Morningstar Extended Performance Methodology

Morningstar Methodology Paper
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Introduction

The structure of an investment portfolio can change over time as the asset manager makes business decisions about distribution channels and the legal structure of the portfolio. For example, a mutual fund may add a new share class, or a closed-end fund may convert to an open-end structure. In some cases, the business decision does not fundamentally change the portfolio, its management, its shareholders, or its strategies. In these cases, the performance of the original portfolio is relevant to the new entity.

Morningstar created extended performance statistics to “fill in the gap” between the inception date of a new share class or distribution channel and the inception date of the original portfolio. Extended performance lengthens the performance data that is available for the younger investment. This helps investors see how the portfolio as a whole has performed over time. For example, if a mutual fund started 15 years ago with an Investor share class and just added an Institutional share class one year ago, Morningstar will lengthen the performance history of the Institutional share class to 15 years. Often, some of the shareholders in the new share class were actually shareholders in the original share class.

Morningstar will display extended performance under two circumstances: multi-share situations and predecessor/successor situations.

- In a multi-share situation, there are multiple share classes or distribution channels for a single investment portfolio. All classes and channels are based on the same pool of money, but they are priced separately to reflect different fees and expenses. For example, a fund might have share classes A, B, C, and I, and it might also be available through an insurance product, such as a variable annuity.[1]

- In a predecessor/successor situation, the fund changes its legal structure or domicile for business reasons. In this case, the original portfolio ceases to exist and substantially all shareholders are transferred into the new structure. An example of this is a closed-end to open-end fund conversion. Another example is a fund that changes its domicile from one country to another for tax reasons but otherwise keeps the fund structure and shareholders the same and is subject to the same level of regulation.

[1] Extended performance is commonly used in the variable annuity industry, because insurance companies usually select underlying funds that have a long history of demonstrated performance.

What This Means for Investors

Extended performance returns provide investors with more information to help them evaluate their investment choices. The inception date of a new distribution channel merely reflects a business decision—it is when the fund company decided to expand its offerings. Extended performance, on the other hand, reveals the full and complete performance history of the portfolio. Only a few portfolios can sustain strong performance year after year. Investors can use extended performance to evaluate how the investment manager has performed over time and through various market cycles.

Fee Adjustments

Morningstar's treatment of returns is different for multi-share and predecessor/successor situations.

- In a multi-share situation, Morningstar will adjust the performance history of the original portfolio to reflect any differences in fees between the original share class and the new share class. Because share classes are based on the same underlying portfolio of securities, the only differences in performance can be attributable to fees. For example, if the younger share class has higher fees than the original share class, the extended performance for the younger share class will be lower than the returns of the original share class.

- In a predecessor/successor situation, Morningstar will use the unadjusted performance of the original portfolio to extend the performance of the new entity. In these cases, the shareholders of the original portfolio structure were transferred into the new structure when the original structure was discontinued. Therefore, the unadjusted performance of the original portfolio best describes what those investors experienced.

Other Extended Performance Data

On a case by case basis, Morningstar may also calculate extensions for other performance-based measures, such as load-adjusted returns, risk measures, and the extended performance Morningstar Rating. Extended performance can be calculated for any type of portfolio (e.g. stock, bond, balanced, international, etc.).

Graphic Display

In order to differentiate between extended performance that has been adjusted and actual performance, Morningstar has established design standards for presenting this information.

For multi-share situations, Morningstar displays extended performance returns with italicized numbers and extended performance ratings with hollow stars.

	Overall	3-year	5-year	10-year
XYZ Growth A	★★★★★	★★★★★	★★★★	★★★★★
XYZ Growth B	★★★	★★★★	★★★	☆☆☆☆

	Total Return %	Load Adjusted Return %	Morningstar Rating™
3-Year	10.26	8.79	★★★★
5-Year	12.21	10.52	★★★
10-Year	*9.05*	*7.15*	☆☆☆☆
Overall	*10.68*	*8.56*	★★★

There is no special visual treatment for predecessor/successor situations, because the returns are not adjusted. Shareholders in the original portfolio were transferred over to the new portfolio structure and so the returns are continuous. For 40-act to 40-act conversions the fund will receive longer time period returns as well as ratings and rankings. In non-40 act to 40-act conversions the fund will receive longer time period returns but will <u>not</u> receive ratings and rankings until enough history as a 40-act fund is available.

This Document

The following document explains the circumstances under which Morningstar considers funds eligible for extended performance. The document also details how the calculation is performed. This document represents Morningstar's position on the subject; it is not a summary of local regulations. This document applies to the US market only.

Local Regulations

Morningstar decided to calculate and display extended performance in order to provide investors with more information about their investments. Past performance is not necessarily predictive of an investment's future performance, but it does provide investors with information about how a fund weathered different cycles in the market. By providing as much data as possible about younger funds, Morningstar helps investors compare funds on a more level playing field.

This policy is effective for most of the markets in which Morningstar operates around the globe. Morningstar crafted this Extended Performance policy with a few guiding themes.

- Complement information that is currently available
- Help investors make better investment decisions
- Show fair and balanced data that reflects the fees charged to each share class
- Provide data that reflects the fund's current strategy and situation

Morningstar will not use extended performance if local regulators restrict such data. On the other hand, there may be cases where Morningstar's policy is stricter than local regulations.

For example, a fund company may wish to advertise a new fund using data from similar funds run by that management company or that portfolio manager. Morningstar does not allow such extended performance, but a regulatory organization might allow that data to be shown in an advertisement if it is accompanied by adequate disclosures. Or, the regulatory organization might allow the fund company to present the other fund's returns as supplemental data but not as a direct extension of the younger fund's returns. Morningstar's presentation of data is in a different format than an advertisement, and Morningstar does not have the ability to display fund-specific disclosures or explanations about particular situations. These are practical reasons why Morningstar's policy for extended performance may be different than the policy of a local regulator.

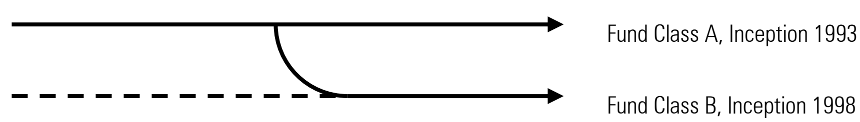
There may also be situations where there are multiple regulators in a single market. If these organizations have different positions on the subject of extended performance, Morningstar's policy may be similar to one regulator but not to another.

Eligible for Extended Performance

The following situations are eligible for extended performance.

Multi-Share Situations
Morningstar will calculate extended performance for the following multi-share situations. The rationale is the same for all these cases—when share classes or sub-accounts are based on the same underlying portfolio (single pool of money), any differences in performance can be attributed to differences in fees, and performance can be adjusted accordingly. These extended performance returns are highlighted in italics, and any ratings based on this data are displayed as hollow stars.

a) Open-end funds: Morningstar will calculate extended performance for a younger share class based on the performance of the oldest share class in the same fund.



b) Open-end funds: Morningstar will also calculate extended performance for all "feeder funds" based on the performance of the oldest feeder fund in a "master-feeder" fund structure.

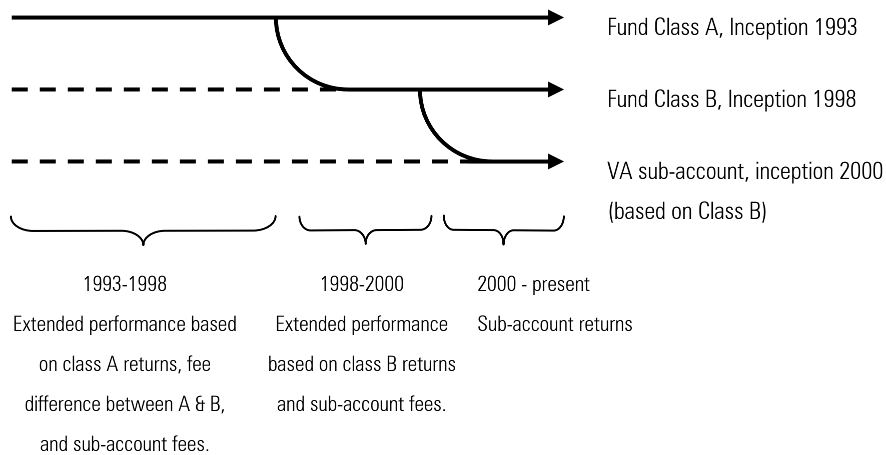
c) Variable annuities: If a VA underlying fund starts being offered as a open-end fund, Morningstar will extend the performance for the open-end fund based on the performance of the original VA underlying fund. [2]

d) Variable annuities: Morningstar will calculate extended performance for sub-accounts based on the performance of the underlying funds.

[2] Variable annuity assets are held separately from the corresponding open-end fund for legal reasons. However, the variable annuity portfolio closely resembles the composition and securities of the corresponding open-end fund.

Eligible for Extended Performance (continued)

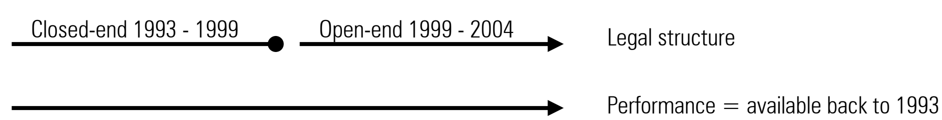
e) Variable annuities: If the sub-account invests in a share class that is not the oldest share class of the underlying fund, Morningstar will also calculate extended performance for the sub-account based on the performance of the oldest share class of the underlying fund. For example:



Predecessor/Successor Situations
Morningstar will display extended performance for the following predecessor/successor situations. For these situations, shareholders were transferred from the old structure to the new structure at the time of the change. Therefore, the performance history of the original structure is relevant to the new structure, with no adjustments for fees. Because the returns are not adjusted for fees, Morningstar does not display these returns with any special graphic treatment. The returns of the original structure are continuous with the returns of the new structure.

f) Change in domicile: If an investment portfolio changes its domicile (perhaps for tax reasons) and otherwise keeps its management and shareholders intact, the performance history from the original domicile will be carried through to the new domicile. The original domicile's portfolio must cease to exist after the move, there must not be any gaps in performance, and the regulatory environment must be similar.

g) Closed-end to open-end conversions: When a closed-end fund converts into an open-end fund structure, Morningstar will append the closed-end net asset values (not market prices) onto the record for the new open-end fund, so total returns will be available back to the start date of the closed-end fund. The closed-end structure must cease to exist after the conversion.



h) Hedge fund to OE conversions, Limited partnership to OE conversions: When a limited partnership (non-40 act) fund converts into an open-end fund structure, Morningstar will append the limited partnership net asset values onto the record for the new open-end fund, so total returns will be available back to the start date of the limited partnership. This is done as long as the limited partnership has the approval of the SEC via a prospectus which states that predecessor performance is allowed as real performance. Morningstar will not calculate ratings and rankings until the fund has enough history as a registered 40-act fund.

Not Eligible for Extended Performance

There are cases when Morningstar will not extend performance for a fund. In most of these situations, Morningstar cannot ensure that the historical performance and strategies of the original portfolio are representative of the newer portfolio.

One factor that makes funds ineligible for extended performance is when the new portfolio is managed as a separate pool of money from the original portfolio. Morningstar does not extend performance in these cases, because it is likely that the performance of the two funds will diverge.

- First, two separate portfolio managers may make independent decisions about which securities to purchase and how much cash to keep on hand.
- Second, different-sized portfolios face different investing opportunities; when one fund is significantly larger than another, the larger fund is at a pricing disadvantage when buying and selling significant positions in a stock.
- Lastly, if the two portfolios are managed by different firms, the resources available to the managers and the fees charged will vary.

A second factor that makes funds ineligible for extended performance is when a fund moves from a lightly regulated situation to a more highly regulated situation. For example, a manager of a hedge fund or offshore portfolio may have great flexibility to leverage the fund, use derivatives, and invest in illiquid securities. It would not be appropriate to use that performance history if the manager converted the portfolio into an open-end fund, which is a more highly regulated investment that must limit its investments in those types of securities. Only when the SEC has approved that the hedge fund which has converted to an open end fund to report the previous performance as the actual performance of the mutual fund will Morningstar allow predecessor/successor performance. In these instances Morningstar will not allow ratings and rankings until the fund has enough history as a registered 40 act fund.

Morningstar will not extend performance under the following circumstances:

Spin-off/Clone Funds

If an asset manager creates a new and separate portfolio based on the investment style of an existing portfolio, Morningstar will not extend the performance of the new fund based on the performance of the old fund **even if** the portfolio objective and strategy are substantially similar and even if the new portfolio is being run by the same manager.

Not Eligible for Extended Performance (continued)

Reason: Once the pool of money becomes separate from the original portfolio, it may be managed differently. Therefore, the performance of the old fund is not necessarily representative of the new portfolio.

Manager Move
If a portfolio manager becomes employed by a new asset manager, Morningstar will not use the manager's prior performance at the old firm to extend the performance of a new fund at the new employer.

Reason: Morningstar believes that in addition to the portfolio manager, the asset management company's policies, research staff, trading costs, and fees also influence the returns. Therefore, the manager's prior performance at an old firm is not representative of the situation at the new firm. The CFA Institute concluded that a manager's prior work experience may be presented as <u>supplemental</u> information (e.g. in an advertisement), but normally, it may not be linked to the ongoing performance of the new portfolio.[3]

Fund of Funds
Morningstar will not extend performance for a "fund of funds" based on the extended performance of the underlying funds.[4] Fund of funds invest in a combination of other funds and usually apply a wrap fee.

Reason: At first glance, it may seem that a fund of funds should be eligible for extended performance. In theory, the performance of the fund of funds should be based on the weighted average of the returns of the underlying funds. However, Morningstar will not extend performance for fund of funds for two reasons.

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[3] The CFA Institute is the new name for the Association for Investment Management and Research (AIMR). See the Performance Record Portability paper that is part of their Global Investment Performance Standards (GIPS). GIPS standards do allow performance to be linked in a manager move when substantially all decision makers are employed by the new firm. However, Morningstar does not have the ability to investigate the circumstances behind all manager moves and to properly disclose in our products that performance originated at a different firm.

[4] In the U.S., Morningstar will extend performance for 529 College Savings Plans, which are structured as fund of funds.

Not Eligible for Extended Performance (continued)

First, Morningstar may not have extended performance data on all of the component funds. Second, Morningstar does not know what the fund's historical allocation has been. For example, a fund of funds may be currently investing 30% in a growth fund, 40% in an international fund, and 30% in a bond fund. These weights and even the component funds may have changed, so Morningstar does not have a reliable way to derive the extended performance for a fund of funds.

Composite Performance
Morningstar will not extend portfolio performance based on the performance of a related composite. Portfolio composites represent an asset manager's average performance for a given investment style. These are usually created when the management company has slightly different portfolios for each investor. For example, separate account investors have unique tax needs and security preferences and each investor holds the securities directly, rather than owning shares of a fund. If a separate account manager decides to start an open-end fund, Morningstar will not use the separate account composite returns to extend the performance of the open-end fund.

Reason: The CFA Institute outlines rules for composite construction in their Global Investment Performance Standards. However, there is still some manager discretion involved in determining exactly which portfolios get included in the composite. Also, Morningstar products are not equipped to display the disclaimers that the CFA Institute requires for composite performance.

Other
There are other situations when Morningstar will not extend performance. This is determined on a case-by-case basis for situations that do not fall into the above categories.

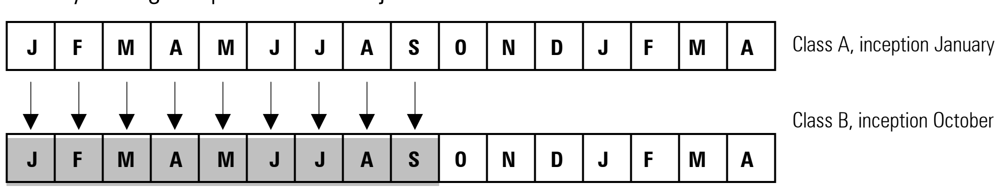
For predecessor/successor situations, the performance of the original portfolio is not adjusted but is instead appended to the records of the new portfolio. The methodology below is used only for multi-share situations where the historical performance of the original portfolio is adjusted for fees.

For multi-share situations, Morningstar will adjust the historical total returns of the original portfolio ("parent") to reflect the fee structure of the younger share class/channel ("child"). The parent fund monthly returns (prior to the child's inception) are adjusted for fees, and then this data is attached to the child record. Then, the string of adjusted plus actual monthly returns for the child are compounded into historical trailing returns. The fee adjustment is necessary, because expenses reduce the net returns to shareholders.

There are four steps in the calculation of fee-adjusted extended performance returns.

1) Calculate an annual adjustment factor that expresses the fee differential between the parent fund's annual expenses and the child's annual expenses.
2) Calculate a monthly adjustment factor based on the annual factor.
3) Use the monthly factor to adjust the parent's historical monthly returns prior to the inception of the child fund and transfer the data to the child.
4) Compound the child's extended performance pre-inception monthly returns with its actual post-inception returns to create trailing total returns.

For example, class A started in January and class B in October. Class A returns from January through September are adjusted and shared with class B.



With this data, Morningstar can also calculate other variations on extended performance (e.g. load-adjusted returns, Modern Portfolio Theory statistics and extended performance ratings).

Morningstar recalculates historical monthly returns for all funds at the end of each month. The extended performance calculations use the fees that are most current in the databases.

1. Annual Fee Adjustment Factor

The annual fee adjustment factor measures the excess yearly fees paid by the child. Morningstar adjusts for only those fees that tend to differ between share classes.

Morningstar identifies these select fees on a country-by-country basis. For example, for funds based in the United States, 15 different component fees make up the expense ratio, but Morningstar only adjusts for the management (advisor) fee and distribution (12b-1) fee. For the other 13 components, the fees tend to be the same for all share classes of the same fund.

[1] $$f_A = Max\{0, (F_c - F_p)\}$$

where

f_A	=	the annual fee adjustment factor
F_c	=	select fees for the child, expressed as a decimal (gross of any temporary fee waivers) • For a U.S. open-end fund, F_c=sum of the child's management fee and distribution fee (e.g. 12b-1) • For a U.S. variable annuity, F_c=sum of the parent's management fee and distribution fee plus the additional insurance expense of the sub-account (insurance expense includes M&E, administration, and distribution)[5]
F_p	=	select fees for the parent fund, expressed as a decimal • For a U.S. open-end fund, F_p=sum of the parent's management fee and distribution fee (e.g. 12b-1)
Max	=	a function that chooses the greater of two numbers

For example, Class B (child) has a management fee of 1.74% and a distribution fee of 1.00%. Class A (parent) has a management fee of 1.41% and a distribution fee of 0.25%. The fee adjustment factor is calculated as follows:

$$f_A = \text{Max}\{0, (0.0174 + 0.0100) - (0.0141 + 0.0025)\} = 0.0108$$

The "max" function is in place to ensure that each adjusted monthly return for the child is not higher than the respective parent fund return. Morningstar takes this conservative approach in order not to overstate the possible returns the child fund could have earned.[6]

[5] In the case of a variable annuity sub-account, the investor pays both the fees of the underlying fund and the fees of the sub-account.
[6] This follows the recommendation of the U.S. Securities and Exchange Commission, as outlined in the 1997 no-action letter to the Quest For Value fund.

If the child has higher expenses than the parent fund, the adjustment factor will be greater than zero and the child monthly returns will be less than the parent fund returns. Conversely, if the child has lower expenses than the parent, a factor of zero is used and the child return is equal to the parent return (no adjustments).

This adjustment is only applicable to each pre-inception *monthly* return for the child. The child trailing returns (e.g. three-year annualized) can be composed of both actual monthly returns and extended performance monthly returns. Therefore, it is possible that the child *trailing* return may exceed the parent trailing return.

2. Monthly Fee Adjustment Factor

The monthly fee adjustment factor is derived from the annual fee adjustment factor with the geometric method below:

[2]
$$f_M = (1 + f_A)^{\frac{1}{12}} - 1$$

where

f_M	=	the monthly fee adjustment factor
f_A	=	the annual fee adjustment factor

For example, if the annual fee factor is 0.0108, the monthly fee factor is calculated as follows:

$$f_M = (1 + f_A)^{\frac{1}{12}} - 1 = (1 + 0.0108)^{\frac{1}{12}} - 1 = 0.0008955$$

3. Adjusted Pre-Inception Monthly Returns

Once the monthly fee factor has been determined, pre-inception monthly returns for the child can be calculated. The fee factor is applied to each parent fund's monthly return prior to the child's inception.

[3] $$R'_{Ct} = \frac{1 + R_{Pt}}{1 + f_M} - 1$$

where

R'_{Ct}	=	the extended performance pre-inception monthly return for the child for month t (the prime symbol is used to differentiate between actual returns and adjusted returns)
R_{Pt}	=	the parent fund's historical monthly return for month t
f_M	=	the monthly fee adjustment factor

For example, if the parent fund monthly return is 1.09%, the annual fee factor is 0.0108, and the monthly fee factor is 0.0008955, the extended performance return for the child is calculated as follows:

$$R'_{Ct} = \frac{1 + R_{Pt}}{1 + f_M} - 1 = \frac{1 + 0.0109}{1 + 0.0008955} - 1 = 0.00999 = 1.00\%$$

The parent fund return is 1.09% and the child extended performance return is 1.00%. In this case, the child has higher fees than the parent fund, so the child returns are lower than the original parent fund returns.

If the child fund started in the middle of a month (e.g. March 15), Morningstar will use the adjusted parent fund return for the full month, rather than a partial month of adjusted parent returns (March 1-15) plus a partial month of actual child returns (March 15-31).

If the parent fund started in the middle of the month, the adjusted return for the child for this partial month is as follows. (This adjusted partial month would be used to calculate the since-inception extended performance return for the child fund, back to the parent fund's inception date).

[8]
$$R'_{Ci} = \frac{1 + R_{Pi}}{1 + \frac{f_M d_e}{d_m}} - 1$$

where

R'_{Ci}	=	the extended performance partial-month return for the child
R_{Pi}	=	the parent fund partial-month return for the inception month
d_e	=	the number of days between the parent fund inception date and the end of the inception month
d_m	=	the number of days during the inception month
f_M	=	the monthly fee adjustment factor

The result is the extended performance partial-month return for the child for the parent fund's inception month.

4. Child Trailing Returns

The adjusted historical monthly returns can be compounded with the child's actual returns to create trailing multi-period returns for the child.

For example, if the child share class started 8 months ago and the parent share class started 5 years ago, Morningstar can calculate total returns for the child for up to five years. Morningstar will adjust the parent's monthly returns and will compound those adjusted monthly returns with the child's actual monthly returns.

Total Return	# Adjusted Parent Returns	+	# Actual Child Returns	=	Total Months
3 months	0		3		3
1 Year	4		8		12
3 Years	28		8		36
5 Years	52		8		60

Extended Performance Rating

Extended performance monthly returns are calculated for multi-share situations and monthly returns are carried over for predecessor/successor situations when the conversion is a registered 40-act to a registered 40-act investment (i.e., Closed-End Fund to Open-End Fund). Once the monthly returns are in place, other performance-based measures can be calculated from the derived data. For example, a trailing total return can be adjusted for the effects of loads to calculate a load-adjusted return.

In addition to returns, Morningstar also calculates the extended performance Morningstar Rating for new share classes/channels. Morningstar uses actual plus extended performance monthly returns to calculate the load-adjusted, extended performance Morningstar Risk-Adjusted Return for the three-, five-, and 10-year time periods. (For more information, please see the document entitled "The Morningstar Rating Methodology.") The extended performance risk-adjusted returns are used to determine the extended performance rating.

Every month, Morningstar ranks all funds (or sub-accounts) in each Morningstar Category by their three-, five-, and ten-year risk-adjusted returns. The one- through five-star ratings for each time period are based on a bell curve distribution of the funds in each category. The bell curve is based on funds with actual returns only; extended performance results are not included when these breakpoints are determined. Then, Morningstar uses the rating breakpoints for the actual returns in order to assign the extended performance ratings.

For example, if a fund's three-year extended performance risk-adjusted return was 7.00%, its three-year extended performance rating would be 4-stars, according to the table below for this specific Morningstar Category for this sample month.

Risk-adjusted Performance Breakpoints

Rating Type	Count by Funds	Max	5 to 4	4 to 3	3 to 2	2 to 1	Min
3-Year Rating	32	11.5	9.07	5.52	4.05	1.99	0.99
5-Year Rating	29	5.89	4.55	2.93	1.97	1.39	0.48
10-Year Rating	16	4.06	3.58	2.84	2.01	1.78	0.32

The Overall Morningstar Rating is a weighted average of the three-, five-, and 10-year ratings. If the fund/sub-account has not experienced any category changes, the weights for the overall rating are as follows:

Age	3 Year Rating	5 Year Rating	10 year Rating
36-59 months	100%		
60-119 months	40%	60%	
>120 months	20%	30%	50%

Overall Rating for Multi-Share Open-End Funds

For multi-share open-end funds, the Overall Morningstar Rating will be either based on actual performance only or extended performance only. Once the share class turns three years old, the overall rating will be based on actual ratings only.

For example,

Share Class	3 Year Rating	5 Year Rating	10 Year Rating	Overall Rating
A	Actual	Actual	Actual	Weighted Average 3/5/10
B	Actual	Actual	Extended	**Weighted Average 3/5**
C	Actual	Extended	Extended	**Based on 3y Rating Only**
D	Extended	Extended	Extended	Weighted Average 3/5/10

Overall Rating for Multi-Share VAs

For multi-share variable annuities, the Overall Morningstar Rating is a weighted average of any ratings that are available.

For example,

Share Class	3 Year Rating	5 Year Rating	10 Year Rating	Overall Rating
A	Actual	Actual	Actual	Weighted Average 3/5/10
B	Actual	Actual	Extended	**Weighted Average 3/5/10**
C	Actual	Extended	Extended	**Weighted Average 3/5/10**
D	Extended	Extended	Extended	Weighted Average 3/5/10

Conclusion

The investment industry will continue to grow and to add classes of shares or sub-accounts to existing investment portfolios. As this collection of offerings becomes larger and more complex, it is even more important that investors have as much information as possible to make educated decisions about their investments. Extended performance lengthens the performance of a younger share class or sub-account based on the established history of the original portfolio. Investors can use the extended performance returns and ratings to determine how a younger product could have performed had it been in existence as long as the original share class. In the absence of extended performance, investors in younger funds and sub-accounts are left with a void of data.

Extended performance returns and ratings are not predictors of future performance. Investors should study extended performance returns and ratings together with other critical product information and attributes before investing in a mutual fund or variable annuity.