Morningstar Direct Training Guide

Morningstar Excel Add-In

MORNINGSTAR

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Morningstar Excel Add-In

Overview

Morningstar Add-In allows you to retrieve various types of data points from the Morningstar databases within Microsoft Excel for further calculation, formatting or charting. Thousands of widely used data points per investment type are available.

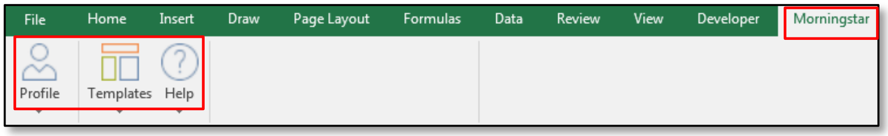
As a Morningstar Direct user, you can dynamically retrieve Morningstar's industry leading data, analytics and research. Utilize this powerful tool to easily extract data from one of the industry's most comprehensive investment databases covering thousands of universes worldwide while also leveraging the benefits of Microsoft Excel. Start with a Morningstar template or your build your own, and quickly select any range of investments, portfolio holdings, risk measures or any custom data saved in Morningstar Direct. You also have the ability to incorporate data seamlessly into your models in Excel for further calculation, formatting, and charting.

			Performance			Risk 3 Years		
SecId	Morningstar Category	Star Rating	1 Year	3 Years	5 Years	Volatility	Tracking Error	Sharpe Ratio
F00000LIV1	EAA Fund Global Equity Income	★★★	9.87	12.54	10.96	10.99	4.31	1.13
F0GBR04PF3	EAA Fund Asia-Pacific inc. Japan Equity	★★★	14.71	11.08	9.03	14.10	8.00	0.82
F00000WBS9	EAA Fund Eurozone Large-Cap Equity	★★★★★	17.25	8.44	14.90	16.00	9.84	0.59
F0GBR05VU6	EAA Fund Europe Large-Cap Blend Equity	★★★★	7.29	7.14	9.91	12.50	6.23	0.61
F0GBR04S23	EAA Fund UK Flex-Cap Equity	★★★★	8.55	6.66	14.02	16.28	10.45	0.48
F0GBR04SGT	EAA Fund Europe Large-Cap Value Equity	★★★	7.75	5.09	10.00	13.48	6.38	0.43

		Returns						Excess Return		Alpha	
SecId	Name	MTD	QTD	YTD	1 Year	3 Years	5 Years	3 Years	5 Years	3 Years	5 Years
F0GBR04S23	Fidelity Special Situations	0.63	-0.15	-0.15	8.55	6.66	14.02	4.21	41.10	0.09	0.40
XIUSA04CGI	FTSE AllSh TR GBP	0.62	-0.10	-0.10	6.62	5.42	8.68				
F0GBR04F8Y	Carmignac Investissement A EUR Acc	0.62	3.29	3.29	10.22	6.92	6.65	-24.26	-45.97	-0.39	-0.35
XIUSA04EXL	MSCI ACWI NR USD	1.10	1.23	1.23	18.07	13.57	12.96				
F0000026MW	MM Access II Eurp Multi Credit BI EUR	0.19	-0.25	-0.25	3.27	1.80	3.78	-5.24	-5.46	-0.03	0.04
FOUSA05YE4	BBgBarc Euro Agg Credit TR EUR	0.29	-0.52	-0.52	2.83	3.46	4.70				

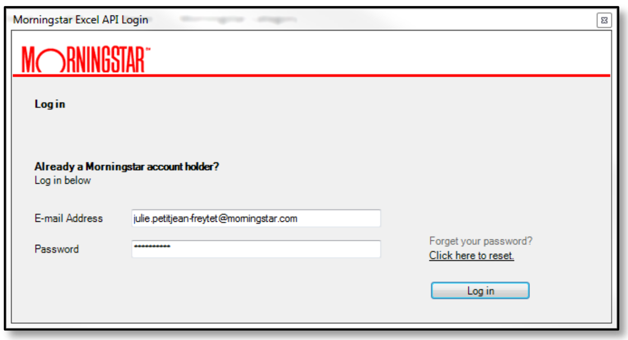
Exercise 1: Logging in for the first time

When accessing **Morningstar Excel Add-In** for the first time, you will only see the following icons under the **Morningstar** tab:



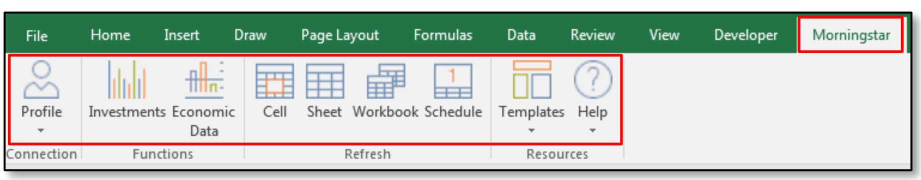
You are required to enter your Morningstar Direct login details. To do so, do the following:

1. Under the **Morningstar** tab, click on **Profile > Direct**. The **Morningstar Excel Add-In Login** dialogue box opens.
2. Enter your Morningstar Direct e-mail address and password and click **Log In**.



☞ **Note:** Your login details will be saved, and you will not be required to input them again.

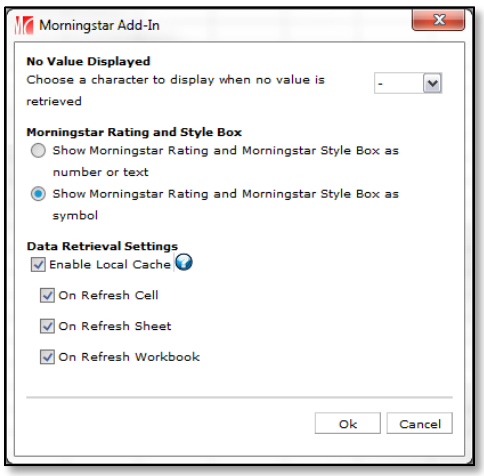
The complete **Morningstar Excel Add-In** toolbar is now available.



Exercise 2: Working with the Add-In's Settings

Morningstar Excel Add-In has its own settings. You can access them by doing the following:

1. From the **Morningstar** tab, click **Profile > Preferences**. The **Morningstar Add-In** dialogue box opens.
2. Under **No Value Displayed**, choose from the following:
   - **N/A** fill no data with "N/A"
   - **Blank**: fill no data with a blank cell
   - **–** : fill no data with a dash
3. Under **Morningstar Ratings and Style Box**, choose to display the data as **number/text** or **symbol**.
4. Under **Data Retrieval Settings**, choose to enable local cache, and under which occasion.
5. Click **OK** once done.

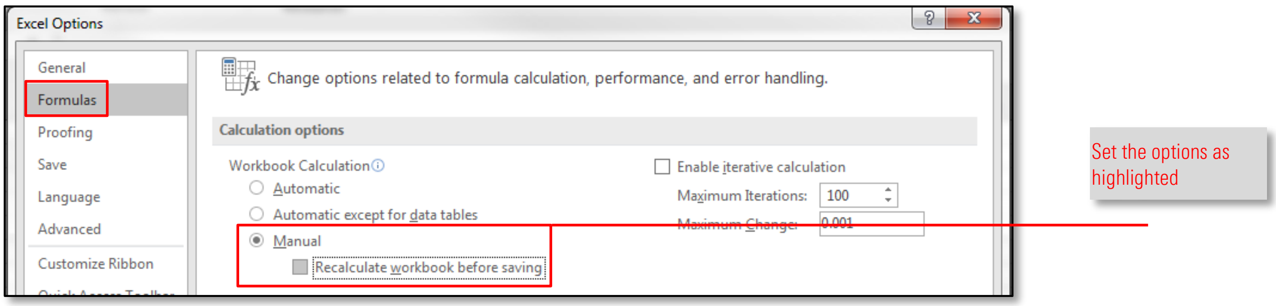


Select from the available options

Exercise 3: Working with Microsoft Excel Settings

Morningstar Excel Add-In can pull up to 500,000 data points per day; this daily limit is reset at the end of the day. To avoid calculating the same data points several times while working on a template, do the following:

1. Go to **File > Options**. The **Excel Options** dialogue box opens.
2. Click on the **Formula** tab.
3. Under **Calculation Options**, select **Manual**.
4. Deselect the **Recalculate workbook before saving** checkbox.
5. Click **OK** once done.



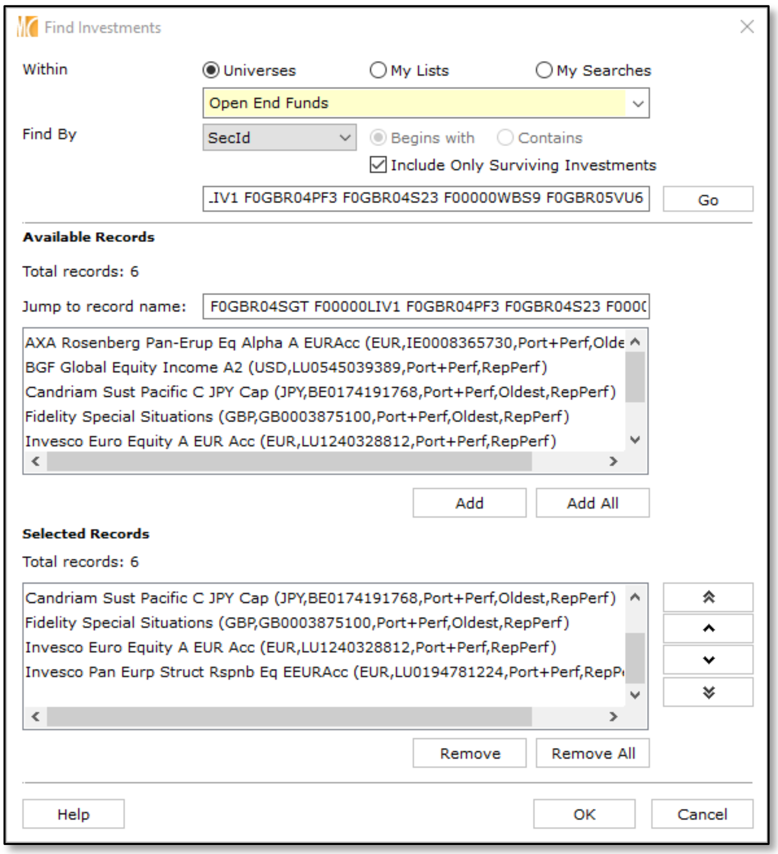
☞ **Note:** Setting your formulas to **Manual** calculation will save your data while creating your work. You can decide to switch back to **Automatic** calculation at a later stage from the **Formula** tab or by going back to **File > Options > Formulas**.

Exercise 4: Creating the Investment List for this exercise

Any Investment List (or Search Criteria) created under Workspace in Morningstar Direct Desktop and any List or Screen created in web-based Direct can be accessed through **Morningstar Excel Add-In**.

To use the same investments as in this exercise:

1. Go to Morningstar Direct Desktop edition
2. Under **Workspace > Investment Lists > My List**, click **New**
3. Select **Multiple Investments** and click **OK**
4. Switch the **Find By** drop-down to **SecIds**
5. Copy the following row of SecIds: **F0GBR04SGT F00000LIV1 F0GBR04PF3 F0GBR04S23 F00000WBS9 F0GBR05VU6**
6. Right-click in the search field below and paste
7. Click **Go**
8. Click **Add All** and **OK**



The list displays on screen.

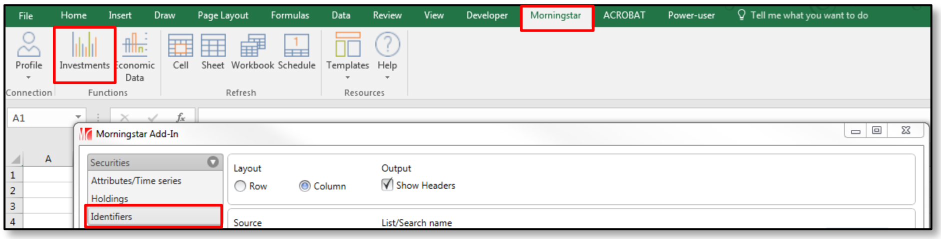
9. Click **Save** on the Toolbar and name is **My Selection**.

Add link to the Excel file to be used for this exercise

Exercise 5: Retrieving an existing list of investments (MSMEMBER)

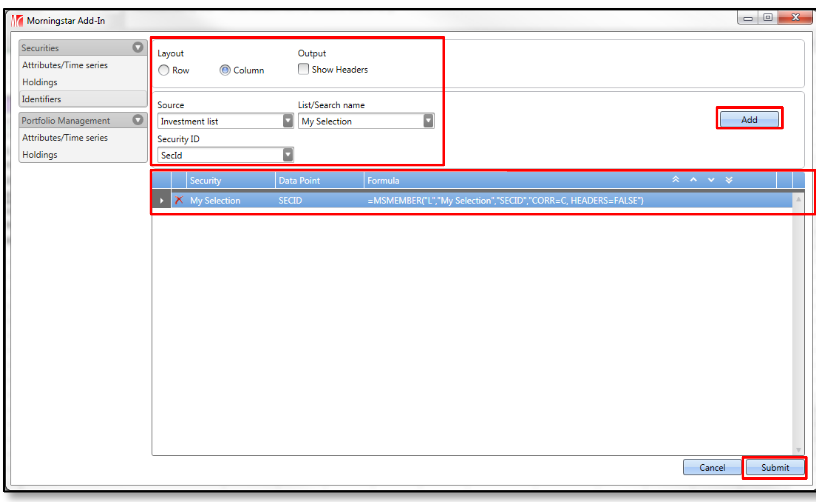
To select an **Investment List**, do the following:

1. Select the target cell where you want to extract the data.
2. Under the **Morningstar** tab, click **Investments**. The **Morningstar Add-In** dialogue box opens.
3. Click the **Identifiers** tab.



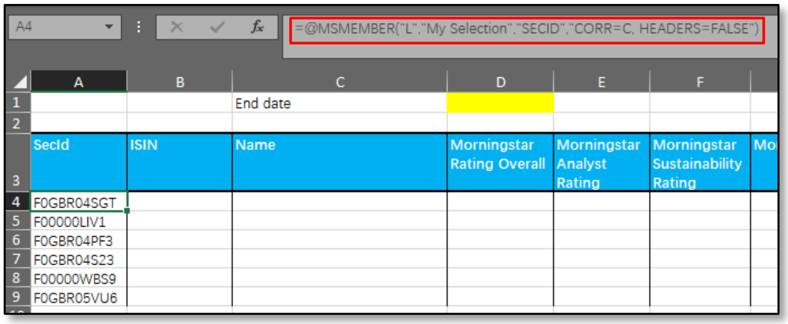
Click on the highlighted options

4. Using the **Source** drop-down menu, ensure **Investment Lists** is selected
5. Using the **List/Search name** drop-down menu, select the investment list of your choice – **My Selection** in this instance.
6. Under **Layout**, select **Column**.
7. Under **Output**, deselect the **Show Headers** checkbox.
8. Under **Settings > Security ID**, select **SecId**.
9. Click **Add**.
10. Click **Submit**.



The resulting formula appears within the dialogue box

The formula used appears in the Formula bar at the top of the spreadsheet.



The formula appears at the top of the screen

=MSMEMBER("L","MY SELECTION","SecId","CORR=C")

Here's how to break it down:

MSMEMBER – data retrieval function to pull Investment Lists and Search Criteria from Direct Desktop, and web-based Direct Lists and Screens.
"L" – identifies an Investment List. **"S"** would identify a Search Criteria.
"My Selection" – identifies the name of the list.
"SecId" – identifies the identifier to be displayed. You could use ISIN instead.
"CORR=C" – displays the identifiers in Column or Row (read "C or R = C"; in this instance, identifiers will be displayed in a column).

☞ **Note:** Once you understand the formula, you can easily modify it from the grid view.

Exercise 6: Retrieving the latest date (MSDATE)

MSDATE (Morningstar Date) is designed for retrieving the latest date, such as last market close, last weekend, etc.

These can be useful to reference as of what date the calculation in your Excel file are and can be used as reference for your time series formulas (MSTS).

☞ **Note:** To see how to use this as a reference cell, please refer to ………………..

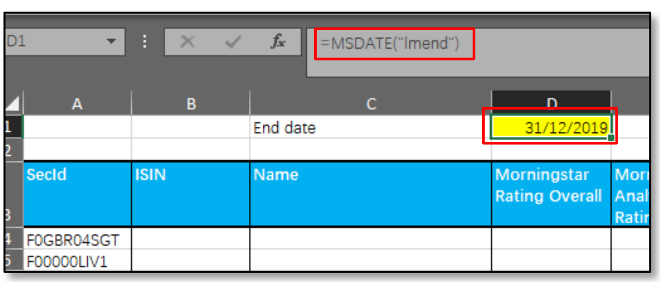
Here is a list of the formulas you can use:

Date	Short Name
Last market close	lmktclose
Last week end	lwend
Last month end	lmend
Last quarter end	lqend
Last semi-year end	lsyend
Last year end	lyend

In the Excel file, we want to retrieve the latest month end date in cell D1 (highlighted in yellow in the file you downloaded).

1. Click cell D1
2. Type =MSDATE("lmend")

The date is now displayed.

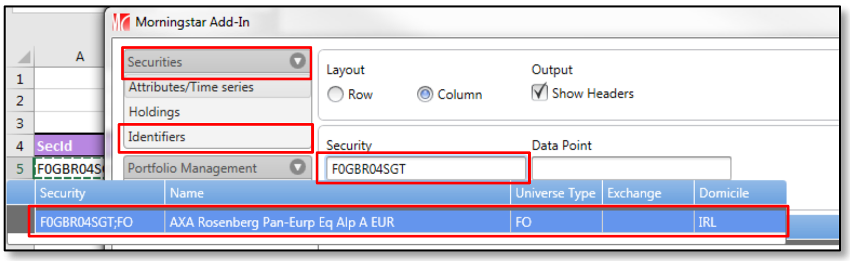


Exercise 7: Displaying Supplementary data points (MSDP)

MSDP (Morningstar Supplementary Data Point) is designed for retrieving current data points such as fund name, Morningstar Category, etc. for a mutual fund share class. It requires two parameters, security identifier and data attribute identifier.

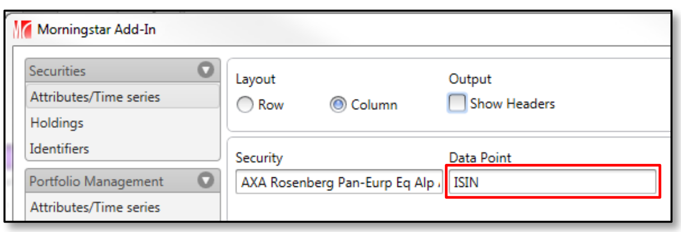
To obtain the ISIN for our list of securities using the **Investments** toolbar icon, do the following:

1. In the Excel spreadsheet, copy the first security's SecId by doing **CTRL + C**.
2. Under the **ISIN** column, select the cell corresponding to the first security in the list.
3. From the **Morningstar** tab, click **Investments**. The **Morningstar Add-In** dialogue box opens.
4. Under **Output**, deselect the **Show Headers** checkbox.
5. Under the **Securities** tab > **Attributes/Time Series** tab, paste the SecId in the Security field by doing **CTRL + V**.



Enter the identifier in this field

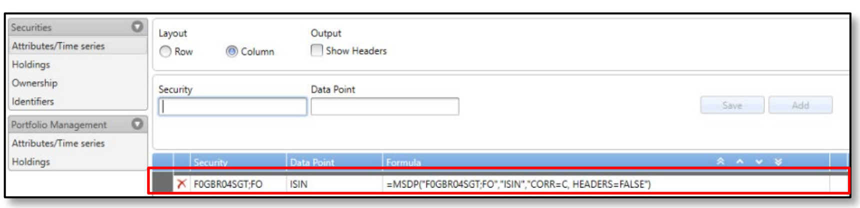
6. Click on the security name that appears in the menu. The security name is then selected.
7. Under **Data Point**, type **ISIN** and click on the name that appears in the menu to select it.



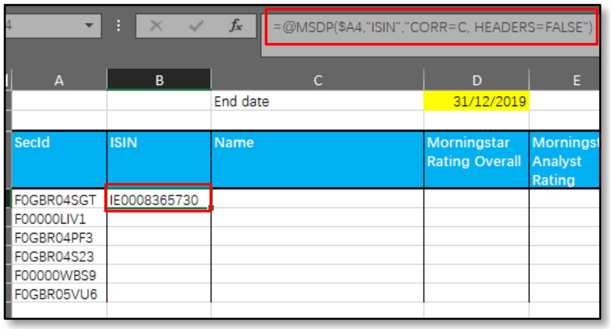
Enter **ISIN** in the **Data Point** field.

8. Click **Add**.

The resulting formula appears within the dialogue box.



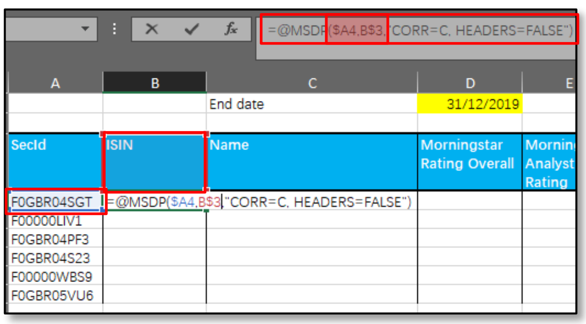
9. Click **Submit**. The security's **ISIN** displays in the Excel table.



Note the formula corresponding to cell B5

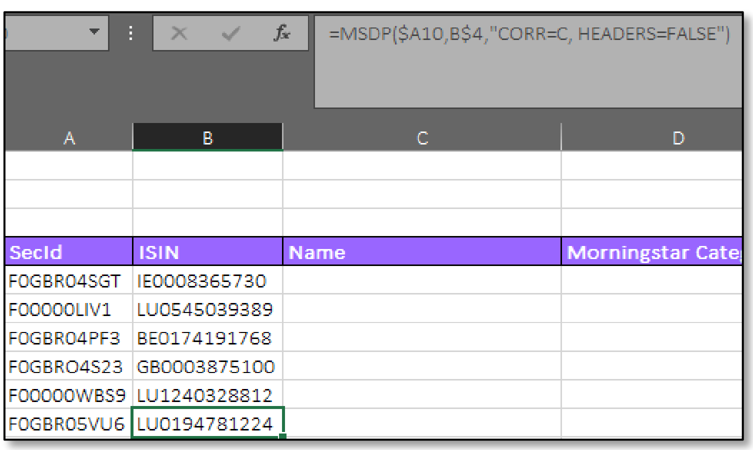
We now want to modify the formula and apply it to the remaining funds. To do so, do the following:

1. Select cell **B5**.
2. In the formula bar, replace **"F0GBR04SGT;FO"** with **$A5** to reference the cell containing the security's Secid and hit **ENTER**.
3. Replace **"ISIN"** with **B$4** to reference the discrete data point name in the header.



Link the formula to the cell containing the security's SecId.

4. Drag the formula down the list. Each security's corresponding ISIN displays in the table.



Drag the formula down the list

☞ __Note:__ The data points will refresh if you are on **Automatic** calculation mode.

☞ __Note:__ If you are on **Manual** calculation mode, select the cells to be calculated and click **Cell** from the **Morningstar** tab.

Exercise 8: Working with the Data Dictionary

The table also contains the following discrete data points:

- Name
- Morningstar Rating Overall
- Morningstar Analyst Rating
- Morningstar Sustainability Rating
- Morningstar Category
- MPT Benchmark
- MPT Benchmark ID

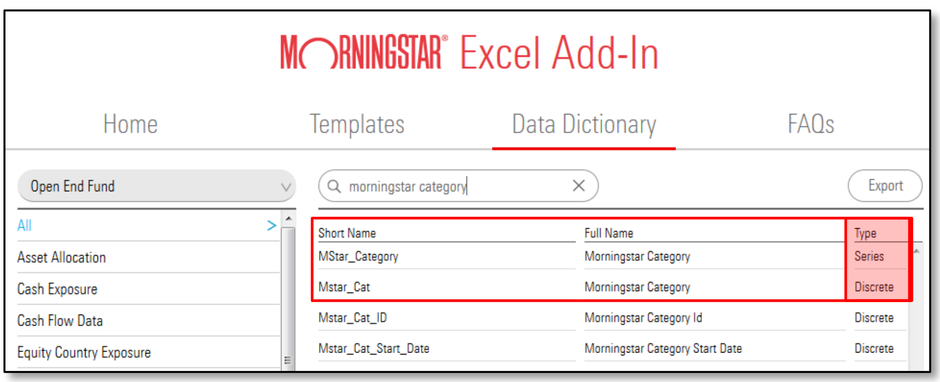
Those headers are the names used by Morningstar Direct and the Excel Add-in and can be checked with the **Data Dictionary**.

To access the **Data Dictionary**, do the following:

1. From your Excel spreadsheet, click on the **Morningstar** tab.
2. Click on **Help > Data Dictionary**. Your default web browser opens on screen.
3. On the left side panel, choose **Open End Fund**.
4. In the **Search** field, type **Morningstar Category**.

You will notice two different short names for the Morningstar Category. Their use is determined by the **Type**: **Discrete** or **Series**.

- **Discrete** indicates the short name to be used to retrieve discrete values, meaning current data points, to be used with **MSDP** formulas.
- **Series** indicates the short name to be used to retrieve time series, meaning historical data points, to be used with **MSTS** formulas.



Note the data point **Type**

☞ **Note:** To find out more about retrieving historical data using **MSTS** formulas, refer to Exercise 10: Working with Time Series (MSTS).

Exercise 9: Adding Multiple Data Points

Now that we set up the discrete data points names in the header cells and used the **$** sign in the appropriate places to lock the identifiers and the headers, we can easily apply the same formula to all discrete data points columns.

To do so, do the following:

1. In the Excel spreadsheet, select the range of **ISIN** codes formulas.
2. Place the mouse in the bottom-right corner of the range and drag to the right – all the way to **MPT Benchmark ID**.

A	B	C	D	E	F	G	H	I
		End date	31/12/2019					
SecId	ISIN	Name	Morningstar Rating Overall	Morningstar Analyst Rating	Morningstar Sustainability Rating	Morningstar Category	MPT Benchmark	MPT Benchmark ID
F0GBR04SGT	IE0008365730	AXA Rosenberg Pan-Erup Eq Alph	4.00	-	Average	EAA Fund Europe Large-	MSCI Europe Value	FOUSA06VQV
F00000LIV1	LU0545039389		3.00	Neutral	Above Average	EAA Fund Global Equity	MSCI World High D	FOUSA06OZ9
F0GBR04PF3	BE0174191768		3.00	-	Above Average	EAA Fund Asia-Pacific E	MSCI AC Asia Paci	XIUSA04EW7
F0GBR04S23	GB0003875100		3.00	Silver	Low	EAA Fund UK Flex-Cap E	FTSE AllSh TR GBP	XIUSA04CGI
F00000WBS9	LU1240328812		3.00	-	Average	EAA Fund Eurozone Larg	MSCI EMU NR EUR	FOUSA08842
F0GBR05VU6	LU0194781224		3.00	-	Above Average	EAA Fund Europe Large-	MSCI Europe NR E	FOUSA07WOV

The data displays in the cells.

☞ **Note:** The data points will refresh if you are on **Automatic** calculation mode.

☞ **Note:** If you are on **Manual** calculation mode, select the cells to be calculated and click **Cell** from the **Morningstar** tab.

Exercise 10: Working with time series (MSTS)

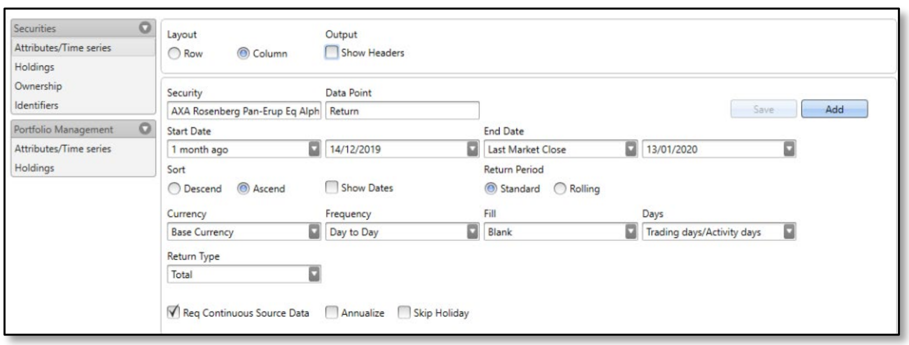
MSTS is designed for retrieving data time series such as historical prices for stocks, NAVs for mutual funds, historical calendar period returns for securities, or historical portfolio data.

Time series calculation requires 4 parameters minimum: security identifier, data attribute identifier, start date, end date.

When using custom calculations, other parameters are required, such as currency, benchmark, source, etc.

To retrieve performance over trailing periods using the **Investments** toolbar icon, do the following:

1. In the Excel spreadsheet, copy the SecId of the first security by doing **CTRL + C**.
2. Select the corresponding cell for your 1-Year Return and click **Investments**.
3. Under **Output**, deselect the **Show Headers** checkbox.
4. Paste the name in the **Security** field by doing **CTRL + V**.
5. In the **Data Point** field, type **Return** and select the first choice in the list. Additional fields are activated in the **Settings** section below.



We want to display returns in Euro and set dynamic dates for the last year from the latest month end. To do so, do the following:

1. Using the **Currency** drop-down menu, select **Euro** (or your preferred currency).
2. Using the **Start Date** drop-down menu, select **Enter Dash Codes**.

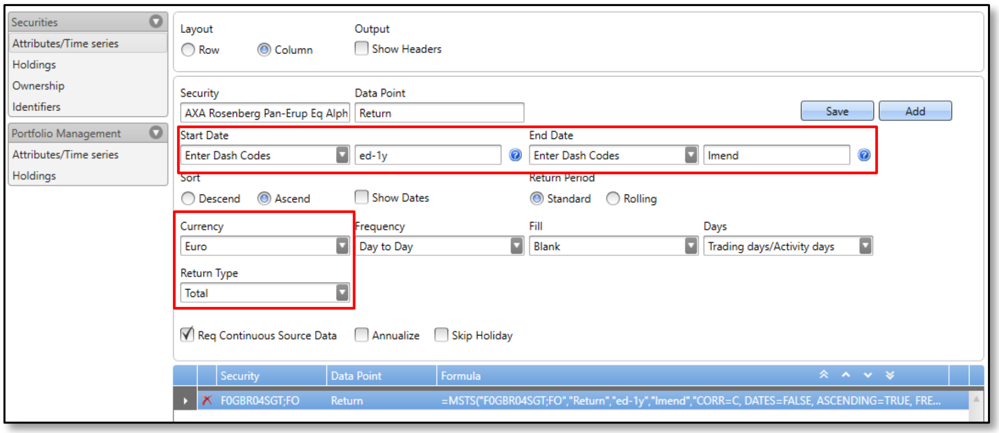
   ☞ **<u>Note:</u>** Dash Codes is your only dynamic option. All other items in the Start Date and End Date drop-down menu will result in static dates in your formulas.

3. In the field to the right, type **ed-1y** (end date – 1 year)

   ☞ **Note:** Using ed-1y in the Start Date links it to the End Date. This means that if you change the end date to the last quarter end (lqend), the Start Date will automatically reflect 1 year from that new end date.

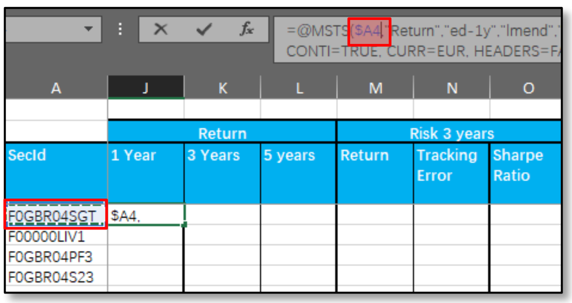
4. Using the **End Date** drop-down menu, select **Enter Dash Codes**.
5. In the field to the right, type **lmend** (latest month end).
6. Using the **Return Type** drop-down menu, select **Total**.
7. Click **Add**.

Link to FAQ?



Apply **Currency**, **Dates** and **Return Type** as shown

8. Click **Submit**.
9. As done before, link the formula to the cell referencing the security's SecId.
10. Insert the **$** sign to the left of **A5** to lock the column reference.



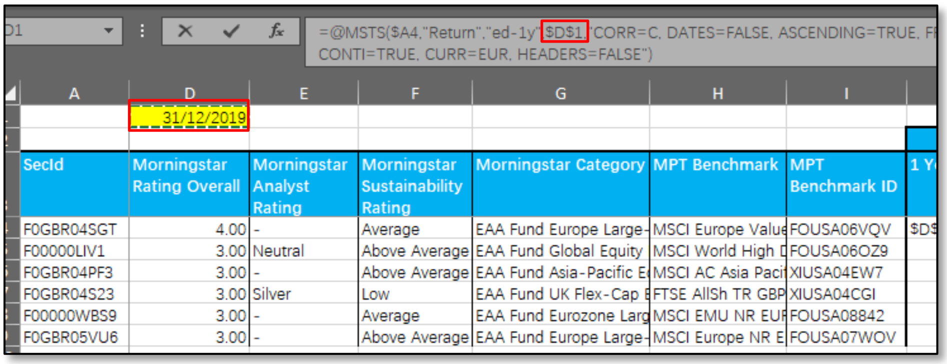
Insert the **$** sign into the formula

Exercise 11: Linking an MSTS formula to an MSDATE formula

We also want to use the MSDATE reference cell to link all our statistics to that end date.

By using this single reference point, we will be able to quickly and easily change the end date for our time series data points in one go.

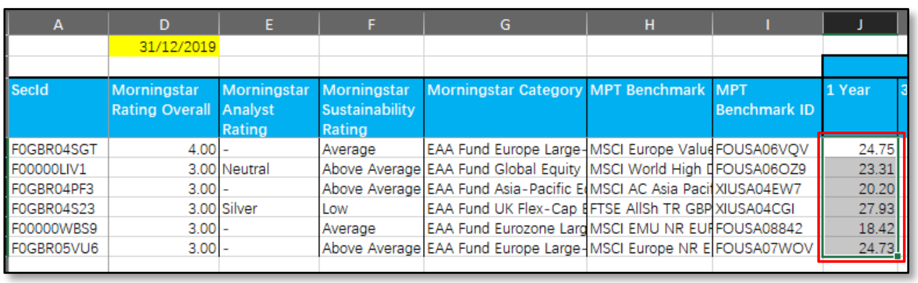
11. In the formula, replace "Imend" with the reference cell for our MSDATE formula.
12. To lock the end date to this cell, ensure to add $ to both the letter and the number – in this example: D1.



=@MSTS($A4,"Return","ed-1y",$D$1,"CORR=C, DATES=FALSE, ASCENDING=TRUE, FI CONTI=TRUE, CURR=EUR, HEADERS=FALSE")

A	D	E	F	G	H	I	
	31/12/2019						
SecId	Morningstar Rating Overall	Morningstar Analyst Rating	Morningstar Sustainability Rating	Morningstar Category	MPT Benchmark	MPT Benchmark ID	1 Y
F0GBR04SGT	4.00	-	Average	EAA Fund Europe Large-	MSCI Europe Value	FOUSA06VQV	D
F00000LIV1	3.00	Neutral	Above Average	EAA Fund Global Equity	MSCI World High D	FOUSA06OZ9	
F0GBR04PF3	3.00	-	Above Average	EAA Fund Asia-Pacific E	MSCI AC Asia Paci	XIUSA04EW7	
F0GBR04S23	3.00	Silver	Low	EAA Fund UK Flex-Cap E	FTSE AllSh TR GBP	XIUSA04CGI	
F00000WBS9	3.00	-	Average	EAA Fund Eurozone Larg	MSCI EMU NR EUR	FOUSA08842	
F0GBR05VU6	3.00	-	Above Average	EAA Fund Europe Large-	MSCI Europe NR E	FOUSA07WOV	

13. Select your 1-year return and drag it down the column to apply it to the other investments in your list.

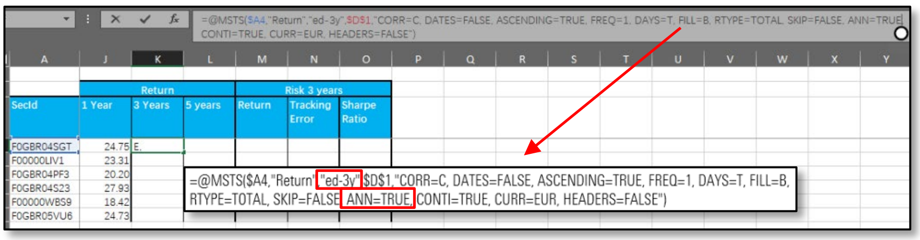


A	D	E	F	G	H	I	J
	31/12/2019						
SecId	Morningstar Rating Overall	Morningstar Analyst Rating	Morningstar Sustainability Rating	Morningstar Category	MPT Benchmark	MPT Benchmark ID	1 Year
F0GBR04SGT	4.00	-	Average	EAA Fund Europe Large-	MSCI Europe Value	FOUSA06VQV	24.75
F00000LIV1	3.00	Neutral	Above Average	EAA Fund Global Equity	MSCI World High D	FOUSA06OZ9	23.31
F0GBR04PF3	3.00	-	Above Average	EAA Fund Asia-Pacific E	MSCI AC Asia Paci	XIUSA04EW7	20.20
F0GBR04S23	3.00	Silver	Low	EAA Fund UK Flex-Cap E	FTSE AllSh TR GBP	XIUSA04CGI	27.93
F00000WBS9	3.00	-	Average	EAA Fund Eurozone Larg	MSCI EMU NR EUR	FOUSA08842	18.42
F0GBR05VU6	3.00	-	Above Average	EAA Fund Europe Large-	MSCI Europe NR E	FOUSA07WOV	24.73

Exercise 12: Modifying an MSTS formula

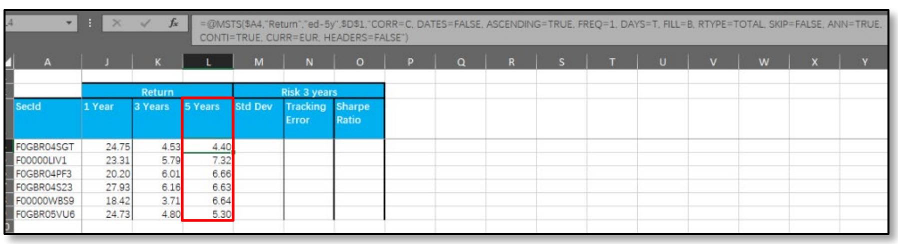
You can easily modify a formula from the formula bar. Let's use our 1-year return formula to create the 3-year return formula. To do so, do the following:

1. Select your 1-year return and copy it by doing **CTRL + C**.
2. Select the corresponding cell under your 3-year return and paste the formula by doing **CTRL + V** (or select the 1-year return and drag it to the cell to the right).
3. From the formula bar, change **ed-1y** for **ed-3y** (end date – 3 years).
4. At the end of the formula, change **Ann=False** to **Ann=True** to annualise the return.
5. Hit the **ENTER** key.
6. Link the formula to the cell referencing the security's SecId.
7. Drag the formula down the list to apply to all securities.



Apply modifications as shown

Repeat steps 1 to 6 (with ed-5y) to set up the 5-year return.



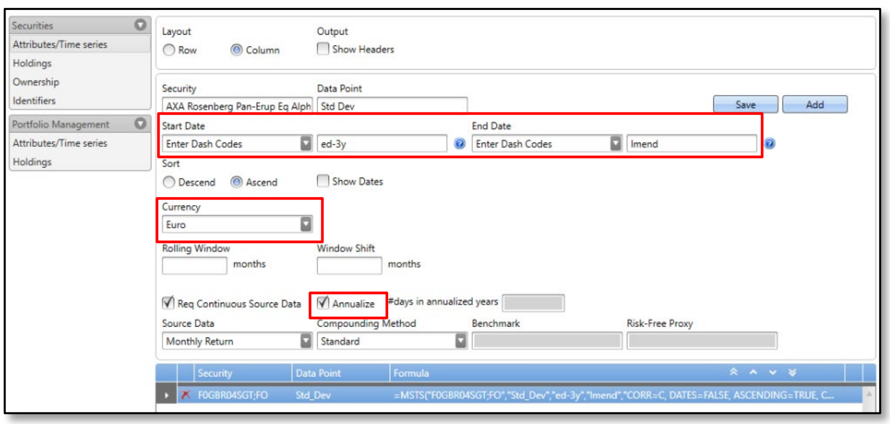
Exercise 13: Working with risk statistics

Example 1: Volatility

We now want to set up three risk statistics using different criteria.

To add a 3-year standard deviation, do the following:

1. In the Excel spreadsheet, copy the first security's SecId by doing **CTRL + C**.
2. Select the corresponding cell for your 3-year standard deviation and click **Investments**.
3. Under **Output**, deselect the **Show Headers** checkbox. Ensure **Column** is selected.
4. Paste the SecId in the **Security** field by doing **CTRL + V** and click on the security's name to select it.
5. In the **Data Point** field, type **std dev** and select it from the list. Additional fields are activated in the **Settings** section below.
6. Using the **Start Date** drop-down menu, select **Enter Dash Codes**.
7. In the field to the right, type **ed-3y** (end date – 3 years).
8. Using the **End Date** drop-down menu, select **Enter Dash Codes**.
9. In the field to the right, type **lmend** (latest month end).
10. Using the **Currency** drop-down menu, select **Euro**.
11. In the bottom-left corner of the dialogue box, select the **Annualize** checkbox.
12. Click **Add** and do not exit this dialogue box.



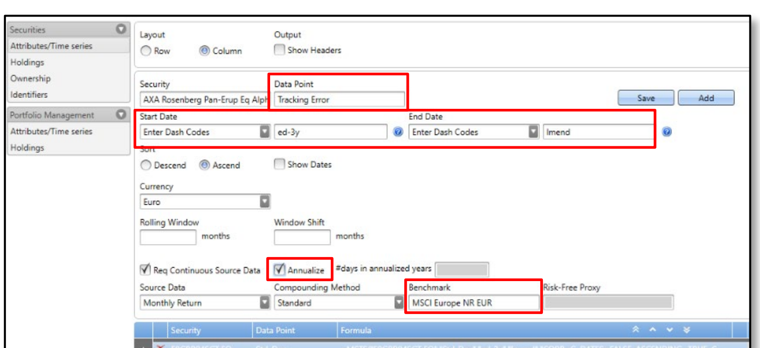
Use the annualisation option

We will now add the Tracking Error.

Example 2: Tracking Error

To add a 3-year tracking error, do the following:

1. From the Morningstar Add-In dialogue box, click on the standard deviation formula.
2. In the **Data Point** field, replace **Std Dev** with **Tracking Error**.
3. Reset the **Start Date** and **End Date** to use the **Enter Dash Codes** option. They will remember the codes used for the previous formula and they will display in both fields.
4. In the bottom-left corner of the dialogue box, select the **Annualize** checkbox.
5. In the **Benchmark** field, type **MSCI Europe NR EUR** and select it from the menu.
6. Click **Add**.



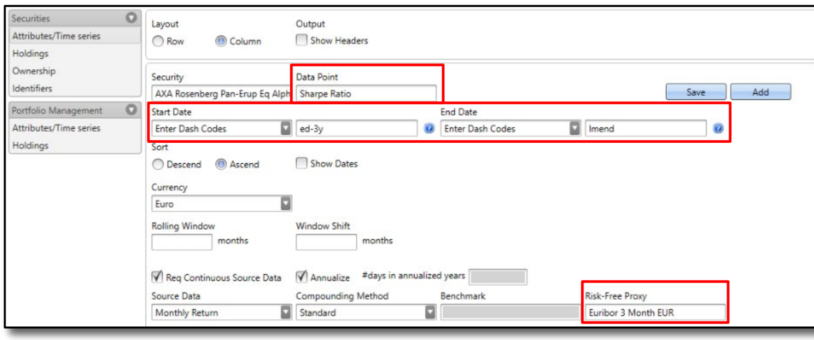
Select **Tracking Error**

Select **MSCI Europe NR EUR**

Example 3: Sharpe Ratio

To add a 3-year Sharpe Ratio, do the following:

1. From the Morningstar Add-In dialogue box, click on the Tracking Error formula.
2. In the **Data Point** field, replace **Tracking Error** with **Sharpe Ratio**.
3. Reset the **Start Date** and **End Date** to use the **Enter Dash Codes** option.
4. In the bottom-left corner of the dialogue box, select the **Annualize** checkbox.
5. In the **Risk-Free Proxy** field, type **euribor 3 month** and select the **Euribor 3 Month EUR** from the menu.
6. Click **Add**.



Select **Sharpe Ratio**

Select **Euribor 3 Month EUR**

7. Click **Submit**.
8. Link all three formulas to the cell referencing the security's SecId and to the MSDATE reference cell.
9. Drag the formulas down the list to apply them to all securities.

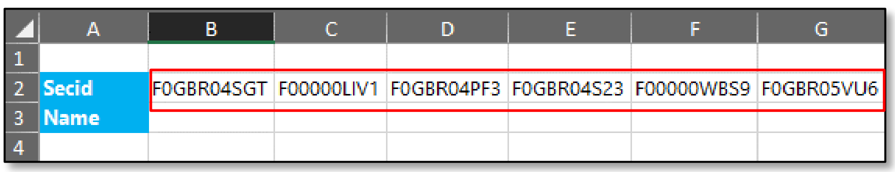
A	J	K	L	M	N	O
	Return			Risk 3 years		
SecId	1 Year	3 Years	5 Years	Std Dev	Tracking Error	Sharpe Ratio
F0GBR04SGT	24.75	4.53	4.40	10.91	2.47	0.49
F00000LIV1	23.31	5.79	7.32	9.82	6.66	0.66
F0GBR04PF3	20.20	6.01	6.66	11.48	7.56	0.59
F0GBR04S23	27.93	6.16	6.63	13.36	6.00	0.54
F00000WBS9	18.42	3.71	6.64	12.36	5.06	0.38
F0GBR05VU6	24.73	4.80	5.30	10.29	4.80	0.54

Exercise 14: Extracting Historical Series

MSTS formulas also allow for extraction of historical series, such as historical prices, returns, star ratings, etc.
To extract the historical returns of our list of funds, do the following:

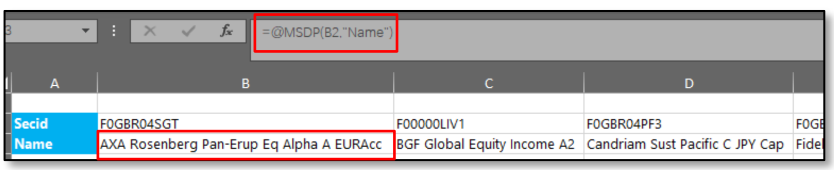
1. Select the Returns tab.
2. Select cell B2.
3. From the **Morningstar tab**, click **Investments**. We are going to extract the Investment List's SecIds in a row format.
4. Under the **Morningstar** tab, click **Investments**.
5. The **Morningstar Add-In** dialogue box opens. Click the **Identifiers** tab.
6. Under **Layout**, select **Row**.
7. Under **Output**, deselect the **Show Headers** checkbox.
8. Using the **Source** drop-down menu, ensure **Investment Lists** is selected.
9. Using the **List/Search name** drop-down menu, select the investment list of your choice – **My Selection** in this instance.
10. Under **Settings > Security ID**, select **SecId**.
11. Click **Add**.
12. Click **Submit**.

The SecIds appear in a row.



Using the MSDP formula, we can then add the Name underneath.

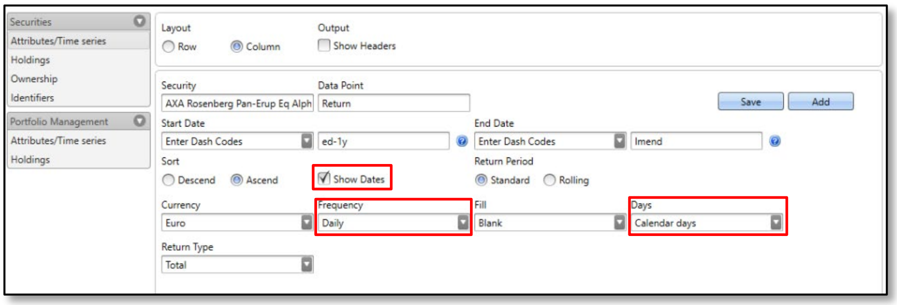
1. Click cell B3.
2. Type **=MSDP(B3,"Name")**
3. Drag this formula to the right to display the other investments' name.



We now want to add daily returns for the first investment for the last year. To do so, do the following:

1. Select cell **B2** and copy the SecId (CTRL + C).
2. Select cell **A4** and click the **Investments** button.
3. Under **Attributes/Time Series**, paste the SecId into the **Security** field (CTRL + V) and click on the security name when it appears in the menu.
4. Under **Data Point**, type **Return** and select this data point.

5. Under **Frequency**, select **Daily**.
6. Under **Start Date**, select **Enter Dash Codes** and type **ed-1y**.
7. Under **End Date**, select **Enter Dash Codes** and type **lmend**.
8. Under **Sort**, select **Show Dates**.
9. Choose the currency and Return type of your choice.
10. Under **Days**, select **Calendar Days**.
11. Click **Add**.
12. Click **Submit**.
13. Don't forget to link the identifier in the formula to cell **B2**.



We can now apply the same formula to the second investment.

1. Select cell **A4** and copy it (CTRL + C).
2. Select cell **C4** and paste it (CTRL + V).
3. Modify the formula by select **C2** for the identifier and setting **DATES = FALSE**. This will remove the dates (which are already displayed in column A).
4. Hit **ENTER**.

You can then drag and drop this formula to the right and calculate the spreadsheet.

```
=@MSTS(C2,"Return","ed-1y","lmend","CORR=C, DATES=FALSE, ASCENDING=TRUE, FREQ=D, DAYS=C, FILL=B, RTYPE=TOTAL, CURR=EUR, HEADERS=FALSE")
```

A	B	C	D	E	F
Secid	F0GBR04SGT	F00000LIV1	F0GBR04PF3	F0GBR04S23	F00000WBS9
Name	AXA Rosenberg Pan-Erup Eq Alpha A EURAcc	BGF Global Equity Income A2	Candriam Sust Pacific C JPY Cap	Fidelity Special Situations	Invesco Euro Equity A EUR Acc
01/01/2019	0.00		0.00		
02/01/2019	0.27	-0.17	0.31	-0.32	-1.18
03/01/2019	-1.13	-0.26	-0.07	0.38	0.53
04/01/2019	2.88	0.30	1.94	2.12	1.45
05/01/2019					
06/01/2019					
07/01/2019	-0.20	0.07	0.09	0.83	0.81
08/01/2019	0.98	1.08	1.28	1.54	1.36
09/01/2019	0.58	-0.03	-0.91	0.49	0.64
10/01/2019	0.26	-0.41	0.66	0.13	-0.59
11/01/2019	0.19	0.58	0.20	1.40	0.16
12/01/2019					
13/01/2019					
14/01/2019	-0.45	-0.23	1.11	-0.14	-1.02
15/01/2019	0.39	0.50	0.13	0.14	0.24
16/01/2019	0.64	0.72	0.03	0.94	0.87

Exercise 15: Working with Portfolio Holdings (MSHOLDING)

MSHOLDING is designed for retrieving holdings of portfolios. It requires at least two parameters to retrieve the latest holdings.

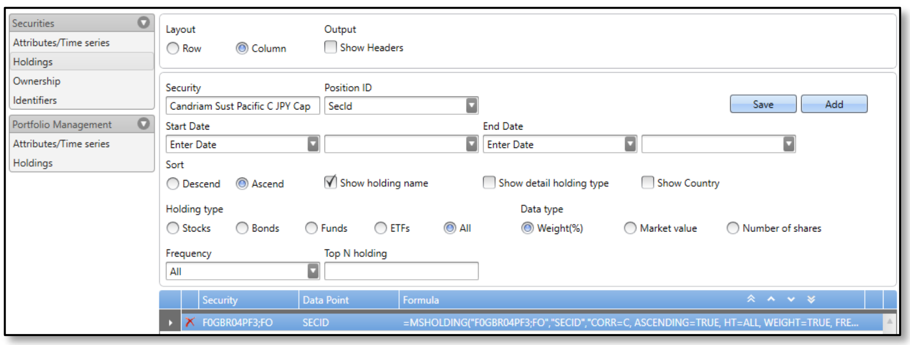
- **Portfolio IDs** are Ticker, ISIN, CUSIP and SecId.
- **Position IDs** define the output IDs of holdings and could be Ticker, ISIN, CUSIP and SecId.

In the Excel file provided, switch to the **Holdings** worksheet. Notice the SecId in cell B1. To extract portfolio holdings, do the following:

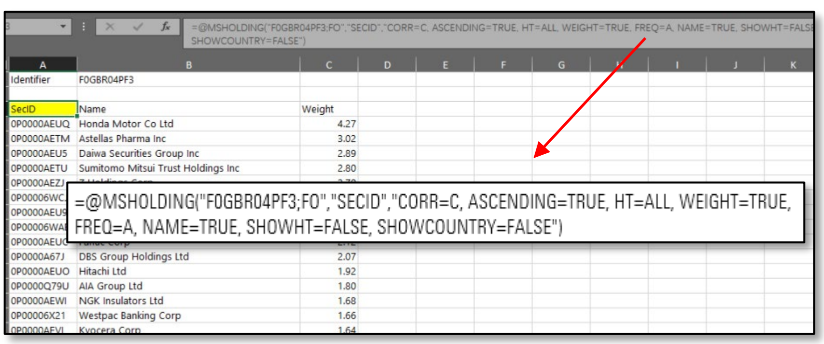
1. Select cell **B1** and copy the SecId by doing **CTRL + C**.
2. Select cell **A3**, where you want the data to display.
3. From the **Morningstar** toolbar, click **Investments**.
4. Click the **Holdings** tab.
5. In the **Security** field, paste the SecId by doing **CTRL + V**.
6. Select the security from the menu.
7. Using the **Position ID** drop-down menu, select **SecId** (you could use ISIN instead).
8. Under **Data Type**, select **Weight (%)**.

☞ <u>**Note:**</u> You can also pick **Market Value** or **Number of Shares**.

9. Leave all other settings as is and click **Add**.

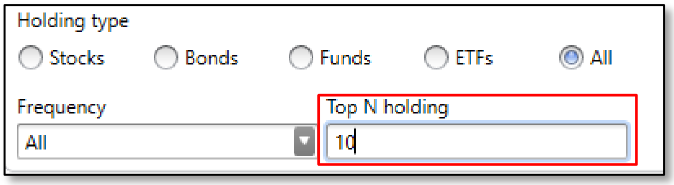


10. Click **Submit**.



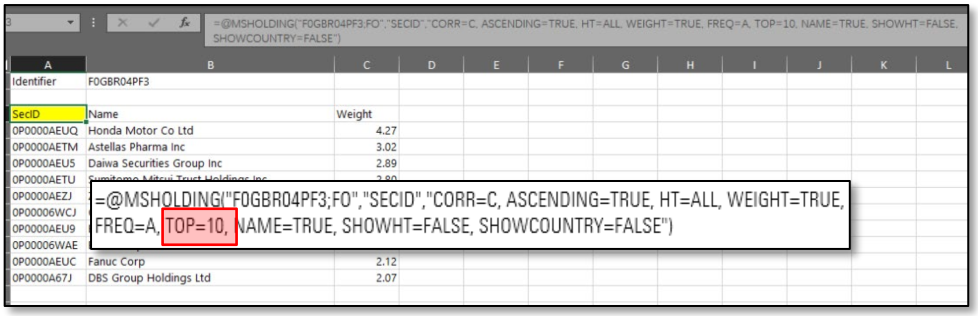
Let's modify the formula to obtain the top 10 positions only. To do so, do the following:

1. Select cell **A3**.
2. From the **Morningstar** toolbar, click **Investments**.
3. In the **Top N Holdings** field, type **10**.
4. Click **Save**.



Select the top 10 holdings

5. Click **Submit**.

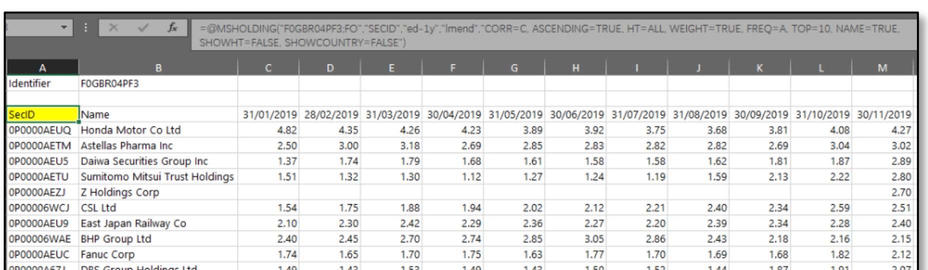


The formula is instantly modified

☞ **<u>Note:</u> TOP=10** has been added to the formula.

Let's amend the formula further and retrieve historical positions. To do so, do the following:

1. Select cell **A3**.
2. From the **Morningstar** toolbar, click **Investments**.
3. Using the **Start Date** drop-down menu, select **Enter Dash Codes**.
4. In the field to the right, type **ed-1y** (end date – 1 year).
5. Using the **End Date** drop-down menu, select **Enter Dash Codes**.
6. In the field to the right, type **lmend** (latest month end).
7. Click **Save**.
8. Click **Submit**.
9. In the formula, replace the security identifier with the reference cell **B1**.



A	B	C	D	E	F	G	H	I	J	K	L	M
Identifier	F0GBR04PF3											
SecID	Name	31/01/2019	28/02/2019	31/03/2019	30/04/2019	31/05/2019	30/06/2019	31/07/2019	31/08/2019	30/09/2019	31/10/2019	30/11/2019
0P0000AEUQ	Honda Motor Co Ltd	4.82	4.35	4.26	4.23	3.89	3.92	3.75	3.68	3.81	4.08	4.27
0P0000AETM	Astellas Pharma Inc	2.50	3.00	3.18	2.69	2.85	2.83	2.82	2.82	2.69	3.04	3.02
0P0000AEU5	Daiwa Securities Group Inc	1.37	1.74	1.79	1.68	1.61	1.58	1.58	1.62	1.81	1.87	2.89
0P0000AETU	Sumitomo Mitsui Trust Holdings	1.51	1.32	1.30	1.12	1.27	1.24	1.19	1.59	2.13	2.22	2.80
0P0000AEZJ	Z Holdings Corp											2.70
0P00006WCJ	CSL Ltd	1.54	1.75	1.88	1.94	2.02	2.12	2.21	2.40	2.34	2.59	2.51
0P0000AEU9	East Japan Railway Co	2.10	2.30	2.42	2.29	2.36	2.27	2.20	2.39	2.34	2.28	2.40
0P00006WAE	BHP Group Ltd	2.40	2.45	2.70	2.74	2.85	3.05	2.86	2.43	2.18	2.16	2.15
0P0000AEUC	Fanuc Corp	1.74	1.65	1.70	1.75	1.63	1.77	1.70	1.69	1.68	1.82	2.12
0P0000A67J	DBS Group Holdings Ltd	1.49	1.43	1.53	1.49	1.43	1.50	1.52	1.44	1.87	1.91	2.07

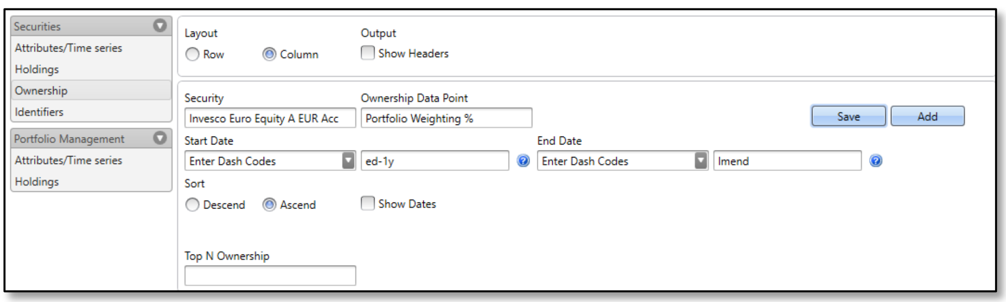
☞ **<u>Note:</u>** By setting a reference cell within the formula, you just created a template. Typing a different SecId or ISIN in cell B1 will retrieve data for this new security.

Exercise 16: Retrieving ownership information (MSOWNER)

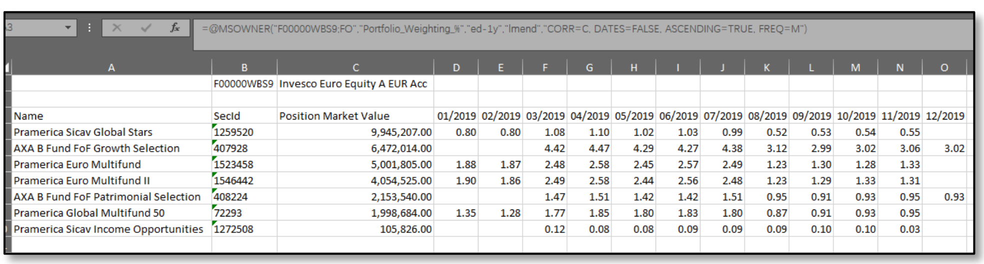
MSOWNER is designed to retrieve ownership data. This formula can be used, amongst other things, to identify the funds investing in a specific security (Stock, Open-End Fund, ETF, etc.) over time and their market value.

To retrieve the historical portfolio weights, do the following:

1. In the Excel file provided, switch to the **Owners** worksheet. Notice the SecId in cell B1.
2. Select cell **B1** and copy the SecId by doing **CTRL + C**.
3. Select cell **A3**, where you want the data to display.
4. From the **Morningstar** toolbar, click **Investments**.
5. Click the **Ownership** tab.
6. In the **Security** field, paste the SecId by doing **CTRL + V**.
7. Select the security from the menu.
8. In the Ownership Data Point, type Portfolio Weighting % and click on it once it appears.
9. Using the **Start Date** drop-down menu, select **Enter Dash Codes**.
10. In the field to the right, type **ed-1y** (end date – 1 year).
11. Using the **End Date** drop-down menu, select **Enter Dash Codes**.
12. In the field to the right, type **lmend** (latest month end).
13. Click **Add**.
14. Click **Submit**.



You can now see which fund of funds invest in this investment and the position weights over time.



=@MSOWNER("F00000WBS9;FO","Portfolio_Weighting_%","ed-1y","lmend","CORR=C, DATES=FALSE, ASCENDING=TRUE, FREQ=M")

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
	F00000WBS9	Invesco Euro Equity A EUR Acc												
Name	SecId	Position Market Value	01/2019	02/2019	03/2019	04/2019	05/2019	06/2019	07/2019	08/2019	09/2019	10/2019	11/2019	12/2019
Pramerica Sicav Global Stars	1259520	9,945,207.00	0.80	0.80	1.08	1.10	1.02	1.03	0.99	0.52	0.53	0.54	0.55	
AXA B Fund FoF Growth Selection	407928	6,472,014.00			4.42	4.47	4.29	4.27	4.38	3.12	2.99	3.02	3.06	3.02
Pramerica Euro Multifund	1523458	5,001,805.00	1.88	1.87	2.48	2.58	2.45	2.57	2.49	1.23	1.30	1.28	1.33	
Pramerica Euro Multifund II	1546442	4,054,525.00	1.90	1.86	2.49	2.58	2.44	2.56	2.48	1.23	1.29	1.33	1.31	
AXA B Fund FoF Patrimonial Selection	408224	2,153,540.00			1.47	1.51	1.42	1.42	1.51	0.95	0.91	0.93	0.95	0.93
Pramerica Global Multifund 50	72293	1,998,684.00	1.35	1.28	1.77	1.85	1.80	1.83	1.80	0.87	0.91	0.93	0.95	
Pramerica Sicav Income Opportunities	1272508	105,826.00			0.12	0.08	0.08	0.09	0.09	0.09	0.10	0.10	0.03	