Mid Val TE	Alpha Architect US Quantitative		Expand	enlarge the component
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1 08/3	29/2018		0.00000	0.00000	0.00000			
2 08/	30/2018		0.00000	0.00000	0.00000			
3 08/	31/2018		0.00000	0.0000	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	-0.82206			

- 6. **Scroll down** in the table until you find the date with the drawdown value that matches the value you wrote down in step 1.
- 7. 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**.

						ch for Securities ar	nd Research		? &	
Style	MPT	Risk Factor	Risk Premium	Factor Attribution	Scer	nario Analysis \vee	Create		+ Edit	
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-				Morningstar US Mid V	al TR	Alpha Architect US	Screen			Lieo this icon
Time	Period	I. Howe	Price Mid-Cap Value		020		Custom Benchmark			to create a screen
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2 08/3	0/2018		0.00000	0.0	0000		Policy			
3 08/3	1/2018		0.00000	0.0	0000		M LLD ICE			
4 09/0	1/2018		-0.32299	-0.2	5694		IVIODEI PORTFOIIO			
5 09/0	2/2018		-0.11521	-0.1	8007		Workbook			
6 09/0	3/2018		0.00000	0.0	0000		Note			
7 09/0	4/2018		-0.44221	-0.4	9926		Crid Datab			
8 09/0	5/2018		0.00000	0.0	0000		unu baton			
9 09/0	6/2018		-0.02149	-0.0	8313					

- 2. Select the following Investment Type options:
 - Closed- End Fund
 - Exchange-Traded Fund, and
 - ► Open-End Fund.
- 3. Click **OK**.
- 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.

Menu Investment Analysis Grid	View ∨	Q. Search for Reports and Research		
Screener			Cancel Done	
0/323 十 🖻 🖒	 Create your Universe 		C Logic Mode	Be sure the
AB Emerging Markets	Investment Type: Close	d-End Fund, Exchange-Traded Fund, Open-End Fund		criteria you have match
AB Emerging Markets Core Advisor	I Domicile: United States			these settings
AB Emerging Markets Multi-Asset I				
AB FlexFee Emerging Markets Growth	Morningstar Category:	Diversified Emerging Mkts		
ALPS Emerging Sector Dividend Dogs ETF	III Oldest Share Class	Value: Yes		
AMG TimesSquare Emerging Mkts Sm				
AMG Trilogy Emerging Markets Equity I	Add Criteria		×	
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AQR Emerging Defensive Style I	CC BIRET	Data Definition for Asset Allocation - Malaysia		
AQR Emerging Momentum Style I	Asset Allocation	The perceptage of the portfolio invested		
AQR Emerging Multi-Style I	A	in related asset types in that		
AQR Emerging Relaxed Constraint Eq R6	Asset Allocation -	region/country. This may be displayed as		Note the term
AQR TM Emerging Multi-Style R6		a percentage of the long only		and the data
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Acadian Emerging Markets Investor	Asset Allocation -	only positions reweighted so the total of		
Advisory Research Emerging Mkts Opps	Malaysia	the long positions equals 100% (long		
Alger Emerging Markets I	Accet Allecation	rescaled).		
AllianzGI Best Styles EMkts Eq R6	South Africa			
AllianzGI Emerging Markets Cnsmer Instl				

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.

Menu	Investment Analy	sis Grid Vie	V W			
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TO THUS			ABIEX	F00000MLC0	Diversified Emerging Mkts	
5 AB F	5 AB FlexFee Emerging Markets Growth Adv		FFEYX	F00000SKJY	Diversified Emerging Mkts	
6 Aca	dian Emerging Markets Inve	stor	AEMGX	FOUSA00B60	Diversified Emerging Mkts	
7 Advi	isory Research Emerging Mk	ts 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**.

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Grid View V + Workbook						
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	/0 18	Open		V Columr	11	
		Save				to open a different workbook
	Name	Save As	Ticker	SecId	Morningstar Category	
	▼ 1 AAM S&P Er	Manage Sharing	EEMD	F00000ZC72	Diversified Emerging Mkts	
	2 AB Emerging	Markets	SNEMX	FOUSA00KC8	Diversified Emerging Mkts	
	3 AB Emerging Markets Core Advisor		EMPYX	F00000SKJM	Diversified Emerging Mkts	
	4 AB Emerging	Markets Multi-Asset I	ABIEX	F00000MLC0	Diversified Emerging Mkts	
	5 AB FlexFee E	merging Markets Growth Adv	FFEYX	F00000SKJY	Diversified Emerging Mkts	
	6 Acadian Eme	erging Markets Investor	AEMGX	FOUSA00B60	Diversified Emerging Mkts	
	7 Advisory Res	earch Emerging Mkts Opps	ADVMX	F000002QCQ	Diversified Emerging Mkts	

- 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.

4. 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**.



- 5. Click Done.
- 6. 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.



- 8. 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.



- 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.



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



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



4. Click **Done**.

5. Click the worksheet tab, and select Rename.



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

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

Menu Inves	stment Analysis *Equity	Fund ∨		
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-23.20968				
-34.81452				
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- 8. Name the workbook My Equity Workbook, then click Save.
- 9. In the Scenario Trend component, use the **Component Settings** icon to display only the **Oil Price Drop** and **Oil Price Rise** scenarios.



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

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

Risk Exposure Snapshot: St	yle 02/06/2018							C		
Risk Factors		Portfolio E Exposure	Benchmark Exposure	+/-	AAM S&P Emerging Markets Sect 1	Hi Div ETF I Morningstar EM GR USD	Component Settings		1.00	
Valuation	0	0.03032	-0.14722	0.17754	-1.00 -0.		Style	>	1.00	
Economic Moat	(i)	0.02660	0.21009	-0.18349			Data Type Absolute	>		
Financial Health	(i)	0.20004	0.32223	-0.12219			Benchmark			
Momentum	(i)	-0.12978	0.29713	-0.42691			Morningstar EM GR USD	>		
Volatility	()	-0.51016	-0.39288	-0.11728			Comparisons 0 Selected	>		
Size	0	-0.44507	-0.95517	0.51010	1		0 Selected			
Value Growth	0	-0.71407	-0.21107	-0.50300			Display Settings			
Valuation Uncertainty	0	-0.09248	-0.06038	-0.03210			Data View	>		
Liquidity	()	-0.17005	-0.26633	0.09628			Gilatt			
Ownership Popularity	(i)	0.31598	0.44630	-0.13032						
Uwnership Hisk	0	0.13443								
Uwnership Risk	0	0.13443					1			Change the
Uwnership Hisk Risk Exposure Snapshot: Sty	yle 02/06/2018	0.13443							2 2 2	Change the
Ownership Hisk Risk Exposure Snapshot: Sty Risk Factors	yle 02/06/2018	Portfolio E	Benchmark	+/-	AAM SAP Emerging Markets Sect	Hi Div ETF Morninostar EM GR USD	🔇 Display Group		72 13	Change the Display Group setting to this c
Uwnership Hisk Risk Exposure Snapshot: Sty Risk Factors	yle 02/06/2018	Portfolio E Exposure	Benchmark Exposure	+/-	■ AAM S&P Emerging Markets Sect -1.00 -0	Hi Div ETF I Morningstar EM GR USD 50 0,00	Oisplay Group		1.00	Change the Display Group setting to this c
Ownership Hisk Risk Exposure Snapshot: Sty Risk Factors Valuation	() yle 02/06/2018 ()	Portfolio E Exposure 0.03032	Benchmerk Exposure -0.14722	+/- 0.17754	■ AAM S6P Emerging Markets Sect -1.00 -0	Hi Div ETF I Morningstar EM GR USD 50 0.00	Style		1.00	Change the Display Group setting to this c
Uwnership Hisk Tisk Exposure Snapshot: Sty Risk Factors Valuation Economic Moat	() yle 02/06/2018 () ()	Portfolio E Exposure 0.03032 0.02660	Benchmark Exposure -0.14722 0.21009	+/- 0.17754 -0.18349	AAM S&P Emerging Markets Sect -1.00 -0	HI Div ETF I Morningstar EM GR USD 50 0.00	C Display Group Style Sector Region		1.00	Change the Display Group setting to this c
Ownership Hisk Risk Exposure Snapshot: Sty Risk Factors Valuation Economic Moat Financial Health	yle 02/06/2018 () () ()	Portfolio E Exposure 0.03032 0.02660 0.20004	Benchmark Exposure -0.14722 0.21009 0.32223	+/- 0.17754 -0.18349 -0.12219	■ AAM SBP Emerging Markets Sect _1.00 -0	Hi Div ETF I Morningstar EM GR USD 50 000	Display Group Style Sector Region Currency		1.00	Change the Display Group setting to this c
Ownership Hisk Risk Exposure Snapshot: Sty Risk Factors Valuation Economic Moat Financial Health Momentum	yle 02/06/2018 () () () () ()	Portfolio E Exposure 0.03032 0.02660 0.20004 -0.12978	Benchmark Exposure -0.14722 0.21009 0.32223 0.29713	+/- 0.17754 -0.18349 -0.12219 -0.42691	■ AAM S&P Emerging Markets Sect -1.00 -0	Hi Div ETF I Morningstar EM GR USD 50 0.00	Display Group Style Sector Region Currency		1.00	Change the Display Group setting to this c
Uwnership Hisk Risk Faxosure Snapshot: Sti Risk Faxtors Valuation Economic Moat Financial Health Momentum Volatility	yle 02/06/2018	Portfolio E Exposure 0.03032 0.02660 0.20004 -0.12978 -0.51016	Benchmark Exposure -0.14722 0.21009 0.32223 0.29713 -0.39288	+/- 0.17754 -0.18349 -0.12219 -0.42691 -0.11728	■ AAM S6P Emerging Markets Sect -1.00 -0	Hi Div ETF I Morningstar EM GR USD 50 0.00	Display Group Style Sector Region Currency		1.00	Change the Display Group setting to this o
Ownership Hisk Risk Factors Valuation Economic Moat Financial Health Momentum Valuatiny Size	vie 02/06/2018	Portfolio E Exposure 0.0302 0.02660 0.20004 -0.12978 -0.51018 -0.4507 -0.44507	Benchmark Exposure -0.14722 0.21009 0.32223 0.29713 -0.39288 -0.95517	+/- 0.17754 -0.18349 -0.12219 -0.42691 -0.11728 0.51010	AAM S6P Emerging Markets Sect 1 -1.00 -0	Hi Div ETF I Morningstar EM GR USD 50 0.00	Display Group Style Sector Region Currency) 2 2 100	Change the Display Group setting to this o
Uwnership Hisk Alsk Exposure Snapshot: St Alsk Factors Valuation Economic Moat Financial Health Momentum Volatility Size Value Growth	() () () () () () () () () () () () () (Portfolio Expessive E Expessive 0.03032 0.02660 0.20004 -0.12978 -0.51016 -0.44507 -0.71407	Benchmark Exposure -0.14722 0.21009 0.32223 0.29713 -0.39288 -0.95517 -0.21107	+/- 0.17754 -0.18349 -0.12219 -0.42691 -0.11728 0.51010 -0.50300	■ AAM S6P Emerging Markets Sect −1.00 −0	Hi Div ETF 1 Morningstar EM GR USD 50	Display Group Style Sector Region Currency	~	100	Change the Display Group setting to this c
Uwnership Hisk Isk Exposure Snapshot: Sty Risk Factors Valuation Economic Moat Financial Health Momentum Volatility Site Valuation Uncertainty Valuation Uncertainty	() () () () () () () () () () () () () (Portfolio Exposure 0.03032 0.03032 0.02004 -0.12978 -0.51018 -0.44507 -0.71407 -0.09248	Benchmark Exposure -0.14722 0.21009 0.32223 0.29713 -0.39288 -0.95517 -0.21107 -0.06038	+/- 0.17754 -0.18349 -0.12219 -0.42691 -0.11728 0.51010 -0.50300 -0.03210	■ AAM S&P Emerging Markets Sect _1.00 -0	Hi Div ETF 1 Morningstar EM GR USD 50 0.00	Display Group Style Sector Region Currency	~	100	Change the Display Group setting to this o
Uwnership Hisk Iisk Exposure Snapshot: Sti Risk Factors Valuation Economic Moat Financial Health Momentum Volatility Size Value Growth Valuation Uncertainty Liquidity	yle 02/06/2018	Portfolio E Exposure 0.03032 0.02660 0.02660 0.02978 -0.51018 -0.51018 -0.51018 -0.71407 -0.09248 -0.17005 -0.17005	Benchmark Exposure -0.14722 0.21009 0.32223 0.29713 -0.39288 -0.95517 -0.21107 -0.08038 -0.26633	+/- 0.17754 -0.18349 -0.12219 -0.42691 -0.11728 0.51010 -0.50300 -0.03210 0.09628	■ AAM S&P Emerging Markets Sect =1.00 -0	Hi Div ETF I Morningstar EM GR USD 50 0.00	Display Group Style Sector Region Currency	~	0 II 67	Change the Display Group setting to this o
Uwnership Hisk Risk Factors Valuation Economic Moat Financial Health Momentum Valuatiny Stee Value Growth Valuation Uncertainty Liquidity Ownership Popularity	vie 02/06/2018	Pertfolio Exposure 0.03032 0.02660 0.20004 -0.12978 -0.51016 -0.4507 -0.71407 -0.09248 -0.17005 0.31598	Benchmark Exposure -0.14722 0.21009 0.32223 0.29713 -0.39288 -0.95517 -0.21107 -0.06038 -0.26633 0.44630	+/- 0.17754 -0.18349 -0.12219 -0.42691 -0.11728 0.51010 -0.50300 -0.03210 0.09628 -0.13032	■ AAM S6P Emerging Markets Sect -1.00 -0	Hi Div ETF I Morningstar EM GR USD 50 0.00	C Display Group Style Sector Region Currency		0 E S	Change the Display Group setting to this c

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