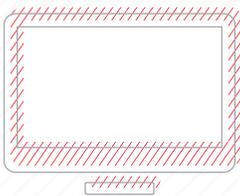
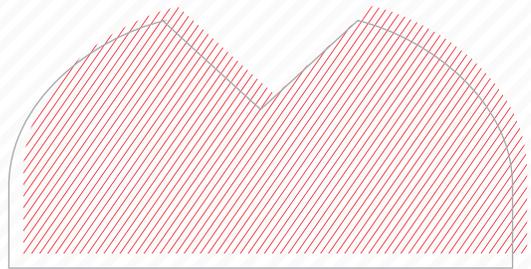
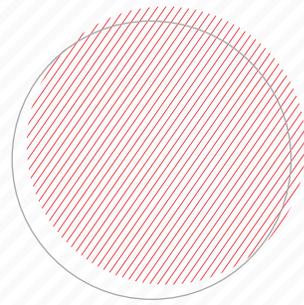
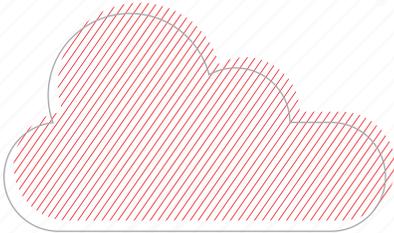
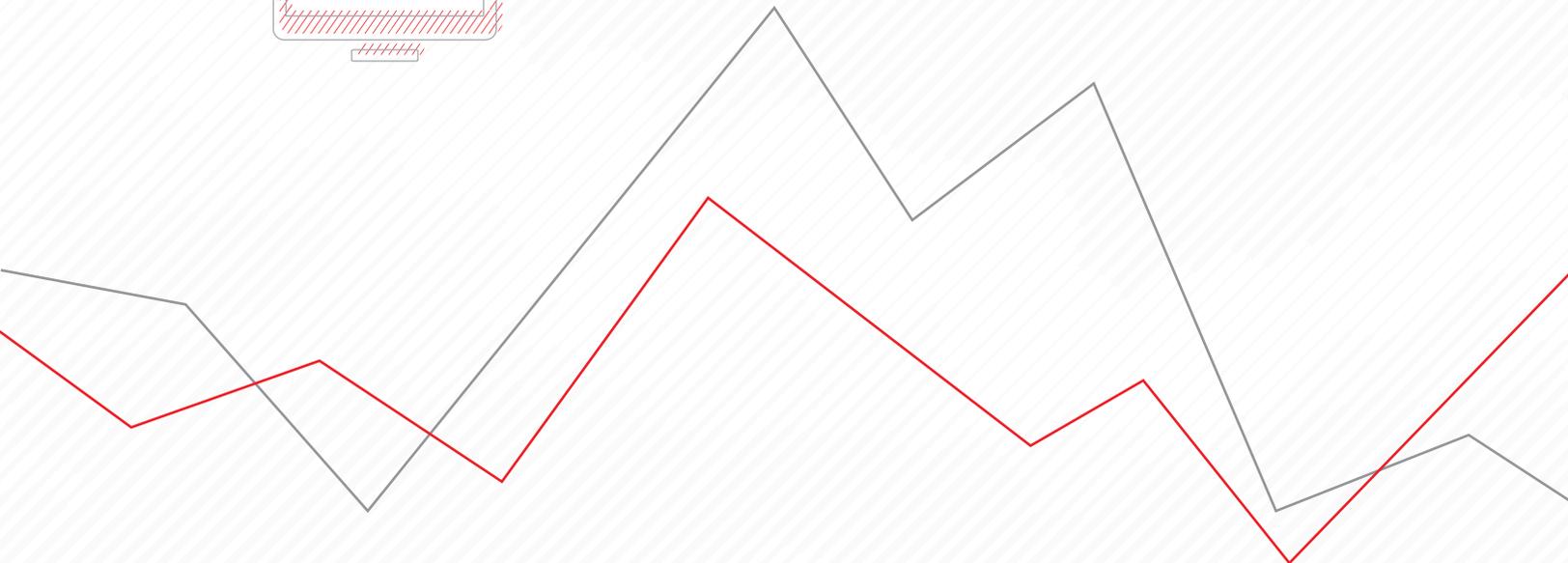


Calculating Total Portfolio Attribution for a Fund-of-Funds

Onboarding Guide



MORNINGSTAR Direct



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Contents

Overview	4
Exercise 1: Identify a fund-of-fund's benchmark indexes and weights.	5
Exercise 2: Create a custom benchmark.	9
Exercise 3: Create the Total Portfolio Attribution report.	12
Exercise 4: Select the time period for the report	15
Exercise 5: Set up the asset classes for the report	16
Exercise 6: Complete the Benchmark Setup page	18
Exercise 7: Update the Fee Assignment page	19
Exercise 8: View the settings for the report	19
Exercise 9: Save the template.	20
Exercise 10: Analyze the report.	21
Exercise 11: Generate a PDF report	22

Calculating Total Portfolio Attribution for a Fund-of-Funds

Total portfolio attribution (TPA, also sometimes referred to as macro attribution) allows a user to identify the performance impact attributable to a strategic asset allocation policy and tactical manager selection. Users can measure manager-picking skill in aggregate, or by asset class or investment style.

Overview

Morningstar Direct users can use the Total Portfolio Attribution capability to analyze user-created model portfolios, as well as funds-of-funds from the Morningstar database. This guide offers the following exercises in support of this work:

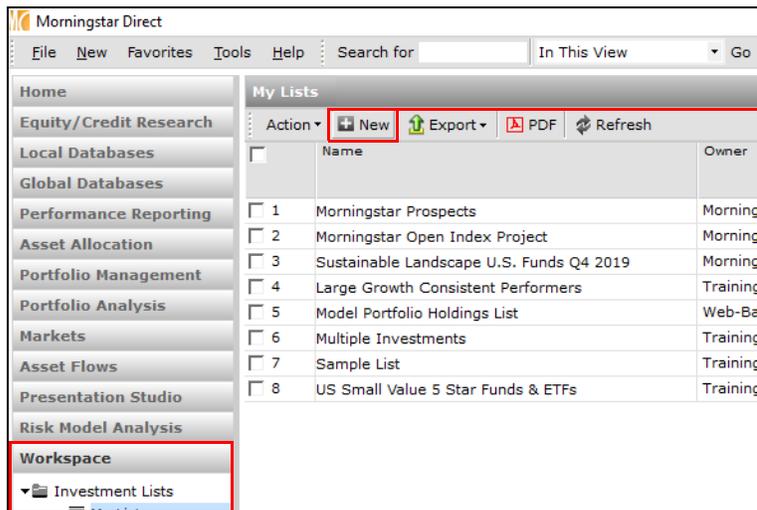
- ▶ [Exercise 1: Identify a fund-of-fund's benchmark indexes and weights \(page 5\)](#)
- ▶ [Exercise 2: Create a custom benchmark \(page 9\)](#)
- ▶ [Exercise 3: Create the Total Portfolio Attribution report \(page 12\)](#)
- ▶ [Exercise 4: Select the time period for the report \(page 15\)](#)
- ▶ [Exercise 5: Set up the asset classes for the report \(page 16\)](#)
- ▶ [Exercise 6: Complete the Benchmark Setup page \(page 18\)](#)
- ▶ [Exercise 7: Update the Fee Assignment page \(page 19\)](#)
- ▶ [Exercise 8: View the settings for the report \(page 19\)](#)
- ▶ [Exercise 9: Save the template \(page 20\)](#)
- ▶ [Exercise 10: Analyze the report \(page 21\)](#)
- ▶ [Exercise 11: Generate a PDF report \(page 22\)](#)

Total Portfolio Attribution for a fund-of-funds requires a mixed benchmark of indexes, the latter representing the fund's various asset classes. This guide analyzes the Schwab Target Date 2040 Index fund (SWYGX). Prior to analyzing a fund-of-funds, the composition of its Primary Prospectus Benchmark needs to be done, and that benchmark needs to be recreated using representative asset classes.

Exercise 1: Identify a fund-of-fund's benchmark indexes and weights

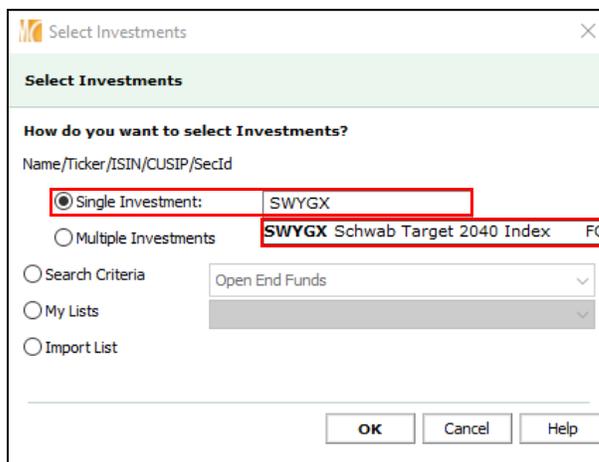
Identifying the fund-of-funds' primary prospectus benchmark involves adding the fund to a list, then customizing the data set to show just the benchmark name, which will be exported. After being exported, the data will be modified to make it easier to read for the sake of re-creating the custom benchmark in Morningstar Direct. Do the following:

1. Select **Workspace > Investment Lists > My Lists**.
2. Click **New**.



Use this icon to create a list with the target date fund to be analyzed.

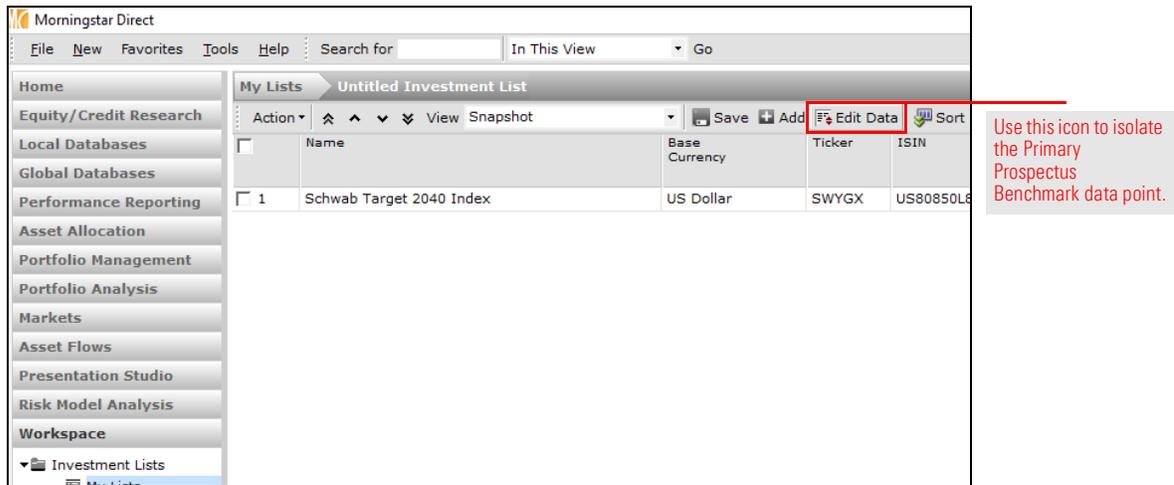
3. The option for **Single Investment** should be selected. Type **SWYGX** then click the fund name when it appears.



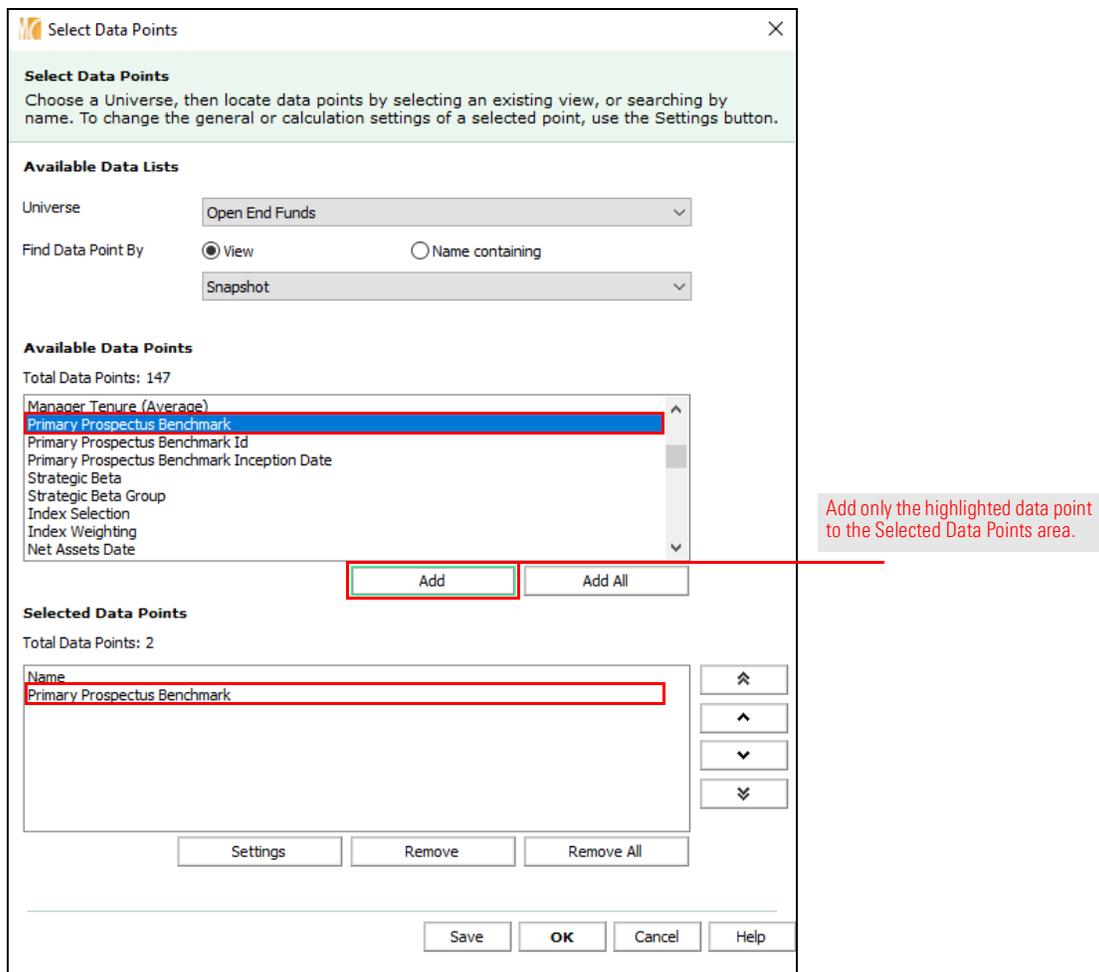
Select this fund when its name appears.

4. Click **OK**. The fund now appears in the grid view. The next step is to look up the Primary Prospectus Benchmark so it can be exported.

- From the toolbar, click **Edit Data**. The Select Data Points dialog box opens.

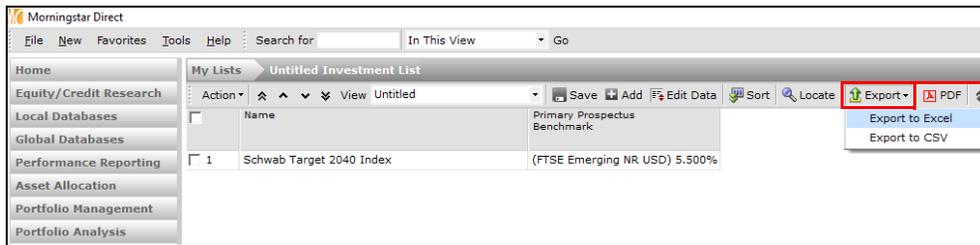


- Click **Remove All** to remove all data points.
- From the Available Data Points section, **scroll down** to select **Primary Prospectus Benchmark** then click **Add**.



- Click **OK**. The data set is now displayed in the grid.

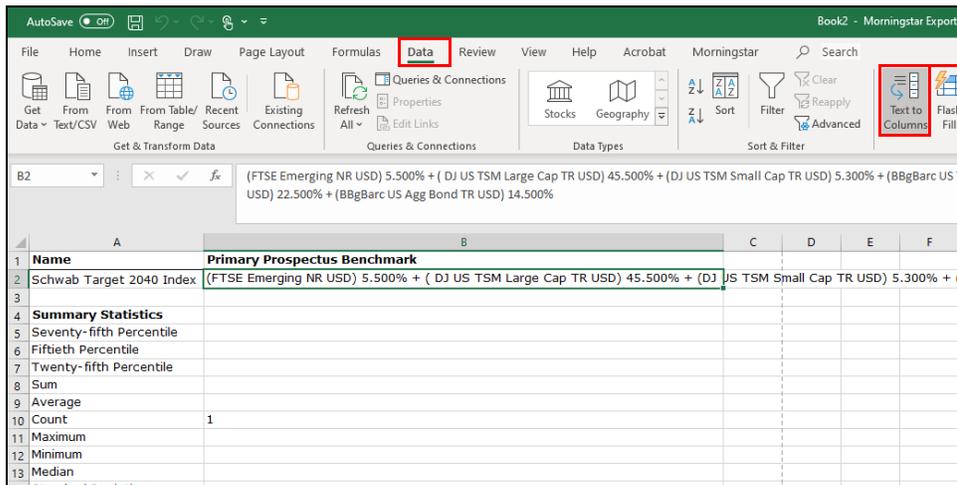
9. From the toolbar, click **Export > Export to Microsoft Excel**.



Use this icon to export the data to a spreadsheet.

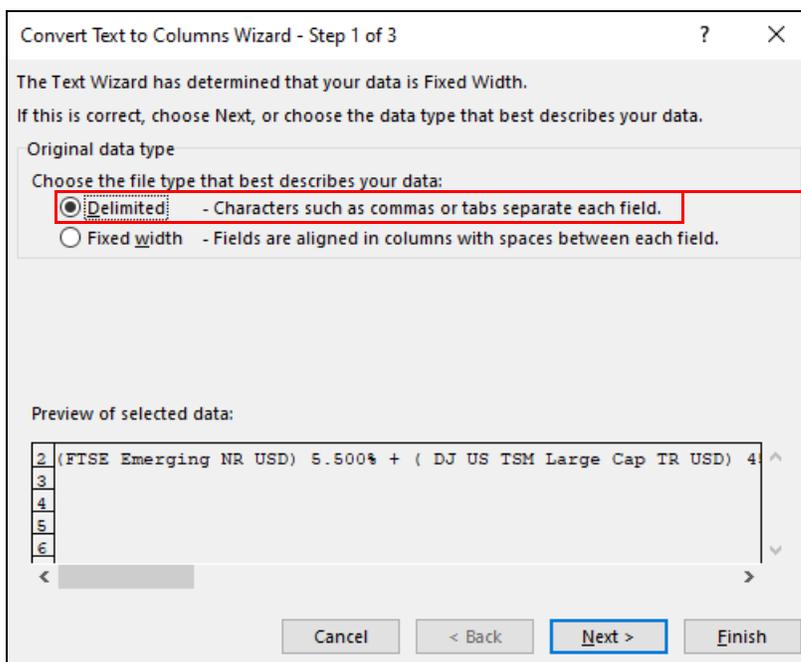
10. In the Microsoft® Excel® file, select the **Primary Prospectus Benchmark** cell.

11. Select the **Data** ribbon, then click **Text to Columns**.



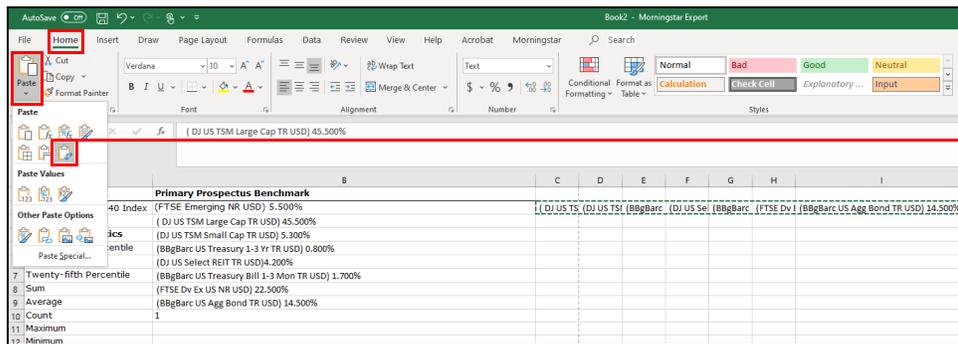
Use this icon to break up the data in cell B2.

12. In Step 1, select the option for **Delimited**, then click **Next**.



Select this option, then click Next.

17. Select the **Home** tab.
18. Click **Paste > Transpose**. The content from cells C2 to I2 become rows under column B.

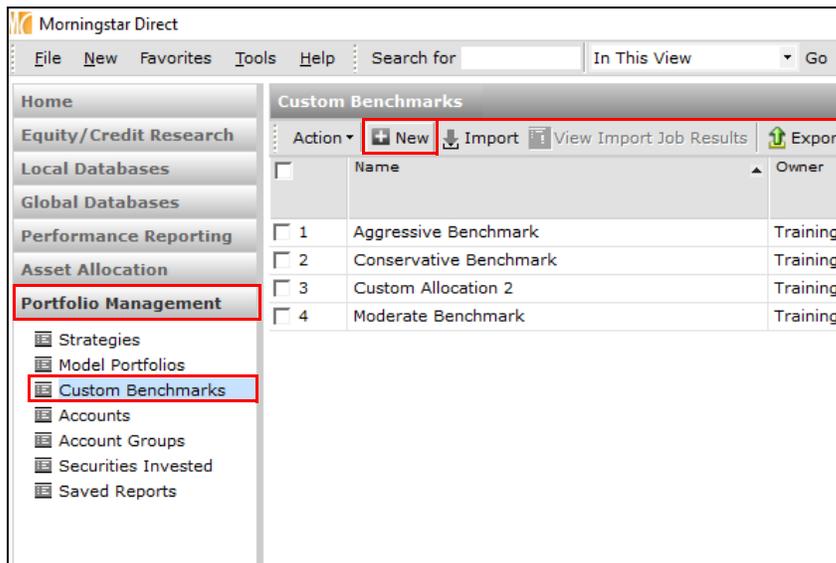


Use this icon to convert the columns to rows.

Custom Benchmarks are comprised of a mix of indexes and are created from the Portfolio Management module. To create the custom benchmark to be used when performing Total Portfolio Attribution, do the following:

Exercise 2: Create a custom benchmark

1. Select **Portfolio Management > Custom Benchmarks**.
2. When prompted to save the Investment List, click **No**.
3. From the toolbar, click **New**. The Benchmark Basics dialog box opens.



Use this icon to create a custom benchmark.

4. In the **Name** field, type **Schwab Target 2040 Index Benchmark**.
5. **Scroll down** to set the **Rebalancing Frequency** to **Daily**. (This is done to keep the weights assigned to each index constant.)
6. From the **Performance Calculation Start Date** field, select **Earliest Common**. (This is used to obtain the longest common history among the indexes.)
7. Click **Save**. The Holdings Entry window opens.

Benchmark Basics
Enter general benchmark information here.

Name	Schwab Target 2040 Index Benchmark
Combined series	<input type="radio"/> Yes <input checked="" type="radio"/> No
Combined series:Yes	
Base series	<input style="width: 100%;" type="text"/>
Operator	Arithmetic Addition
Second series	<input style="width: 100%;" type="text"/>
Combined series:No	
Currency	US Dollar
Benchmark 1	S&P 500 TR
Benchmark 2	<input style="width: 100%;" type="text"/>
Risk free proxy	USTREAS T-Bill Auction Ave 3 Mon
Portfolio ID	<input style="width: 100%;" type="text"/>
Performance source	Calculated based on underlying positions
Management fee effective period	Entire period <input type="checkbox"/> Custom period <input type="checkbox"/>
Management fee %	<input style="width: 100%;" type="text"/>
Fee applied*	Annually
Performance series	Daily
Rebalancing frequency	Daily
Rebalancing based on	Calendar Period End
Performance calculation start date	Earliest Common
<input type="checkbox"/> Use Gross Return	
Notes	<div style="border: 1px solid gray; height: 40px; width: 100%;"></div>

*The fee that is defined under Management fee % is applied evenly to each day within the frequency selected.

Note the values for the highlighted fields.

- In the first row, click the **magnifying glass icon** in the Symbol cell. The Add Holdings dialog box opens.

Use this icon to enter the names of the indexes for the custom benchmark.

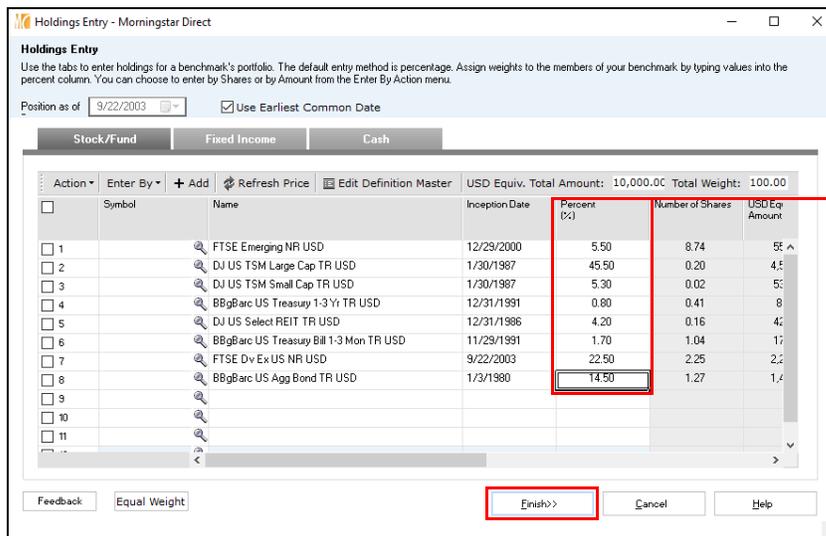
- Change the **Universe** drop-down field to **Market Indexes**.
- Reference the Microsoft Excel spreadsheet to **add** the indexes from there one at a time.

The values from the spreadsheet can be copied, pasted, and edited here one at a time.

Be sure the correct number of indexes appears here.

- Click **OK**.

12. In the Holdings Entry window, reference the Microsoft Excel spreadsheet to enter the correct value in the **Percent (%)** column for each index.
13. Click **Finish >>**. The custom benchmark opens in a new window.

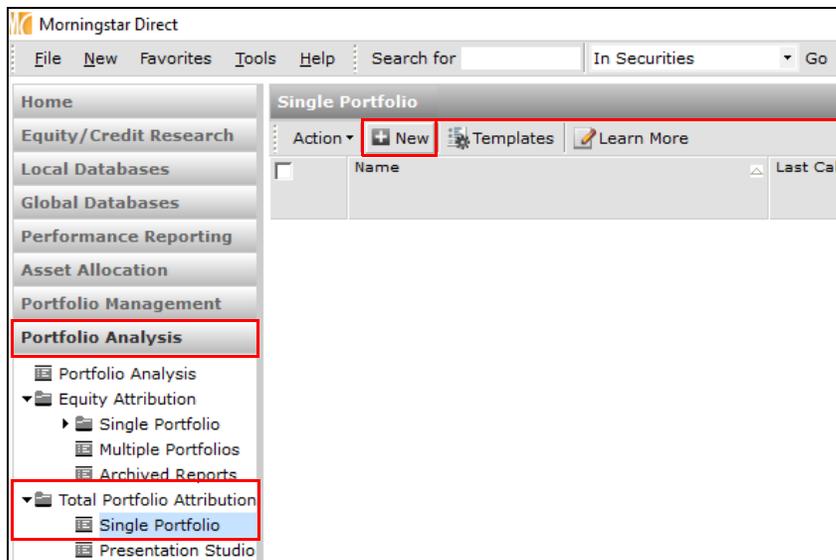


14. **Close** the custom benchmark window.

The Total Portfolio Attribution report can now be created. Do the following:

1. Select **Portfolio Analysis > Total Portfolio Attribution > Single Portfolio**.
2. When the tutorial window opens, click **Close**. (To see it again the next time this module is selected, click **Yes**.)
3. Click **New**. The New Report dialog box opens.

Exercise 3: Create the Total Portfolio Attribution report



- In the **Portfolio** field, type **SWYGX**, then click the fund's **name** when it appears.

New Report

Portfolio:

Benchmark:

Select from Portfolio Management

(Manually Enter Allocations)

Asset Mix

Currency:

Report Name:

Report Settings

- From the Benchmark field, choose the option for **Select from Portfolio Management**.
- In the field below, type **Schwab Target 2040 Index Benchmark** and select it when it appears.

New Report

Portfolio:

Benchmark: Manually Enter Allocations

Select from Portfolio Management

SWERX Schwab Target 2040 FO XNAS USA

SWYGX Schwab Target 2040 Index FO XNAS USA

91655b63-22de-42fa-af0e-22ecf308b4bf Schwab Target 2040 Index Benchmark BM

Currency:

Report Name:

Report Settings

New

Based on Template:

7. In the **Report Name** field, enter **Schwab Target 2040 Index Fund**.
8. Under Report Settings, ensure the option for **New** is selected.

The screenshot shows a 'New Report' dialog box with the following fields and settings:

- Portfolio:** Schwab Target 2040 Index
- Benchmark:**
 - Manually Enter Allocations
 - Select from Portfolio Management
 - Schwab Target 2040 Index Benchmark
 - Asset Mix
- Currency:** US Dollar
- Report Name:** Schwab Target 2040 Index Fund
- Report Settings:**
 - New
 - Based on Template: TPA Classification
 - Based on Report

Buttons: Help, OK, Cancel

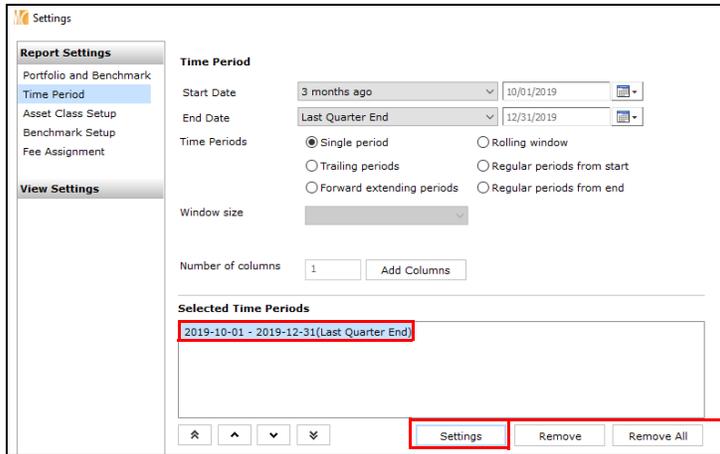
Note the name to enter here.

9. Click **OK**. The Settings dialog box opens.

The first setting to address is the Time Period. The default time period is the previous quarter and is already added to the Selected Time Periods field. Additional time periods can be included, if required. Do the following:

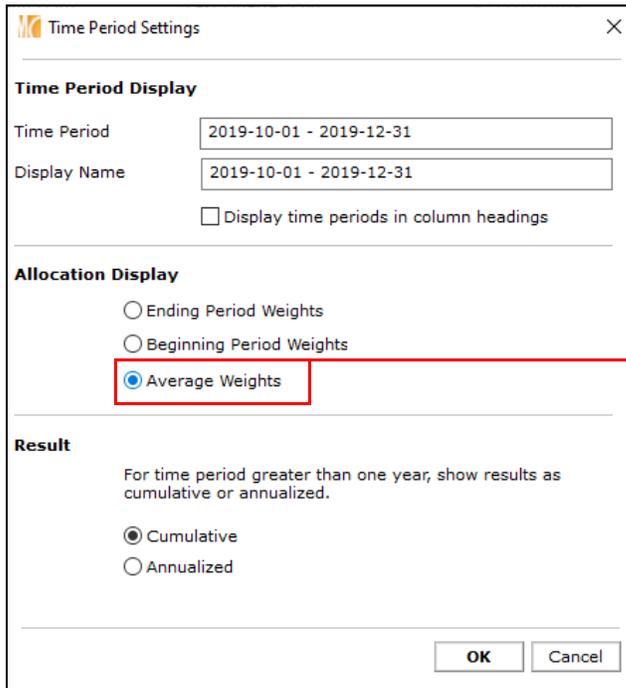
Exercise 4: Select the time period for the report

1. Select the current **time period**, then click **Settings**. The Time Period Settings dialog box opens.



Select the time period, then click this button.

2. Select the option for **Average Weights**, then click **OK** to return to the Settings dialog box.



Select this option.

3. Click **Next**.

The next step is to define the asset classes to be used. By default, the portfolio constituents and the policy benchmarks are classified to a Morningstar Broad Category Group. This asset allocation will be overwritten for most items, and this needs to be done for both the constituents of the fund-of-funds and the indexes belonging to the custom benchmark.

Exercise 5: Set up the asset classes for the report

Note: The fund-of-funds also contains some cash (Interest and Dividends Receivable, and Uninvested Cash). This is not part of the fund’s strategy, so these will be excluded from the analysis by leaving them as Unclassified.

1. Click in the **Broad Category Group** cell for the first constituent, then **enter** the new **asset class label** per the following table. Repeat this operation for all portfolio constituents and the custom benchmark indexes (scroll down to see the indexes). Once entered, each new custom asset allocation label is available from the drop-down field.

Note: Any changes made in the Asset Class column are reflected in the Asset Class Display section at the bottom of this page.

Name	Asset Class
Schwab Emerging Markets Equity ETF™	International Equity
Schwab International Equity ETF™	International Equity
Schwab Short-Term US US Treasury ETF™	Fixed Income
Schwab US Aggregate Bond ETF™	Fixed Income
Schwab US Large-Cap ETF™	US Equity
Schwab US REIT ETF™	Specialty Equity
Schwab US Small-Cap ETF™	US Equity
Schwab Variable Share Price Money Ultra	Money Market

Name	Asset Class
FTSE Emerging NR USD	International Equity
DJ US TSM Large Cap TR USD	US Equity
DJ US TSM Small Cap TR USD	US Equity
BBgBarc US Treasury 1-3 Yr TR USD	Fixed Income
DJ US Select REIT TR USD	Specialty Equity
BBgBarc US Treasury Bill 1-3 Mon TR USD	Money Market
FTSE Dv Ex US NR USD	International Equity
BBgBarc US Agg Bond TR USD	Fixed Income

2. Click **Next**.

The next step is to decide whether to compare each investment against its Asset Class Policy Benchmark, or another index. If the intent is to examine the outcome of deliberate deviations from policy weights (which the manager may have done to take advantage of market conditions) then a different index should be selected.

Exercise 6: Complete the Benchmark Setup page

Do the following:

1. At the top of the Settings dialog box, the most recent policy date should be selected.
2. Ensure each **asset class** has the proper benchmark, per the following table:

Asset Class	Index Name
Fixed Income	BBgBarc US Agg Bond TR USD
International Equity	FTSE Emerging NR USD
Money Market	BBgBarc US Treasury Bill 1-3 Mon TR USD
Specialty Equity	DJ US Select REIT TR USD
US Equity	DJ US TSM Large Cap TR USD

3. Ensure each **holding** has the proper benchmark.

The screenshot shows the 'Settings' dialog box with the 'Benchmark Setup' tab selected. The 'Policy Dates' section shows '12/31/2019' selected. The main table is expanded to Level 0, 1, and 2. The table has three columns: 'Display Groups/Investments', 'Benchmark', and 'Policy Weights'. The following rows are highlighted with red boxes to show the correct benchmark selection for each asset class:

- Row 2: Fixed Income (BBgBarc US Agg Bond TR USD)
- Row 5: International Equity (FTSE Dv Ex US NR USD)
- Row 8: Money Market (BBgBarc US Treasury Bill 1-3 Mon TR USD)
- Row 10: Specialty Equity (DJ US Select REIT TR USD)
- Row 21: US Equity (DJ US TSM Large Cap TR USD)

Be sure to select the correct benchmark for each asset class.

4. Click **Next**.

The Fee Assignment page allows users to either change which expense data point to use, or they can input a custom fee. Isolating fees preserves the purity of skill-based decisions. The default fee is the Annual Report Net Expense Ratio.

Exercise 7: Update the Fee Assignment page

1. For each investment, change the **Source of Fees** drop-down field to **Prospectus Net Expense Ratio**.

	Name	Manager Fee	Source of Fee
<input type="checkbox"/>	1 Schwab Emerging Markets Equity ETF™	0.11	Prospectus Net Expense Ratio
<input type="checkbox"/>	2 Schwab International Equity ETF™	0.06	Prospectus Net Expense Ratio
<input type="checkbox"/>	3 Schwab Short-Term US Treasury ETF™	0.05	Prospectus Net Expense Ratio
<input type="checkbox"/>	4 Schwab US Aggregate Bond ETF™	0.04	Prospectus Net Expense Ratio
<input type="checkbox"/>	5 Schwab US Large-Cap ETF™	0.03	Prospectus Net Expense Ratio
<input type="checkbox"/>	6 Schwab US REIT ETF™	0.07	Prospectus Net Expense Ratio
<input type="checkbox"/>	7 Schwab US Small-Cap ETF™	0.04	Prospectus Net Expense Ratio
<input type="checkbox"/>	8 Schwab Variable Share Price Money Ultra	0.19	Annual Report Net Expense Ratio
<input type="checkbox"/>	9 Time Deposits	0.00	Annual Report Net Expense Ratio
<input type="checkbox"/>	10 Time Deposits	0.00	Custom
<input type="checkbox"/>	11 Time Deposits	0.00	Prospectus Net Expense Ratio
<input type="checkbox"/>	12 Time Deposits	0.00	Annual Report Gross Expense Ratio
<input type="checkbox"/>	13 Time Deposits	0.00	Prospectus Gross Expense Ratio
<input type="checkbox"/>	14 Time Deposits	0.00	Custom
<input type="checkbox"/>	15 Usd	0.00	Custom
<input type="checkbox"/>	16 Usd	0.00	Custom

Select this option for each fund.

2. Click **Next**.

The View page allows users to customize how the results should be viewed. Do the following:

Exercise 8: View the settings for the report

1. In the Calculation Option section, **deselect** the **Combine Manager Fee into Manager Selection Effect**; this helps better measure a fund’s value relative to the fees it charges.
2. Because the fund-of-funds is comprised of ETFs and not open-end funds, contribution is based on Net Returns. Therefore, **deselect** the option for **Gross Return**.

Deselect the highlighted items.

3. Click **Next**.

Before calculating the report, save the settings as a template. To do so, do the following:

Exercise 9: Save the template

1. In the bottom-left corner of the Settings dialog box, click **Save as Template**.

The screenshot shows the 'Settings' dialog box with the 'Report Settings' tab selected. The 'Save As Template' button is highlighted with a red box. The settings are as follows:

Section	Option	Value
Column Display	<input checked="" type="checkbox"/> Actual	Checked
	<input checked="" type="checkbox"/> Policy	Checked
	<input checked="" type="checkbox"/> Relative +/-	Checked
Equity Display	<input checked="" type="checkbox"/> Security Name	Checked
	<input type="checkbox"/> CUSIP	Unchecked
	<input type="checkbox"/> Ticker	Unchecked
	<input type="checkbox"/> ISIN	Unchecked
	<input type="checkbox"/> Morningstar ID	Unchecked
Decimal Display		2

At the bottom of the dialog box, the 'Save As Template' button is highlighted with a red box. Other buttons include '< Previous', 'OK', and 'Ca'.

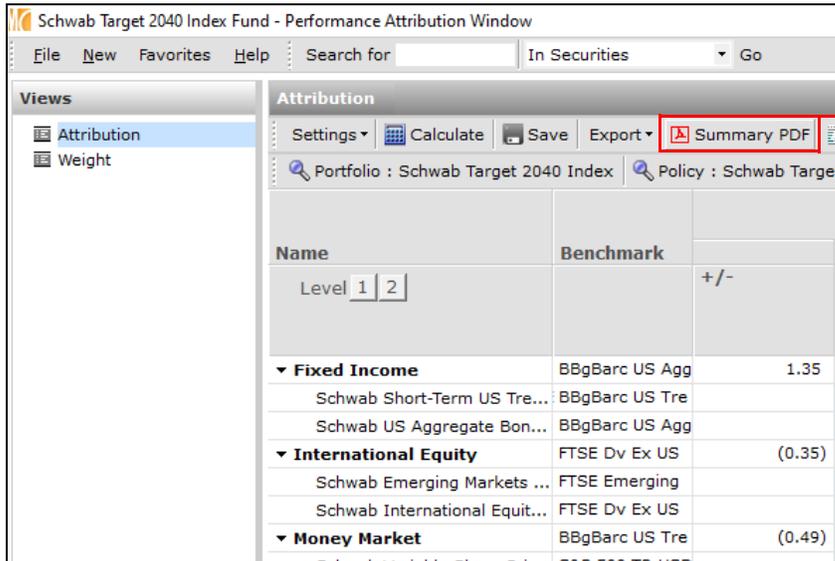
Click this icon to be able to use these same settings again.

2. When the Settings prompt appears asking whether to save the Custom Security Classification Groups, click **Yes**.
3. In the **Name** field, type **TPA Classification**, then click **OK**.
4. Click **OK** again to open the report.

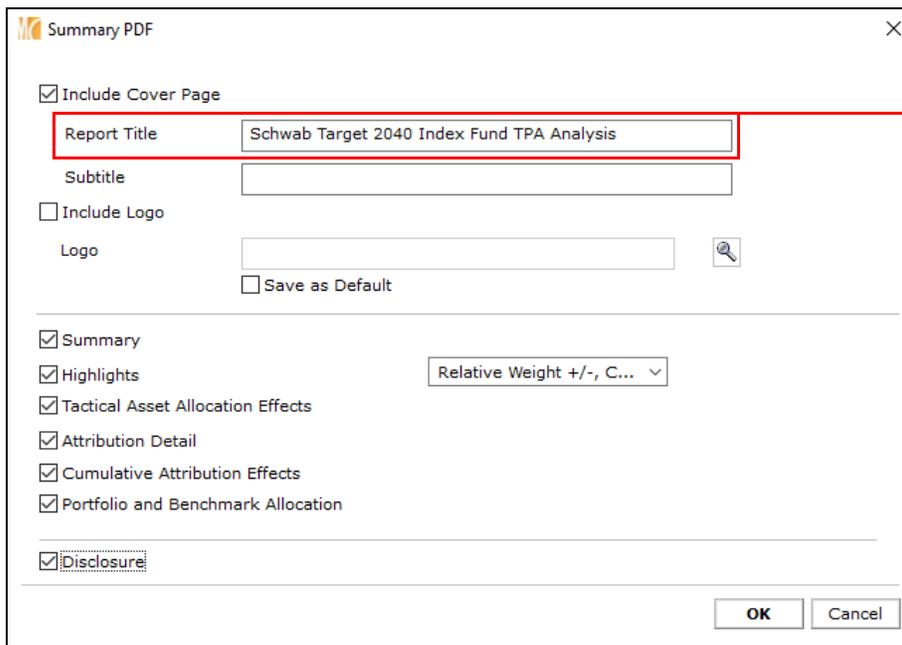
To generate a summary PDF report of the TPA analysis, do the following:

Exercise 11: Generate a PDF report

1. From the toolbar, click **Summary PDF**. The Summary PDF dialog box opens.



2. Check the box for **Include Cover Page**.
3. In the **Report Title** field, enter **Schwab Target 2040 Index Fund TPA Analysis**.



4. Leave all pages selected for the report. Click **OK**. The PDF opens in a new window.