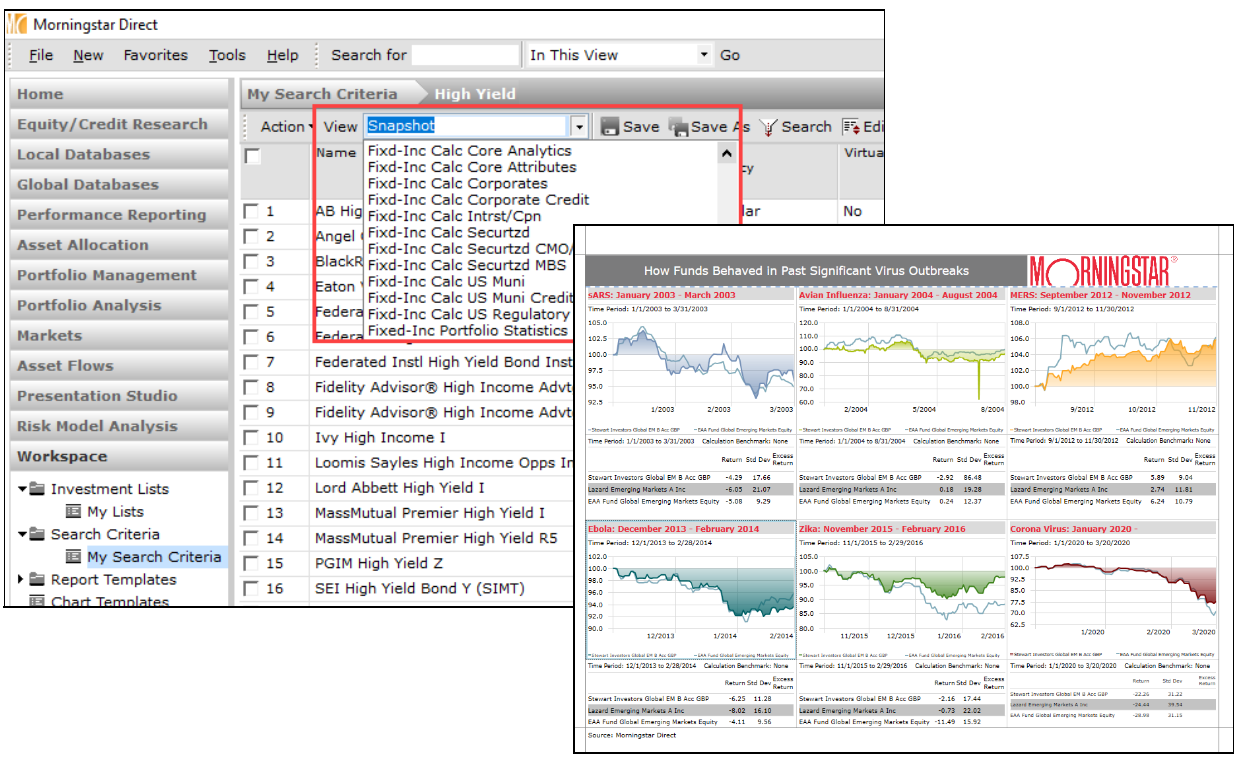
Morningstar Direct^{SM} Release Notes for March 30, 2020

Overview

This document describes the following new data points, features, and enhancements in Morningstar Direct^{SM}, version 3.19.044.08:

- Upgrades and Changes to Fixed Income Data Points (page 2)
- Upgrades to Sustainability (ESG) Data Points (page 5)
- Additional Changes for Data Parity (page 8)
- Upgrades and Changes to Other Data Points (page 15)
- Other Application Upgrades and Changes (page 17)
- Presentation Studio Upgrades (page 20)

Most of the changes and upgrades in this release deal with bringing the desktop edition of Morningstar Direct to data parity with the web-based edition of Morningstar Direct. That is, all data points users previously could find only in the web-based edition can now be found in the desktop edition of the application.



Upgrades and Changes to Fixed Income Data Points

Overview

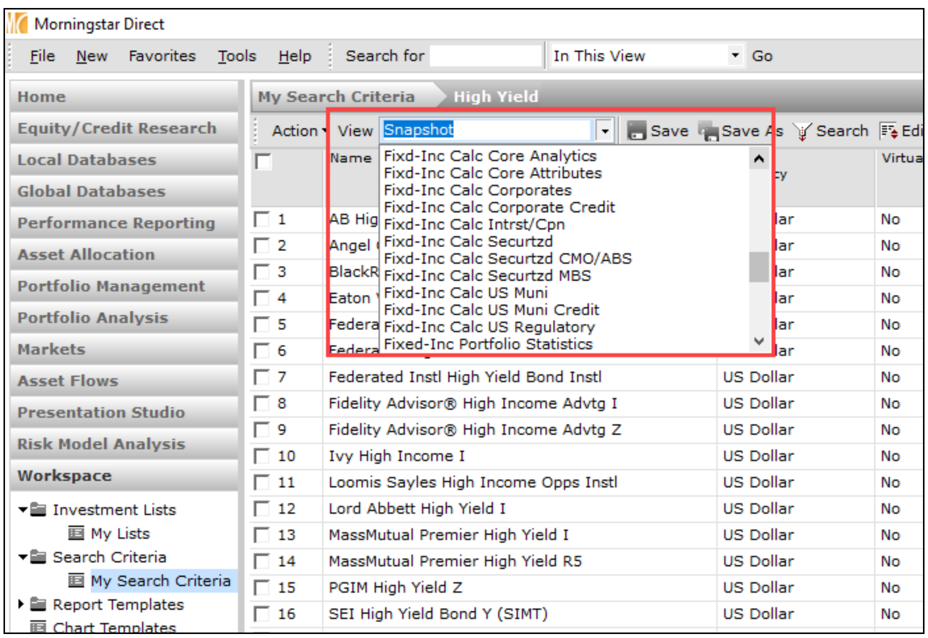
This section covers the following upgrades and changes to fixed-income data:

- Views added for almost 2,500 new calculated fixed-income data points (page 2)
- Credit Quality methodology update reflected in data (page 4), and
- Name changes for credit rating breakdown data points (page 4).

Views added for calculated fixed-income data points

The following new views are available with calculated (rather than surveyed) fixed-income data points:

- Fixd-Inc Calc Core Attributes
- Fixd-Inc Calc Corporates
- Fixd-Inc Calc Corporate Credit
- Fixd-Inc Calc Intrst/Cpn
- Fixd-Inc Calc Securtzd
- Fixd-Inc Calc Securtzd CMO/ABS
- Fixd-Inc Calc Securtzd MBS
- Fixd-Inc Calc US Muni
- Fixd-Inc Calc US Muni Credit
- Fixd-Inc Calc US Regulatory



This work builds on the data points included in the Fixd-Inc Core Analytics data set added in December 2019. These views and the data points they contain can be found in the following modules:

- Local Databases
- Global Database
- Workspace
- Performance Reporting, and
- Presentation Studio.

The following table describes the types of data available in each view:

☞ Note: Each view also includes the Portfolio Date for each investment.

This view...	**Contains a breakdown of the following data**...
Fixd-Inc Calc Core Attributes	▸ Coupon Type ▸ Issuer Type ▸ Call Type ▸ Sink Type ▸ Put Type, and ▸ Put Detail.
Fixd-Inc Calc Corporates	▸ Corp Convertible Type ▸ Corp Fix/Float Type ▸ Corp Maturity Type ▸ Corp PIK Type, and ▸ Corp Seniority.
Fixd-Inc Calc Corporate Credit	▸ Corp Default Reason ▸ Corp Guaranty Type ▸ Corp Guarantor Type, and ▸ Corp Secured Collateral.
Fixd-Inc Calc Intrst/Cpn	▸ MBS Interest Type - Fixed ▸ MBS Interest Type - Adjustable, and ▸ MBS Interest Type - STRIP.
Fixd-Inc Calc Securtzd	▸ CMO/ABS Collateral Detail ▸ Securitized Asset Type, and ▸ Securitized Mtg Type.
Fixd-Inc Calc Securtzd CMO/ABS	▸ ABS Collateral Type ▸ CMO Issuer Type ▸ CMO Payment Type, and ▸ CMO Tranche/Class.
Fixd-Inc Calc Securtzd MBS	▸ MBS Mortgage Collateral, and ▸ USA MBS Issue Agency (Fannie, Freddy, Ginnie, SBA).
Fixd-Inc Calc US Muni	▸ Issue Purpose ▸ Security Payment ▸ US Fed Tax, and ▸ US State Tax.
Fixd-Inc Calc US Muni Credit	▸ Credit Enhancement ▸ Default Event ▸ Escrow Type ▸ Insurer, and ▸ Line of Credit Type.
Fixd-Inc Calc US Regulatory	▸ SEC Offering Registration

Fixed-income credit quality data reflects methodology update

Morningstar methodology states that credit quality data older than 184 days (effectively, six months) can no longer be published. For calculated breakdown and other fixed-income statistics, the Portfolio Effective Date should be the same as the Effective Date of the credit rating data. This ensures users do not draw incorrect conclusions or make decisions based on stale data.

This rule impacts both surveyed credit quality data and the following calculated credit rating and fixed-income statistics:

- Credit Quality Breakdown
- Fixed Income Style Box
- Yield to maturity
- Effective maturity
- Effective duration, and
- Modified duration.

Additionally, if more than 10% of a fund's holdings for the most recent Portfolio Effective Date is not available, then no value is present for the above statistics.

Name changes for calculated credit rating breakdown data points

The following table details the change to the naming convention used for the credit quality breakdown data points included in the Fixd-Inc Calc Core Analytics view:

This data point...	**Is now known as**...
Calculated Credit Rating AAA %	Fixd-Inc Credit Rtg - Brkdwn AAA (Calc) (Long) (FI%)
Calculated Credit Rating AA %	Fixd-Inc Credit Rtg - Brkdwn AA (Calc) (Long) (FI%)
Calculated Credit Rating A%	Fixd-Inc Credit Rtg - Brkdwn A (Calc) (Long) (FI%)
Calculated Credit Rating BBB %	Fixd-Inc Credit Rtg - Brkdwn BBB (Calc) (Long) (FI%)
Calculated Credit Rating BB %	Fixd-Inc Credit Rtg - Brkdwn BB (Calc) (Long) (FI%)
Calculated Credit Rating B %	Fixd-Inc Credit Rtg - Brkdwn B (Calc) (Long) (FI%)
Calculated Credit Rating Below B %	Fixd-Inc Credit Rtg - Brkdwn Below B (Calc) (Long) (FI%)
Calculated Credit Rating Not Rated %	Fixd-Inc Credit Rtg - Brkdwn NR (Calc) (Long) (FI%)

Upgrades to Sustainability (ESG) Data Points

Overview

This section covers the following upgrades to Sustainability (ESG) data:

- Fund-level carbon metric data points added (page 5)
- Number of funds in Global Category data point added (page 6), and
- Company-level ESG entitlement added (page 7).

Fund-level carbon metric data points added

The following carbon metric data points have been added to the Sustainability view for managed products:

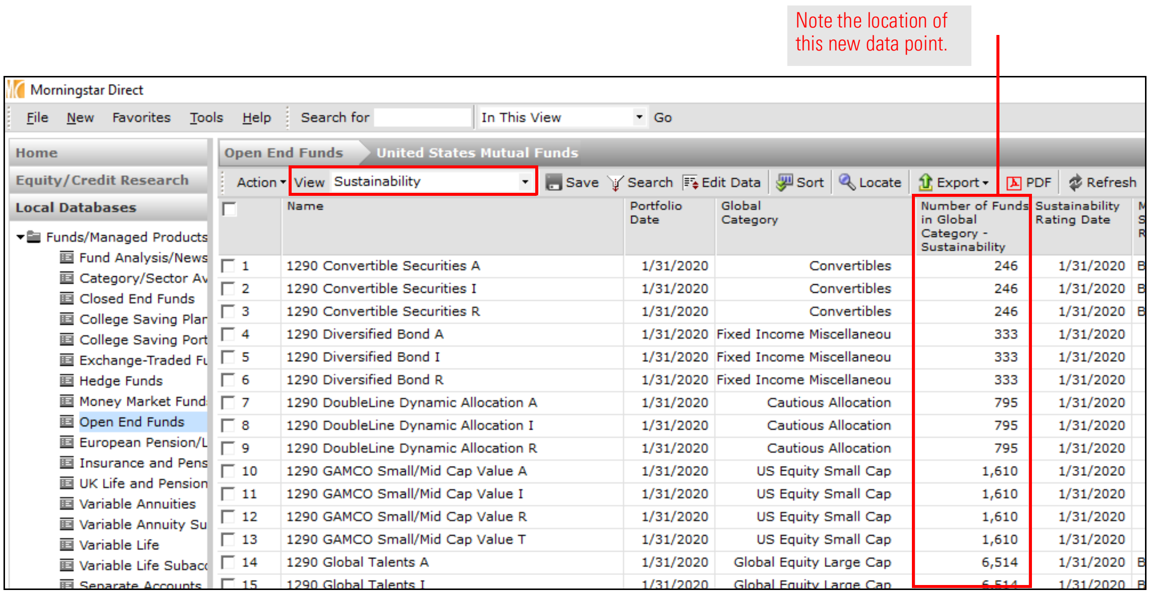
- 12 Month Average Benchmark Carbon Risk Score
- 12 Month Average Benchmark Fossil Fuel Involvement
- Benchmark Fossil Fuel Involvement
- Portfolio Carbon Risk Score vs. Benchmark
- Benchmark Carbon Intensity
- Portfolio Carbon Intensity vs. Benchmark
- Emissions Scope 1
- Emissions Scope 2
- Benchmark Emissions Scope 1
- Benchmark Emissions Scope 2
- Portfolio Emissions vs. Benchmark Scope 1, and
- Portfolio Emissions vs. Benchmark Scope 2.

These data points were previously available only in the web-based version of Morningstar Direct. This data, where available, is offered for the following universes:

- Closed End Funds
- College Saving Portfolios
- ETFs
- Hedge Funds (exclude HFR and eVestment)
- Money Market Funds
- Open End Funds
- Insurance and Pension Funds
- UK Life and Pension Funds
- VA Subaccounts
- VL Subaccounts
- Separate Accounts/CITs/Models
- Unit Investment Trust
- Private Funds
- Workspace - All Managed Investments
- All category average universes

Number of funds in Global Category data point added

The Sustainability view now includes a data point (Number of Funds in Global Category - Sustainability) to the right of the Morningstar Global Category column showing users how many funds are included in an investment's Morningstar Global Category. This data is valuable because the Morningstar Global Category is used when calculating a fund's Morningstar Sustainability Rating.



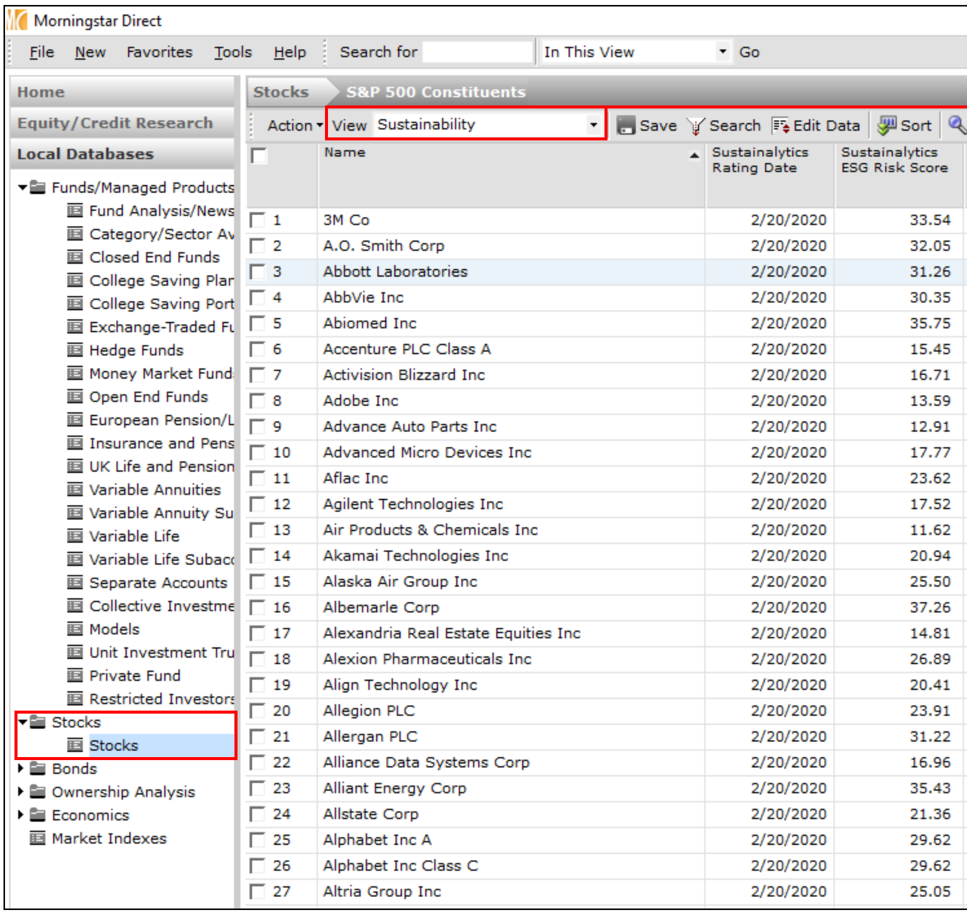
	Name	Portfolio Date	Global Category	Number of Funds in Global Category - Sustainability	Sustainability Rating Date
1	1290 Convertible Securities A	1/31/2020	Convertibles	246	1/31/2020
2	1290 Convertible Securities I	1/31/2020	Convertibles	246	1/31/2020
3	1290 Convertible Securities R	1/31/2020	Convertibles	246	1/31/2020
4	1290 Diversified Bond A	1/31/2020	Fixed Income Miscellaneou	333	1/31/2020
5	1290 Diversified Bond I	1/31/2020	Fixed Income Miscellaneou	333	1/31/2020
6	1290 Diversified Bond R	1/31/2020	Fixed Income Miscellaneou	333	1/31/2020
7	1290 DoubleLine Dynamic Allocation A	1/31/2020	Cautious Allocation	795	1/31/2020
8	1290 DoubleLine Dynamic Allocation I	1/31/2020	Cautious Allocation	795	1/31/2020
9	1290 DoubleLine Dynamic Allocation R	1/31/2020	Cautious Allocation	795	1/31/2020
10	1290 GAMCO Small/Mid Cap Value A	1/31/2020	US Equity Small Cap	1,610	1/31/2020
11	1290 GAMCO Small/Mid Cap Value I	1/31/2020	US Equity Small Cap	1,610	1/31/2020
12	1290 GAMCO Small/Mid Cap Value R	1/31/2020	US Equity Small Cap	1,610	1/31/2020
13	1290 GAMCO Small/Mid Cap Value T	1/31/2020	US Equity Small Cap	1,610	1/31/2020
14	1290 Global Talents A	1/31/2020	Global Equity Large Cap	6,514	1/31/2020
15	1290 Global Talents I	1/31/2020	Global Equity Large Cap	6,514	1/31/2020

Company-level ESG data now available

Users with the additional entitlement for company-level ESG data can now see 93 company-level ESG data points in the Sustainability view for the Stocks universe in the following modules:

- Local Databases
- Global Databases
- Performance Reporting
- Presentation Studio, and
- Workspace.

> Note: In the Workspace module, the Sustainability view is designed to show fund-level ESG data. Therefore, users must manually customize a data set to see company-level ESG data in the Workspace module.



	Name	Sustainalytics Rating Date	Sustainalytics ESG Risk Score
1	3M Co	2/20/2020	33.54
2	A.O. Smith Corp	2/20/2020	32.05
3	Abbott Laboratories	2/20/2020	31.26
4	AbbVie Inc	2/20/2020	30.35
5	Abiomed Inc	2/20/2020	35.75
6	Accenture PLC Class A	2/20/2020	15.45
7	Activision Blizzard Inc	2/20/2020	16.71
8	Adobe Inc	2/20/2020	13.59
9	Advance Auto Parts Inc	2/20/2020	12.91
10	Advanced Micro Devices Inc	2/20/2020	17.77
11	Aflac Inc	2/20/2020	23.62
12	Agilent Technologies Inc	2/20/2020	17.52
13	Air Products & Chemicals Inc	2/20/2020	11.62
14	Akamai Technologies Inc	2/20/2020	20.94
15	Alaska Air Group Inc	2/20/2020	25.50
16	Albemarle Corp	2/20/2020	37.26
17	Alexandria Real Estate Equities Inc	2/20/2020	14.81
18	Alexion Pharmaceuticals Inc	2/20/2020	26.89
19	Align Technology Inc	2/20/2020	20.41
20	Allegion PLC	2/20/2020	23.91
21	Allergan PLC	2/20/2020	31.22
22	Alliance Data Systems Corp	2/20/2020	16.96
23	Alliant Energy Corp	2/20/2020	35.43
24	Allstate Corp	2/20/2020	21.36
25	Alphabet Inc A	2/20/2020	29.62
26	Alphabet Inc Class C	2/20/2020	29.62
27	Altria Group Inc	2/20/2020	25.05

Users with the proper entitlement can see ESG data for stocks from this view.

Note the following important points about this data:

- This data cannot be exported to Microsoft® Excel®.
- Users with this entitlement can also see ESG data for corporate bonds by right-clicking on a fund and selecting Detailed Holdings Analysis.
- For more information about enabling this entitlement, please contact your Morningstar Sales Rep.

Additional Changes for Data Parity

Overview

This section describes the following upgrades made in this release to ensure the desktop edition of Morningstar Direct is at data parity with the web-based edition of the application:

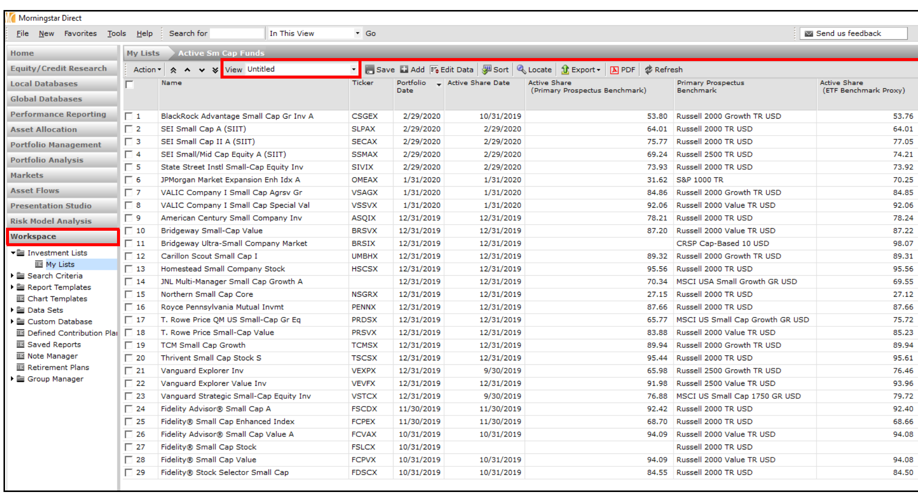
- Active Share data points added (page 8)
- Morningstar Standard Factor Risk Model data points added (page 9)
- Revenue Exposure data now available for managed products (page 10)
- Average Price Ratio data points for stocks added (page 11)
- Par value data points added for closed-end funds (page 11)
- NAV available for cross-listed ETFs (page 12)
- Venture Capital Trust data points added for UK closed-end funds (page 12)
- Canadian dividend-related data points added (page 13), and
- Additional data points added (page 14).

All of the data points covered in this section were previously available only from the web-based version of Morningstar Direct.

Active Share data points added

The following Active Share data points are now available for open-end funds from the Performance Attribution view; for the Separate Accounts and Models universes, these data points can be seen in the Asset Allocation view:

- Active Share (ETF Benchmark Proxy)
- Active Share (Primary Prospectus Benchmark), and
- Active Share Date.



In the Workspace module, the Active Share data points need to be added to a custom data set.

When viewing the Active Share data points, it can also help to display the following data points as a reference:

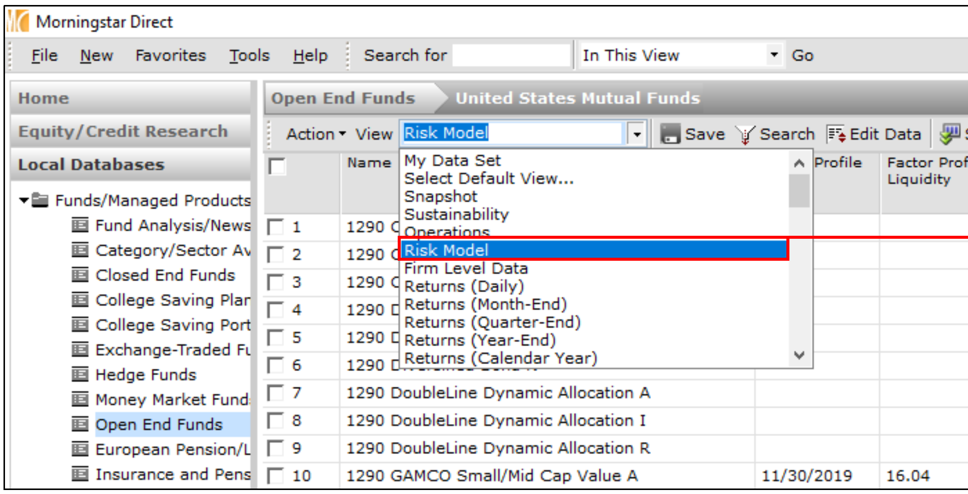
- Portfolio Date
- Primary Prospectus Benchmark, and
- Attribution ETF Proxy Name.

The Attribution ETF Proxy Name indicates which ETF is being used to calculate the Active Share (ETF Benchmark Proxy) value.

Morningstar Standard Factor Risk Model data points added

A new view (Risk Model) shows a series of Factor Profile data points. This view and its associated data points can be seen in the following modules:

- Local Databases
- Global Databases
- Performance Reporting, and
- Workspace.



Note the location of this view in the Local Databases module.

Factor Profile is an extension of the Morningstar Risk Model capabilities. It features the following seven investment factors generally accepted in the industry as important drivers of return and risk:

- Style (a smaller number here indicates more of a Growth strategy, while a higher number indicates a Value approach)
- Yield
- Momentum
- Quality
- Volatility
- Liquidity, and
- Size (a smaller number here indicates a more small-cap orientation).

These factors allows investors to gain new insights into fund performance and the active portfolio manager process.

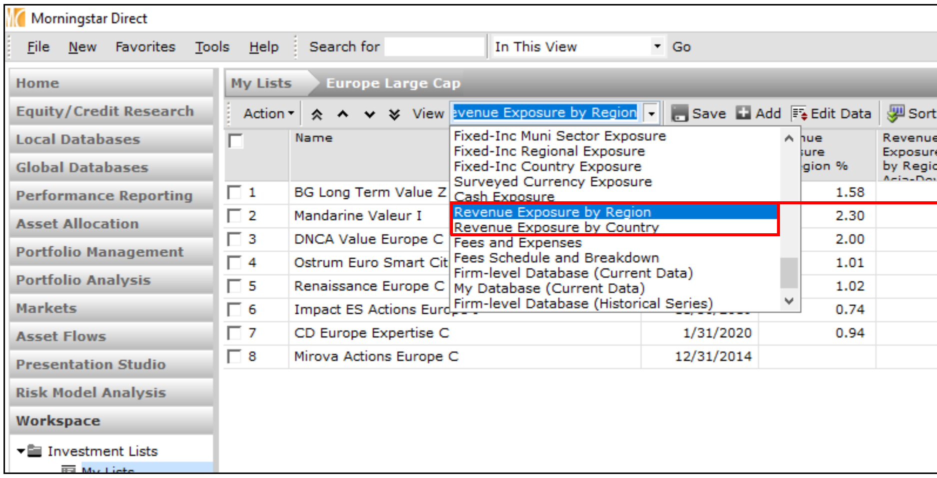
☞ Note: The Factor Profile visualization available in the online Morningstar Report provides a new, simple, intuitive way of presenting this data to better understand holdings, build better portfolios, and better anticipate investment outcomes.

The data is modeled by calculating the exposure of each of the portfolio's underlying equity holdings to each factor and then assigning a percentile ranking relative to the entire global equity universe. Then, a weighted average percentile ranking is calculated for the entire portfolio and that is plotted on a scale of 1 to 100.

Revenue Exposure data now available for managed products

Users can now see Revenue Exposure data points for managed products such as open-end funds and ETFs via the following new views:

- Revenue Exposure by Region
- Revenue Exposure by Country
- Historical Revenue Exposure by Region, and
- Historical Revenue Exposure by Country.



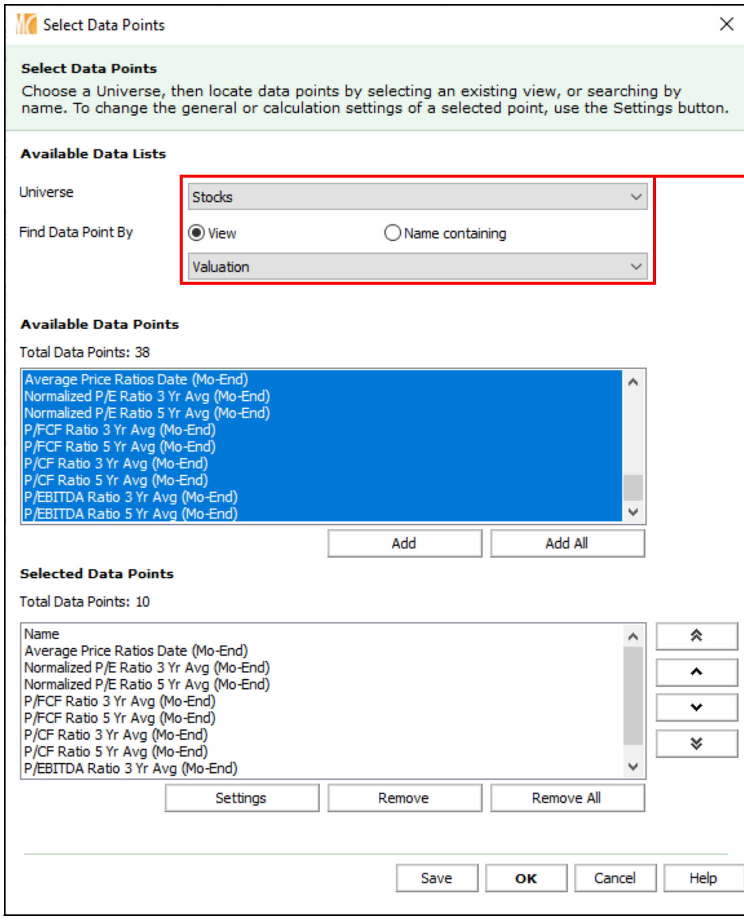
Note the location of the new data sets in the View drop-down menu.

This regional- and country-level data differs from that seen in the Equity Country Exposure view by examining the income source for a fund's holdings. In contrast, the data in the Equity Country Exposure view reflects where the companies in a fund's portfolio are headquartered.

Average Price Ratio data points for stocks added

The following data points were added to the Valuation view for Stocks:

- Date: Average Price Ratios
- Normalized P/E Ratio 3 Yr Avg
- Normalized P/E Ratio 5 Yr Avg
- P/FCF Ratio 3 Yr Avg
- P/FCF Ratio 5 Yr Avg
- P/CF Ratio 3 Yr Avg
- P/CF Ratio 5 Yr Avg
- P/EBITDA Ratio 3 Yr Avg
- P/EBITDA Ratio 5 Yr Avg



When creating a custom data set in the Workspace module to see these new data points, be sure to select the correct Universe and View.

Par value data points added for closed-end funds

The following data points have been added at the end of the Snapshot view for closed-end funds:

- Par Value (Daily), and
- Par Value (Daily) Date.

NAVs and return data available for cross-listed ETFs

ETFs listed on multiple exchanges and not designated as the primary share class now show data for the following data points:

- Inception Date
- Return Date
- Historical NAV
- Total Return values, and
- Category Rank.

These values match the value of the primary share class.

Venture Capital Trust data points added for UK closed-end funds

Certain closed-end funds in the United Kingdom known as Venture Capital Trusts (VCT) now have the following data points available from the Returns (Daily) column set:

- VCT Distribution Yield Date (Daily)
- VCT Distribution Yield 1Y (Daily)
- VCT Distribution Yield 3Y (Daily)
- VCT Distribution Yield 5Y (Daily), and
- VCT Return Date (Daily).

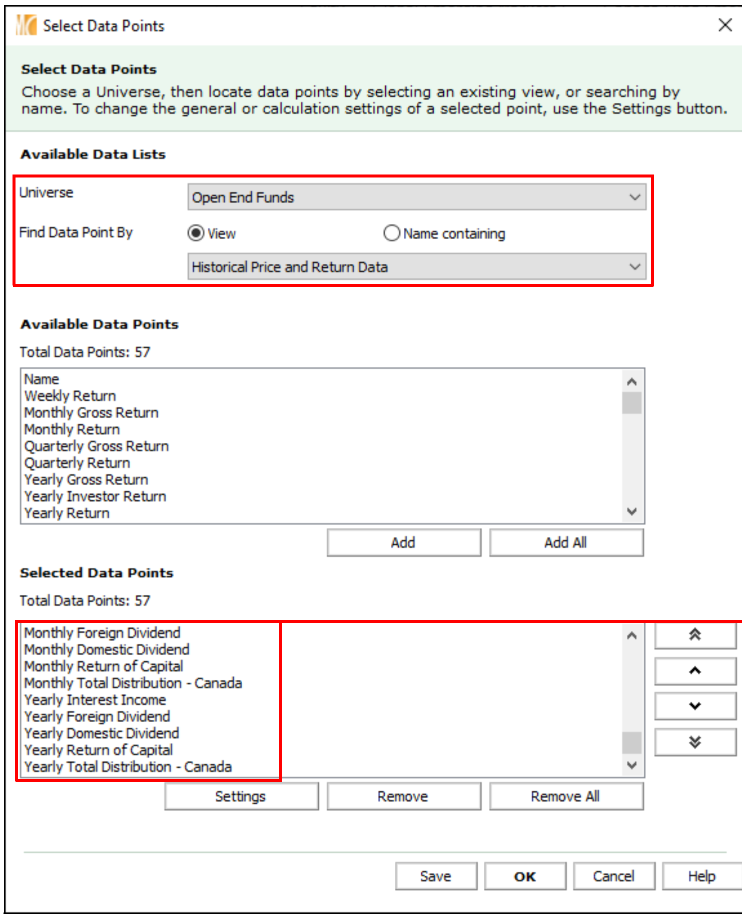
The following time series data points for these investments are also available from this view for both the Standard NAV and Cum Fair NAV:

- VCT Return 1 Mo (Daily)
- VCT Return 3 Mo (Daily)
- VCT Return 6 Mo (Daily)
- VCT Return 1Y (Daily)
- VCT Return 3Y (Daily)
- VCT Return 5Y (Daily)
- VCT Return 7Y (Daily)
- VCT Return 10Y (Daily) and
- VCT Return Since Inception (Daily).

Canadian dividend-related data points added

The following dividend-related data points have been added to the Historical Price and Return view for Canadian open-end funds and ETFs:

- Monthly Domestic Dividend
- Monthly Foreign Dividend
- Monthly Interest Income
- Monthly Return of Capital
- Yearly Domestic Dividend
- Yearly Foreign Dividend
- Yearly Interest Income
- Yearly Return of Capital
- Yearly Total Distribution - Canada
- Monthly Total Distribution - Canada



In the Workspace module, be sure to select either the Open end Funds or Exchange-Traded Funds universe to be able to select these data points.

Additional data points added

To ensure data points previously found only in the web-based version of Morningstar Direct can now also be seen in the desktop edition of the application, the following data points have been added in the view and for the data universe(s) shown:

This data point…	**Can be found here**…	**For these data universes**…
Surveyed Return Source	Historical Price and Return Data	▸ Models ▸ Separate Accounts
Total return for cumfair NAV	Returns (Calendar Year)	Closed End Funds
Total return for cumfair NAV Date	Returns (Calendar Year)	Closed End Funds
Most Recent Category Peer Group Name	Snapshot	▸ Closed End Funds ▸ Collective Investment Trusts ▸ Exchange-Traded Funds ▸ Insurance and Pension Funds ▸ Models ▸ Open End Funds ▸ Pooled Funds ▸ Separate Accounts

Upgrades and Changes to Other Data Points

Overview

This section covers the following upgrades and changes to other data points:

- Adjusted Operating Expense Ratio data points renamed (page 15)
- Name change for funds closed to new investors (page 15)
- MSCI Date data point added (page 16)
- Economic moat data always keeps latest available value (page 16)
- Methodology change reflected in South African fee data (page 16), and

Adjusted Operating Expense Ratio data points renamed

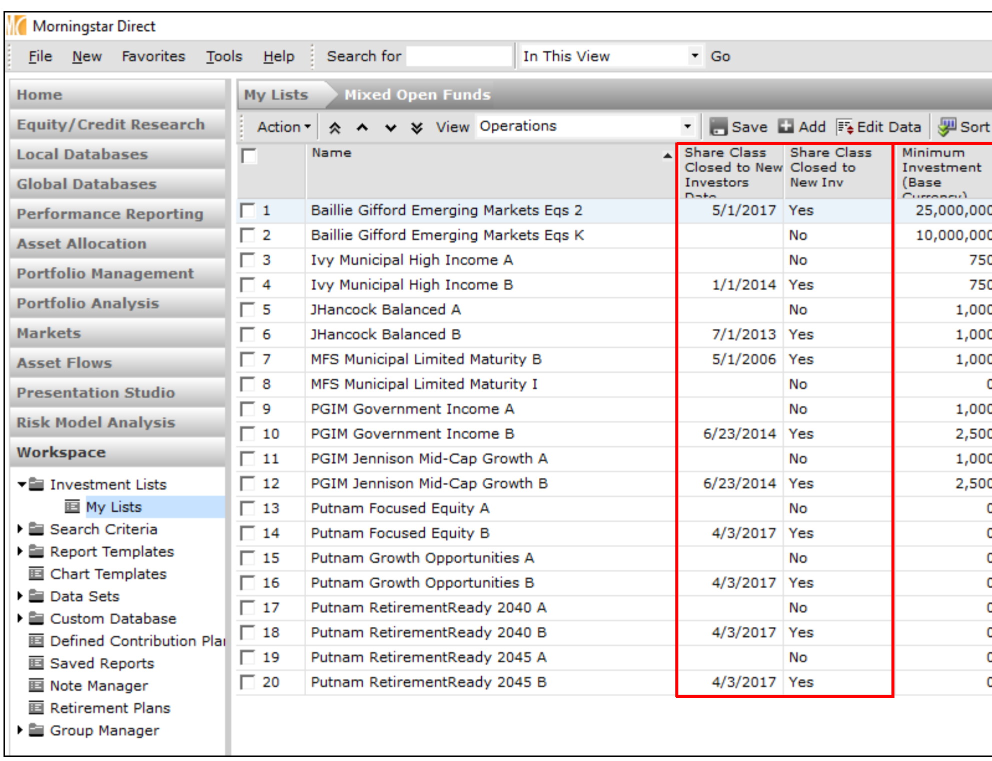
The following data points (both the current and historical versions) have been renamed; the word "Operating" has been removed to avoid confusion over their use:

- Annual Report Adjusted Expense Ratio, and
- Prospectus Adjusted Expense Ratio.

Name change for funds closed to new investors

To ensure users know that a specific share class (and not an entire fund) is closed to new investors, the following data points have a new name:

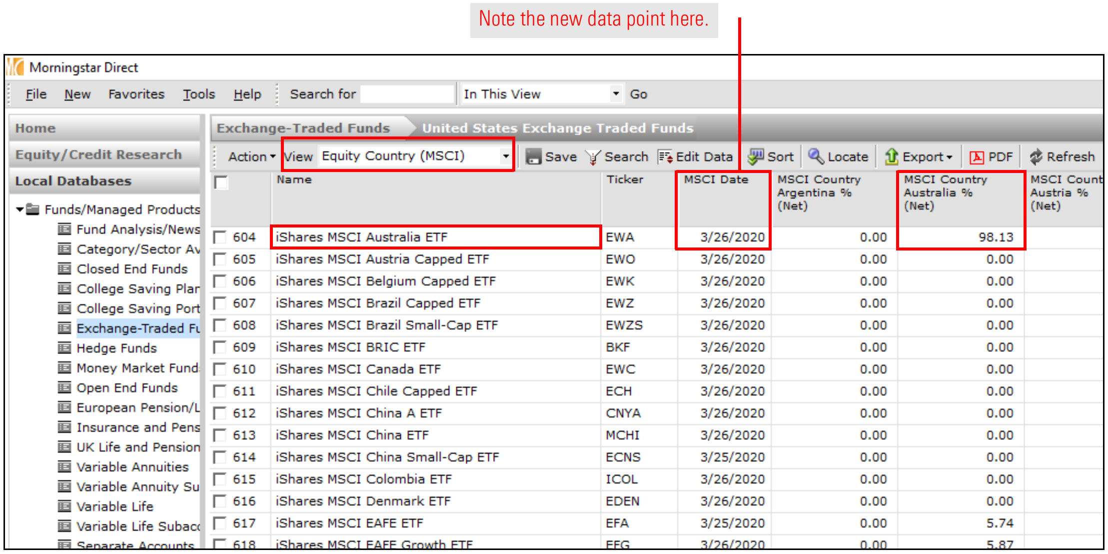
Previous name	New name
Closed to New Investors Date	Share Class Closed to New Inv Date
Closed to New Inv	Share Class Closed to New Inv



The new column names reflect the fact that some share classes of a fund can be closed to new investors, while others remain open.

MSCI Date data point added

In the Equity Country (MSCI) view, the Portfolio Date data point has been removed, and the MSCI Date data point has been added. This allow users to see when this data from MSCI has been updated, and improves the logic of the data displayed here.



	Name	Ticker	MSCI Date	MSCI Country Argentina % (Net)	MSCI Country Australia % (Net)	MSCI Count Austria % (Net)
604	iShares MSCI Australia ETF	EWA	3/26/2020	0.00	98.13	
605	iShares MSCI Austria Capped ETF	EWO	3/26/2020	0.00	0.00	
606	iShares MSCI Belgium Capped ETF	EWK	3/26/2020	0.00	0.00	
607	iShares MSCI Brazil Capped ETF	EWZ	3/26/2020	0.00	0.00	
608	iShares MSCI Brazil Small-Cap ETF	EWZS	3/26/2020	0.00	0.00	
609	iShares MSCI BRIC ETF	BKF	3/26/2020	0.00	0.00	
610	iShares MSCI Canada ETF	EWC	3/26/2020	0.00	0.00	
611	iShares MSCI Chile Capped ETF	ECH	3/26/2020	0.00	0.00	
612	iShares MSCI China A ETF	CNYA	3/26/2020	0.00	0.00	
613	iShares MSCI China ETF	MCHI	3/26/2020	0.00	0.00	
614	iShares MSCI China Small-Cap ETF	ECNS	3/25/2020	0.00	0.00	
615	iShares MSCI Colombia ETF	ICOL	3/26/2020	0.00	0.00	
616	iShares MSCI Denmark ETF	EDEN	3/26/2020	0.00	0.00	
617	iShares MSCI EAFE ETF	EFA	3/25/2020	0.00	5.74	
618	iShares MSCI EAFE Growth ETF	EFG	3/26/2020	0.00	5.87	

Economic moat data always keeps latest available value

Stocks now retain their Economic Moat value from the most recently available period. This change in logic addresses an issue where, if this data point were missing for a certain day or month, then the value would be blank rather than picking up the value from the most recently available date.

Methodology change reflected in South African fee data

Certain Effective Annual Cost (EAC) data points are investor specific and can vary based on how investments are sold or accessed by investors, such as through advisors or fund platforms. Consequently, funds do not calculate values for these data points and so the following data points have been removed:

- Advice Charges
- Administration Charges
- Other Charges, and
- Effective Annual Cost.

Other Application Upgrades and Changes

Overview

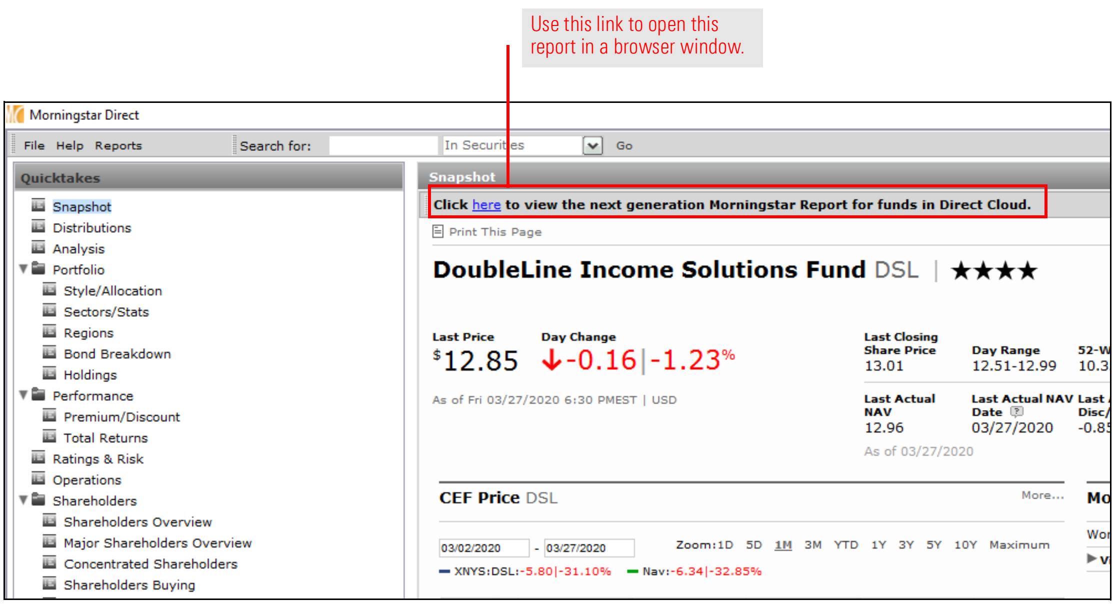
This section covers the following upgrades and changes to other data points and areas of the application:

- Morningstar Report now available online for new data universes (page 17)
- Certain widgets removed from the Home page (page 18)
- Categorie AMF name change for France (page 18), and
- Support number change for South Korea (page 19).

Morningstar Report now available online for new data universes

The Quicktake/Morningstar Report for the following investment types now includes a link to open the report in a browser window:

- Closed-End Funds
- Separate Accounts, and
- Indexes.



Certain widgets removed from the Home page

The following widgets have been removed from the Home page:

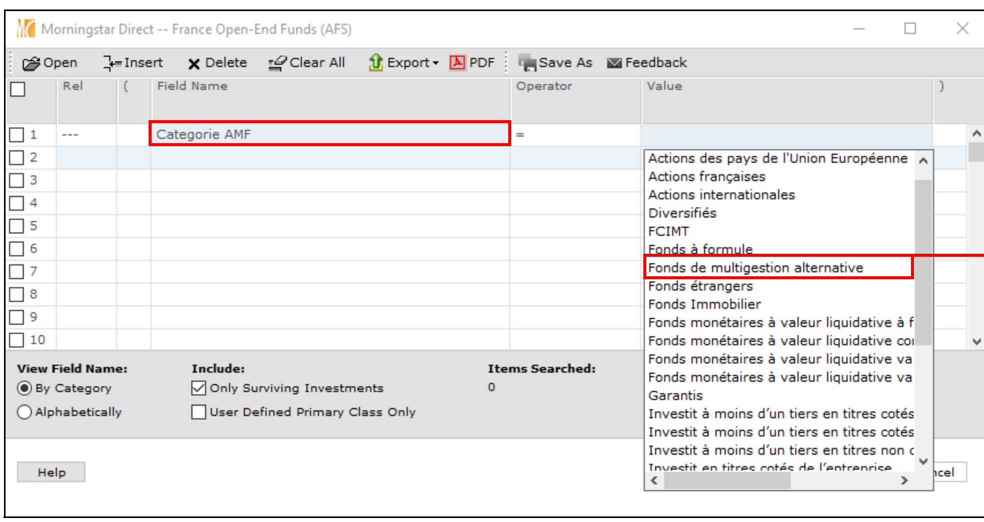
- Market Commentary
- Alternative Investments Newsletters, and
- U.S. Stock Sector Outlook.

These widgets were removed due to their content not being updated in the desktop edition. Instead, the following table details where this same content can be found in the Research area of the web-based edition of Morningstar Direct:

This widget's content. . .	**Can be found in this area of the web-based version of Morningstar Direct**. . .
Market Commentary	Research > Publications > U.S. Fund Flows Monthly Report
Alternative Investments Newsletters	Research > Topics > Liquid Alts ☞ Note: The lead analyst for liquid alternative investments is Erol Alitovski. Use the link to visit his page in the web-based version of Morningstar Direct, then click the **Follow** button to be notified whenever he posts content.
U.S. Stock Sector Outlook	Research > Publications > Markets Observer

Categorie AMF name change for France

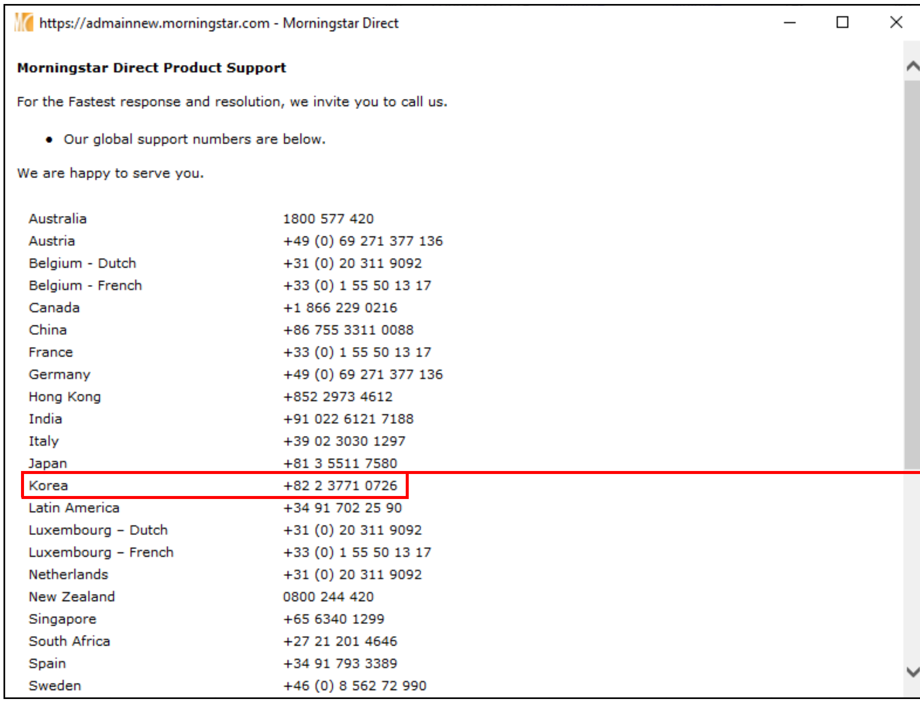
The Categorie AMF previously named OPCVM de fonds alternatifs is now named Fonds de multigestion alternative.



The new category name can be seen in the grid view, or when conducting a search.

Support number change for South Korea

The new Product Support number for South Korea is +82 2 3771 0726.


https://admainnew.morningstar.com - Morningstar Direct

Morningstar Direct Product Support

For the Fastest response and resolution, we invite you to call us.

- Our global support numbers are below.

We are happy to serve you.

Australia	1800 577 420
Austria	+49 (0) 69 271 377 136
Belgium - Dutch	+31 (0) 20 311 9092
Belgium - French	+33 (0) 1 55 50 13 17
Canada	+1 866 229 0216
China	+86 755 3311 0088
France	+33 (0) 1 55 50 13 17
Germany	+49 (0) 69 271 377 136
Hong Kong	+852 2973 4612
India	+91 022 6121 7188
Italy	+39 02 3030 1297
Japan	+81 3 5511 7580
Korea	+82 2 3771 0726
Latin America	+34 91 702 25 90
Luxembourg – Dutch	+31 (0) 20 311 9092
Luxembourg – French	+33 (0) 1 55 50 13 17
Netherlands	+31 (0) 20 311 9092
New Zealand	0800 244 420
Singapore	+65 6340 1299
South Africa	+27 21 201 4646
Spain	+34 91 793 3389
Sweden	+46 (0) 8 562 72 990

The new Product Support number can be seen by selecting Help > Contact Us.

Presentation Studio Upgrades

Overview

This section describes the following new capabilities in Presentation Studio:

- ESG, Fixed Income, Risk Factor Profile, and Active Share data points added (page 20)
- Workbook template added for Virus Outbreak returns (page 20)
- Icon added for Component Location (page 22)
- Lock the top countries in Attribution components (page 23)
- New details available when a batch report fails (page 24), and
- Report Portal administrators can now control the time period for reports (page 25).

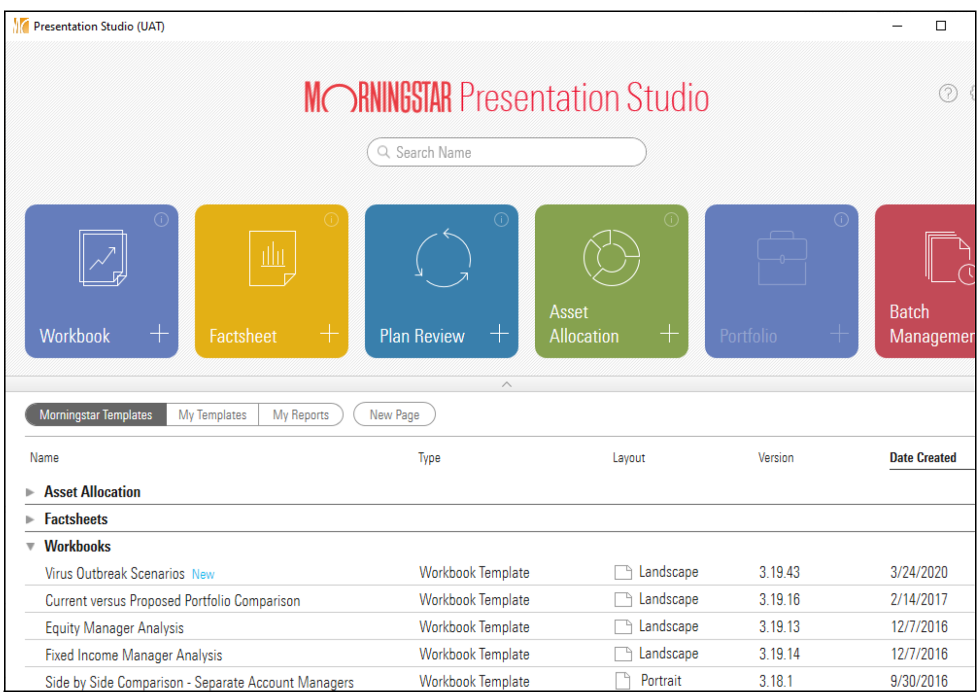
ESG, Fixed Income, Risk Factor Profile, and Active Share data points added

As seen in the previous sections in this document, hundreds of data points from the web-based version of Morningstar Direct have been added to the desktop edition of the application. The following data point types are now also available in Presentation Studio components:

- Calculated fixed-income data (see page 2 for details)
- Sustainability (ESG) (see page 5 for details)
- Risk Model (see page 9 for details)
- Active Share (see page 8 for details), and
- Others (see page 8 for details).

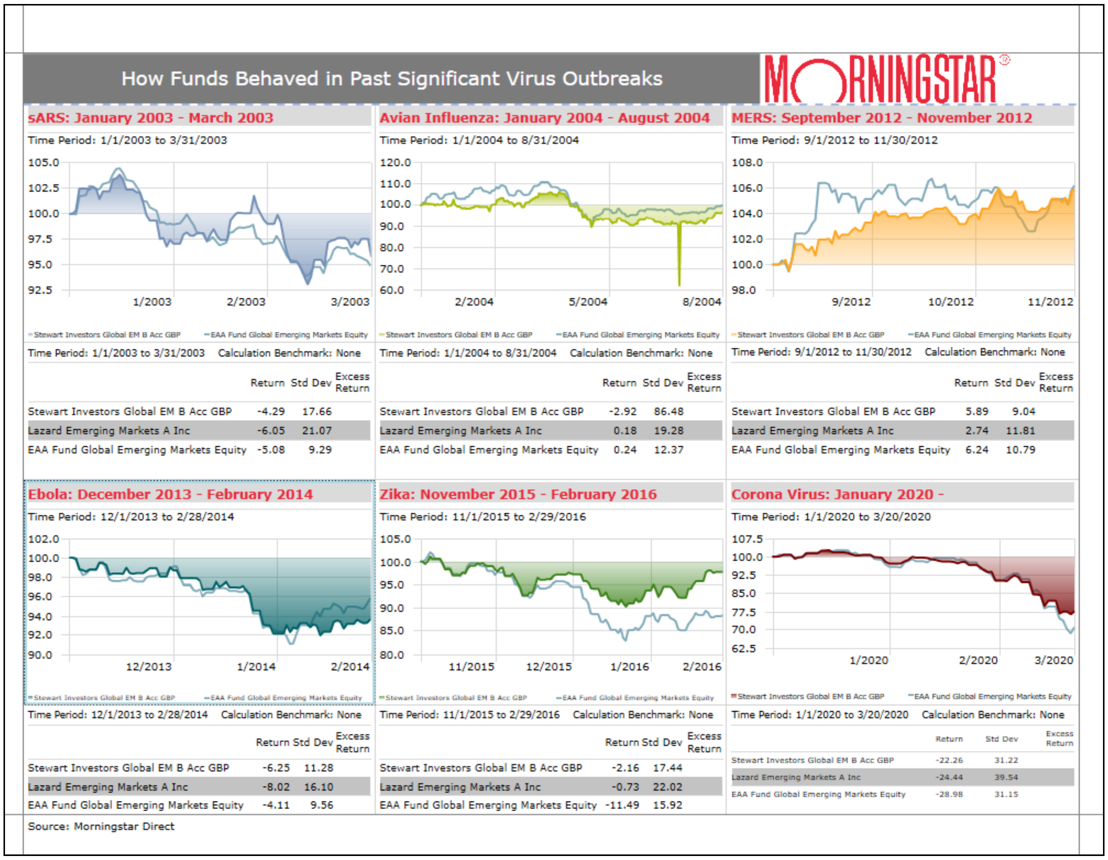
Workbook template added for Virus Outbreak returns

A new workbook template for Virus Outbreak Scenarios is available. The template shows how investments performed during six different market events, including the current Corona virus outbreak.



The following historic virus outbreaks are included here:

- sARS January 2003-March 2003
- Avian Influenza January 2004-August 2004
- MERS September 2012-November 2012
- Ebola December 2013-February 2014
- Zika November 2015-February 2016, and
- Corona Virus January 2020-(chart shows data through the last market close from two days prior to the current date).



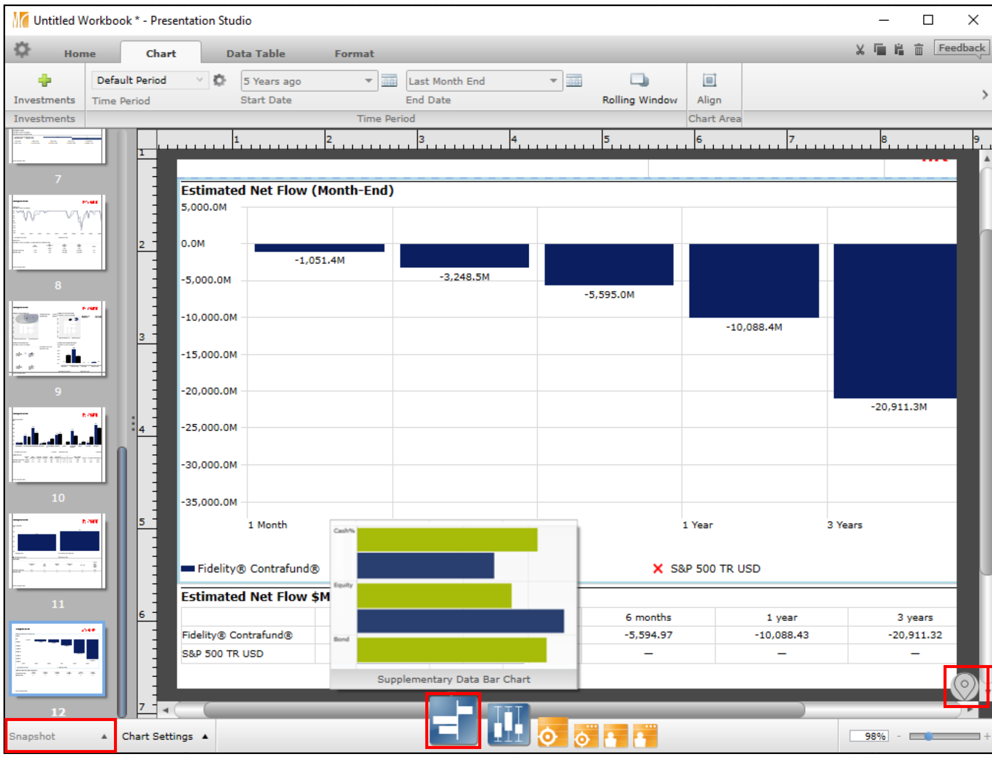
Note the following important points about the content of this template:

- Both a chart and a table are included for each event.
- By default, each chart is capable of displaying multiple investments but is set to show just one investment plus a benchmark.
- The return data in both the charts and tables reflect daily return values.

Icon added to help users locate a specific component

The new Component Location icon is available in the bottom-right corner of the Presentation Studio window to help users easily locate the component used as the source of a chart or a table.

For example, imagine you are looking at a template and would like to ape a component's style or data but are not sure which chart or table to use to make the modifications. Start by selecting the cell in question, then click the Component Location icon. The tiles at the bottom of the window are filtered to show only those items from the same grouping, and the specific component also pops up.



The chart at the top is selected. Use this icon to find the original component used to create that chart.

Lock the top countries in Attribution components

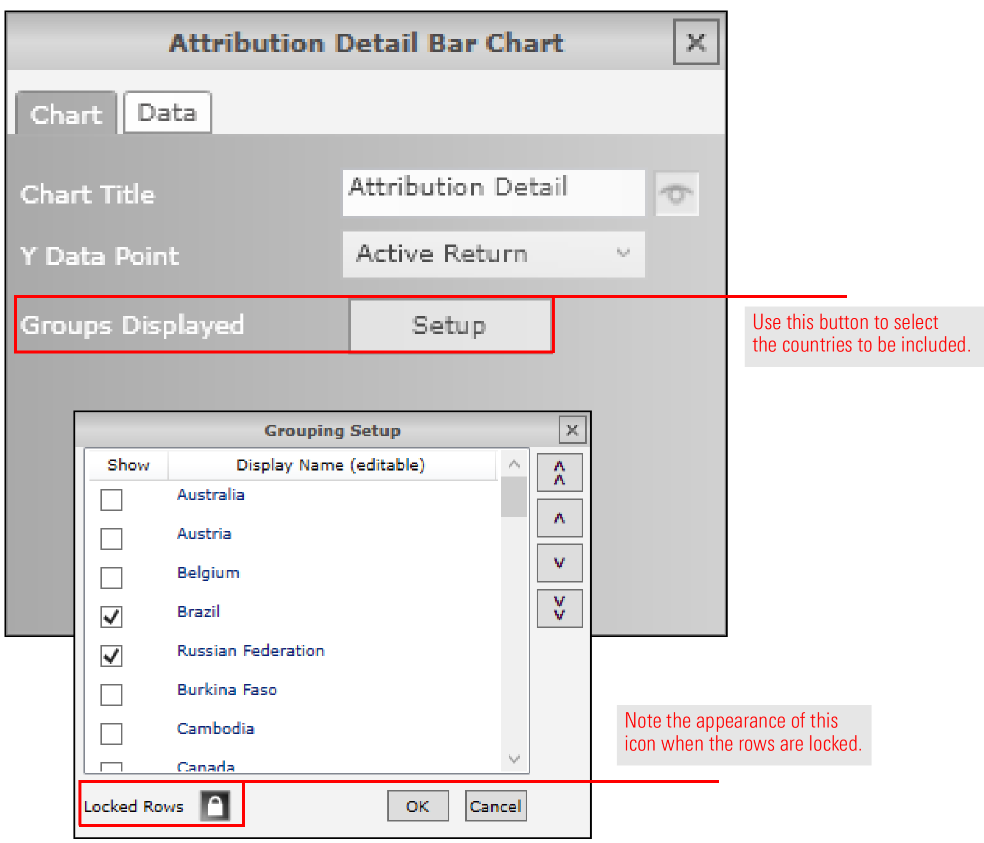
The following Attribution components allow users to lock a selection of countries for use in a template:

- Attribution Effects bar chart
- Attribution Detail bar chart
- Holding Return Detail bar chart
- Holding Return Effects bar chart
- Exposure Effects bar chart, and
- Exposure Detail bar chart.

The benefit here is that once the top countries are selected, the locked countries remain whenever a different investment is selected. For example, a user could select Brazil, Russia, India, and China as the top countries if the intent is to show exposure to the BRIC countries.

This capability is controlled from the Chart Settings menu for these Attribution components. Do the following:

1. Use the Data tab to point to the Equity Country data.
2. Then, on the Chart tab, click the Setup button for Groups Displayed.
3. Select the countries to be included, then click the Locked Rows button.
4. When the template is saved, these countries will be preserved.



New details available when a batch report fails

When a batch report fails, users can now see both the name of the report and the reason for the failure in the notification email that is sent. One or more of the following reasons could cause a report, and thus a batch, to fail:

- Asset Allocation calculation error
- Internal Error
- An investment in this report no longer exists
- An investment list or search used in this report no longer exists
- Out of memory. The report contains a large number of components or intensive calculations.
- Peer group calculation error
- Portfolio calculation error
- A portfolio or benchmark used in this report no longer exists
- A report or template included in this batch no longer exists
- You don't have access to this batch, or
- You don't have access to this template mapping.

Report Portal administrators can now control the time period for reports

Report Portal administrators can now control what options end users see when selecting a Start Date and End Date for a report. In the Edit Template window, click the Settings icon in the Start Date or End Date field to make these adjustments.