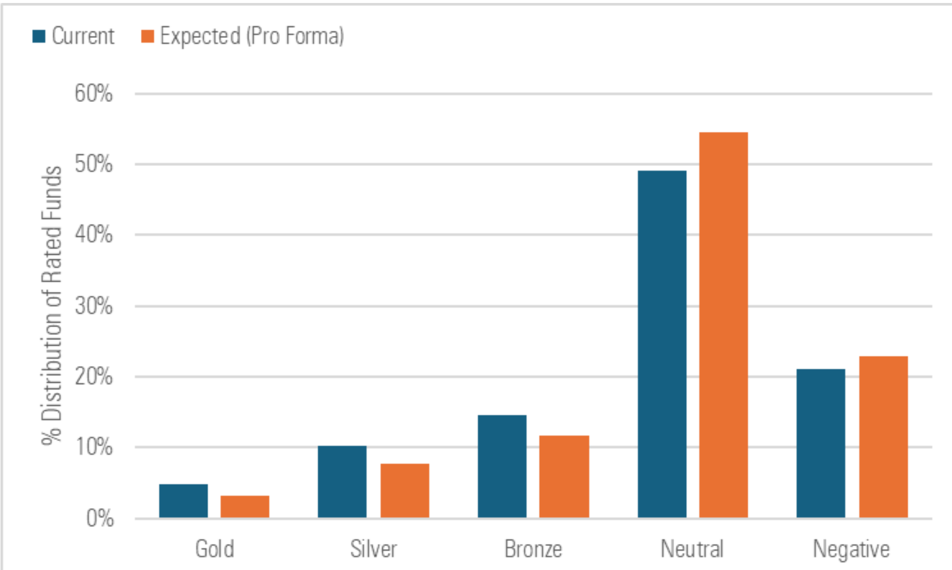
We're making a change to the approach we use to assign Medalist Ratings to funds. While we've been encouraged by the Medalist Ratings' performance thus far, the change is aimed at further improving the ratings' predictiveness. That, in turn, should confer even better outcomes to investors who incorporate the Medalist Ratings into their decisions.

We expect around 20% of rated funds to see a rating change due to this methodology enhancement, most of those being downgrades. As a result, we expect the Medalist Ratings distribution to shift from Gold, Silver, and Bronze ratings toward Neutral and Negative, as shown in the chart below. All told, following the change we expect funds assigned Gold, Silver, or Bronze ratings to account for around 23% of rated global funds versus about 30% today.



(As of July 31, 2024; includes all rated vehicles globally.)

In this commentary, we'll describe the change we're making to the Medalist Rating and explain the rationale behind it. We'll also analyze the expected impact of the rating change along various dimensions, including region, asset class, and coverage type, and walk through the timing of the change. Finally, to help investors pinpoint the impact of this change, we've provided an accompanying appendix that shows the expected percentage change in the number of Medalist Ratings assigned to funds in all Morningstar Categories globally. That appendix is available here.

About the Medalist Rating

The Medalist Rating (formerly known as the "Analyst Rating") is a forward-looking rating that aims to predict funds' performance versus a relevant benchmark index or peer group. The Medalist Rating takes the form of Gold, Silver, Bronze, Neutral, and Negative, with higher ratings denoting our conviction in a fund's ability to outperform and lower ratings signaling lack of conviction.

We assign Medalist Ratings in two ways—by analyst or by algorithm. Analysts assign Medalist Ratings to funds that they cover based on a qualitative evaluation they conduct. We employ a machine-learning algorithm to assign Medalist Ratings to the funds analysts don't cover. All told, we assign Medalist Ratings to nearly 200,000 managed investment vehicles globally.

What We're Changing

When we're assigning Medalist Ratings, we're comparing two things as part of our assessment: 1) How much value we believe a fund can generate versus its index before fees based on our evaluation of its investment merits and 2) the fees it levies. The difference, which reflects how much value we think a fund can add *after* fees, determines the Medalist Rating we assign.

As of October 29, we're changing the way we estimate how much value we believe a fund can generate before fees compared to its assigned benchmark. In general, we're reducing our estimate of how much value, or "alpha", a fund can add before fees. In so doing, we're also lowering our estimate for how much value a fund can deliver *net* of fee, which determines the Medalist Rating we assign.

Given this, we expect around 20% of rated funds to see a change to their Medalist Rating, with nearly all those changes being downgrades.

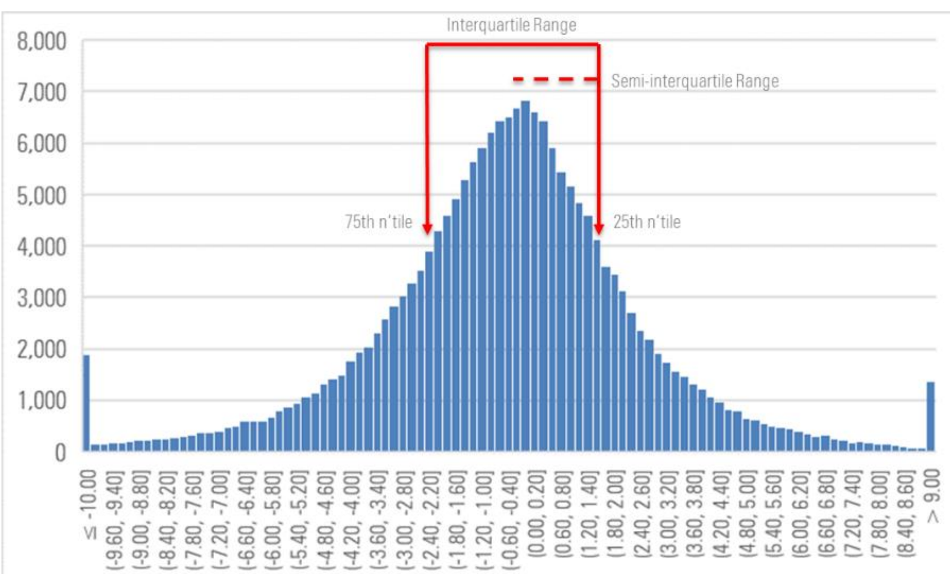
<u>How We Estimate Pre-Fee Alpha Currently</u>

Our estimate of how much value a fund can add before fees is a function of two elements: 1) How much value a fund of that type could be expected to generate before fees (i.e., its "alpha potential") and 2) how much of that potential we think the fund could capture (i.e., our assessment, which revolves around three areas, or "pillars" – people, process, and parent).

Currently, we estimate a fund's alpha potential as follows:

1. Compile the rolling 36-month pre-fee CAPM alphas of all funds in a peer group (versus their assigned Morningstar Category index) since 2000 or the earliest available
2. Sort the compiled rolling 36-month pre-fee CAPM alphas from lowest to highest and identify the alphas at the 25th and 75th percentiles of the distribution.
3. Calculate the difference between the 25th and 75th percentile alphas and then divide the difference by two. We refer to this as the "semi-interquartile range."

We illustrate this approach in the chart below, which plots the rolling 36-month alphas of all funds that have been classified in global Large Blend categories (which includes the U.S. Large Blend category as well as categories like it for funds domiciled elsewhere in the world) since 2002. The dotted line represents the semi-interquartile range.



(As of June 30, 2024; includes all rolling 36-month pre-fee alphas of all Large Blend funds (vs. Russell 1000 Index) since January 2000.)

We then multiply the semi-interquartile range by the numeric values corresponding to the ratings we assign to the three pillars that form our assessment (those values range from +2 for "High" to -2 for "Low") and those pillars' weights in the framework. We sum those products to estimate how much value, or alpha, a fund can add before fees.

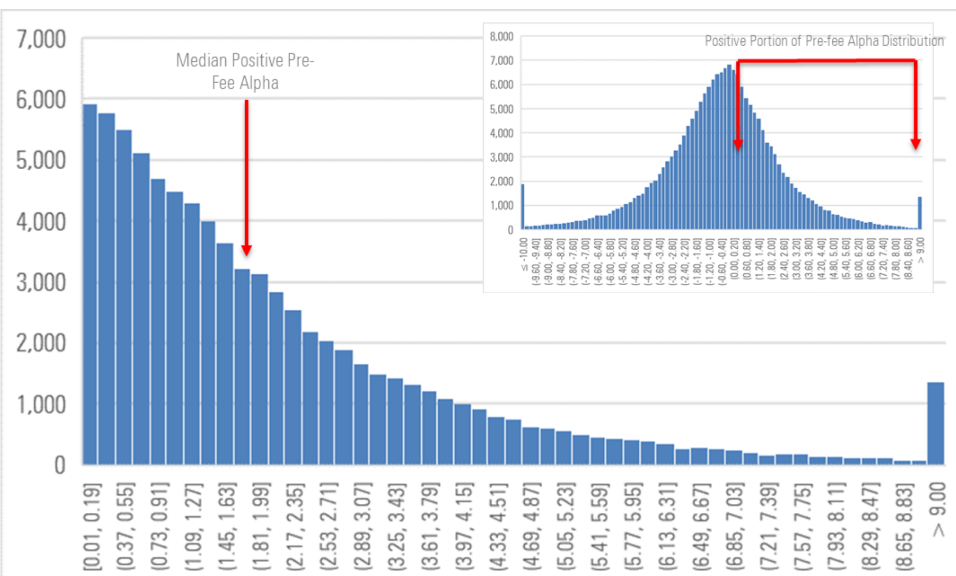
How We'll Estimate Pre-Fee Alpha Going Forward

While this approach boasts simplicity, it doesn't fully account for the shape of the alpha distribution. Indeed, in many categories the distribution skews negative, with positive pre-fee alphas outnumbered by negative alphas. It also doesn't convey the likely magnitude of any positive alpha that might have been delivered over time.

Given this, we're replacing the current approach with a new approach that will work as follows:

1. Compile the rolling 36-month pre-fee CAPM alphas of all funds in a peer group (versus their assigned Morningstar Category index) since 2000 or the earliest available. This is unchanged from the current approach.
2. Divide the number of positive pre-fee alphas in distribution by the total number of observations in the distribution. This reflects the historical likelihood of generating a positive pre-fee alpha.
3. Calculate the median positive alpha in the distribution. This reflects the likely magnitude of a positive pre-fee alpha.
4. Multiply the figures derived in steps 2 and 3.

We illustrate this approach in the chart below, which is identical to the prior chart but this time highlights the positive portion of the distribution and, within that portion of the distribution, the median positive alpha. The alpha potential estimate is a function of these two variables.



(As of June 30, 2024; includes all rolling 36-month pre-fee alphas of all Large Blend funds (vs. Russell 1000 Index) since January 2000.)

We'll then multiply the figure derived in step 4 by the numeric values corresponding to the pillar ratings we've assigned and their weights to arrive at the overall pre-fee alpha estimate for a fund.

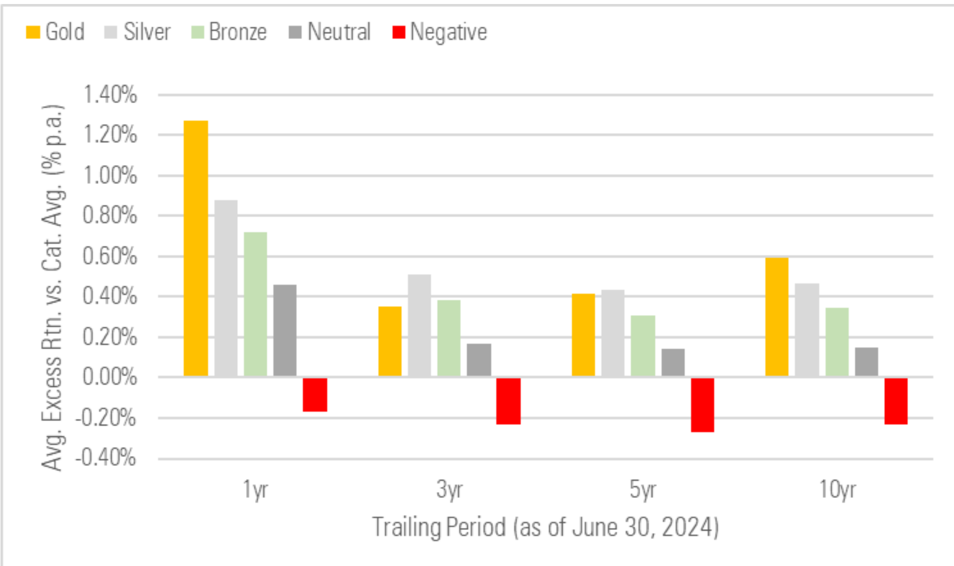
(For passively managed vehicles, we will divide the number of negative alphas in the combined distribution of actively and passively managed vehicles by the total number of observations. We then multiply this ratio by the median of all alphas in the passive distribution that are above the lesser of (1) zero or (2) the median alpha of the entire passive distribution.)

Why We're Making the Change

Whereas our current approach conveys useful information about the historical dispersion of pre-fee alpha in a category, we believe the new approach should yield insights into how *likely* it is for a fund to add value before fees and the likely payoff to investors should it succeed. We think that should improve the accuracy of our forecasts and, in turn, the Medalist Ratings' predictiveness.

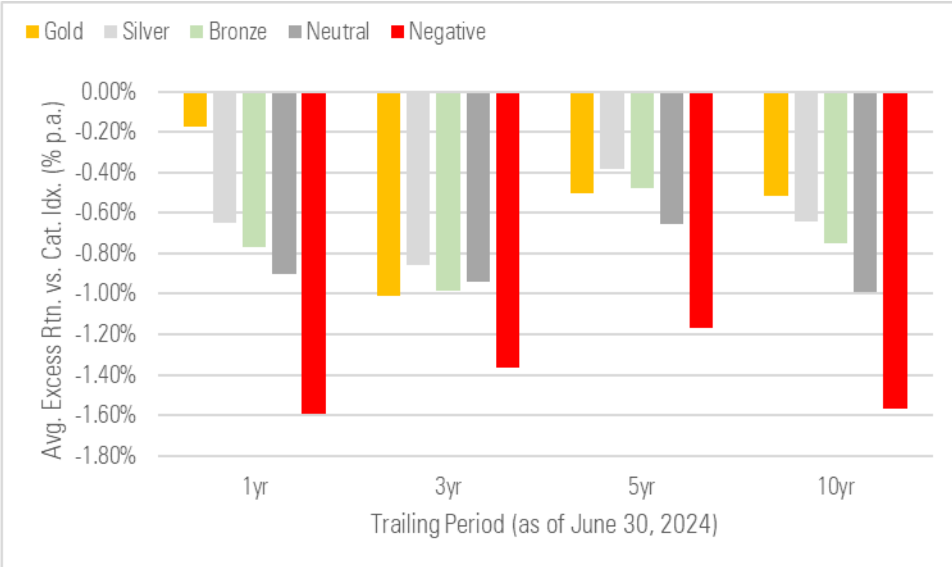
To be sure, we've been encouraged by the Medalist Rating's performance since we launched it in 2011, as shown below.

Trailing Average Excess Net Return vs. Category Average



(As of June 30, 2024; average excess return versus assigned Morningstar Category average.)

Trailing Average Excess Net Return vs. Category Index



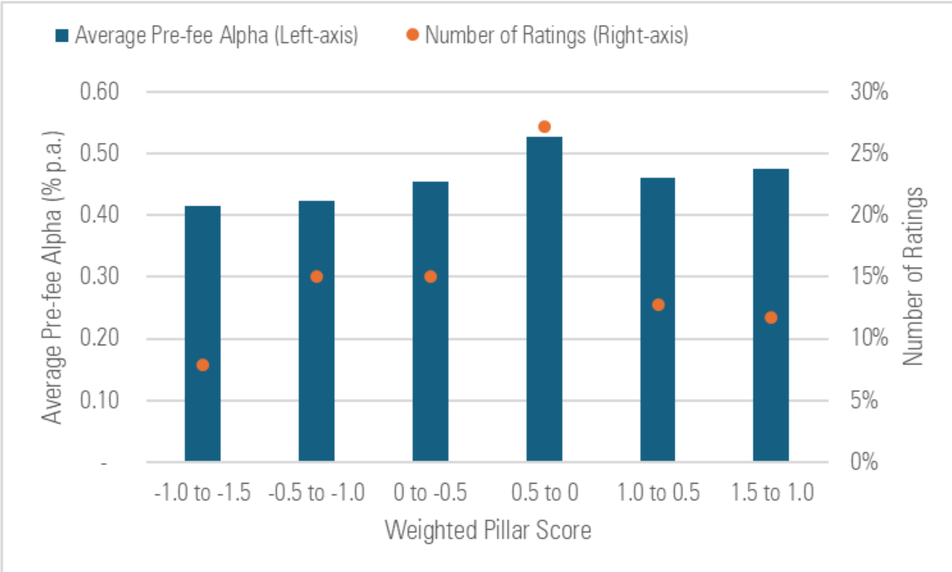
(As of June 30, 2024; average excess return versus assigned Morningstar Category index.)

In summary, the Medalist Rating has done a good job predicting differences in funds' future performance, with higher rated funds faring better than lower rated funds, as evidenced by the generally monotonic sorting in each chart. But as the second chart reveals, highly rated funds haven't outperformed their benchmark indexes, on average, which is the standard we aspire to.

Given this, we conducted tests to determine why highly rated funds haven't been able to beat their indexes, on average. There were two dimensions to this analysis, one focusing on the pillar ratings we'd assigned to funds and the other on the alpha potential estimate we'd applied.

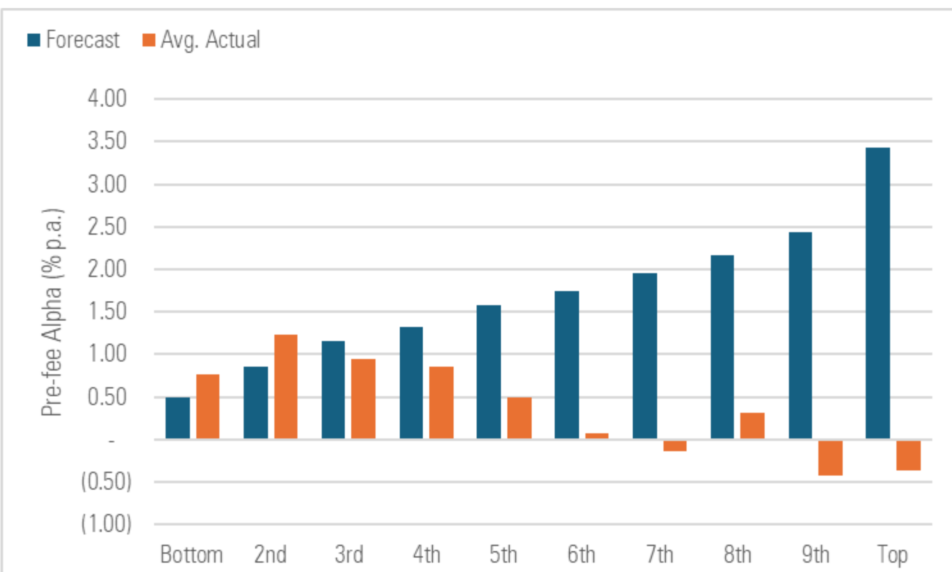
To assess the first dimension, we ran a simple test in which we examined the relationship between the pillar rating scores we assigned (weighted by those pillars' weights) and the funds' subsequent pre-fee performance. For instance, an active fund we assigned "High", "Above Average", and "Average" People, Process, and Parent pilar ratings, respectively would receive a pillar rating score of 1.35 (2.0 people pillar score for "High" x 45% weight + 1.0 process pillar score for "Above Average" x 45% weight + 0.0 parent pillar score for "Average" x 10% weight = 1.35).

This would yield a sense of whether we were directionally correct in distinguishing one fund from the next based on the pillar ratings we assigned, irrespective of the magnitude of the payoff. We found pillar ratings generally corresponded with subsequent performance, with higher rated funds tending to generate higher pre-fee alphas than lower-rated funds.



(As of July 31, 2024; includes all pillar ratings assigned since Oct. 31, 2019; average pre-fee alphas (versus Morningstar Category index) based on performance of rated funds over 36 month periods following assignment of ratings.)

To assess the second dimension, we compared the alpha potential estimates we applied to the average actual pre-fee alpha that funds generated over the subsequent years. When we broke funds into deciles based on the magnitude of the average pre-fee alpha potential estimate we applied ("Forecast") and then compared to the average actual pre-fee alphas of funds in those deciles, we found that our pre-fee alpha forecasts were generally too high, as shown below.



(As of July 31, 2024; based on average forecast pre-fee alpha (vs. Morningstar Category index) semi-interquartile range measures from October 31, 2019 through July 31, 2024;)

Based on this analysis, we concluded it made sense to revisit our alpha potential estimates. Further testing confirmed that ratings performance would have meaningfully improved had we applied lower alpha potential estimates in the past. This informed our decision to make the methodology change described above.

Expected Impact of the Change

We expect around 20% of rated funds (18% to be precise) to see a rating change due to this methodology change, with most of those being downgrades. In the following tables, we share the pro-forma impact of the changes by major region.

For instance, we expect that around 40% of the funds currently assigned Bronze ratings globally will be assigned Neutral ratings after we implement the change; around 36% of the funds assigned Silver ratings will be assigned Bronze or Neutral ratings post-change; and around 67% of the funds assigned Gold ratings will retain their rating; and so forth.

(All data as of July 31, 2024; includes all rated vehicles globally.)

By Region

Global

		% Breakdown Under Enhanced Approach						
		Negative	Neutral	Bronze	Silver	Gold	% Upgrade	% Downgrade
% Breakdown Under Current Approach	Negative	92%	7%	0%	0%	0%	8%	0%
	Neutral	6%	92%	1%	0%	0%	2%	6%
	Bronze	1%	40%	56%	2%	0%	3%	41%
	Silver	1%	15%	22%	61%	2%	2%	38%
	Gold	1%	5%	8%	20%	67%	0%	33%
	All						3%	15%

Asia-Pacific

		% Breakdown Under Enhanced Approach						
		Negative	Neutral	Bronze	Silver	Gold	% Upgrade	% Downgrade
% Breakdown Under Current Approach	Negative	90%	10%	0%	0%	0%	10%	0%
	Neutral	5%	93%	3%	0%	0%	3%	5%
	Bronze	3%	30%	63%	4%	0%	4%	33%
	Silver	1%	12%	20%	66%	2%	2%	33%
	Gold	1%	8%	5%	22%	64%	0%	36%
	All						4%	12%

Australia

		% Breakdown Under Enhanced Approach						
		Negative	Neutral	Bronze	Silver	Gold	% Upgrade	% Downgrade
% Breakdown Under Current Approach	Negative	95%	5%	1%	0%	0%	6%	0%
	Neutral	7%	91%	2%	0%	0%	2%	7%
	Bronze	0%	22%	77%	2%	0%	2%	22%
	Silver	1%	5%	13%	79%	2%	2%	19%
	Gold	0%	1%	1%	13%	84%	0%	16%
	All						2%	11%

Europe

		% Breakdown Under Enhanced Approach						
		Negative	Neutral	Bronze	Silver	Gold	% Upgrade	% Downgrade
% Breakdown Under Current Approach	Negative	93%	7%	0%	0%	0%	7%	0%
	Neutral	7%	92%	1%	0%	0%	1%	7%
	Bronze	1%	43%	54%	2%	0%	2%	43%
	Silver	0%	18%	23%	57%	2%	2%	42%
	Gold	0%	5%	11%	20%	64%	0%	36%
	All						2%	16%

United States

		% Breakdown Under Enhanced Approach						
		Negative	Neutral	Bronze	Silver	Gold	% Upgrade	% Downgrade
% Breakdown Under Current Approach	Negative	95%	5%	0%	0%	0%	5%	0%
	Neutral	8%	90%	1%	0%	0%	1%	8%
	Bronze	1%	44%	53%	2%	0%	2%	45%
	Silver	1%	11%	25%	62%	1%	1%	37%
	Gold	1%	2%	6%	21%	70%	0%	30%
	All						2%	19%

As is evident from the tables above, we expect most of the rating changes to be one-rung downgrades, with Gold, Silver, and Bronze-rated funds expected to see more changes than Neutral and Negative rated funds.

<u>By Asset Class</u>

Here is the same impact analysis, but this time broken down by global asset class.

(Note that Alternative funds will see far fewer ratings change than funds in other asset classes because we do not employ alpha potential when assigning Medalist Ratings to Alternative funds.)

Allocation

		% Breakdown Under Enhanced Approach						
		Negative	Neutral	Bronze	Silver	Gold	% Upgrade	% Downgrade
% Breakdown Under Current Approach	Negative	91%	9%	0%	0%	0%	9%	0%
	Neutral	7%	92%	1%	0%	0%	1%	7%
	Bronze	1%	57%	40%	1%	0%	2%	58%
	Silver	0%	26%	24%	50%	1%	1%	49%
	Gold	0%	10%	6%	26%	57%	0%	43%
	All						3%	15%

Alternative

		% Breakdown Under Enhanced Approach						
		Negative	Neutral	Bronze	Silver	Gold	% Upgrade	% Downgrade
% Breakdown Under Current Approach	Negative	99%	1%	0%	0%	0%	1%	0%
	Neutral	2%	94%	4%	0%	0%	4%	2%
	Bronze	0%	3%	97%	0%	0%	0%	3%
	Silver	0%	3%	0%	77%	20%	20%	3%
	Gold	0%	2%	1%	0%	97%	0%	3%
	All						2%	2%

Equity

		% Breakdown Under Enhanced Approach						
		Negative	Neutral	Bronze	Silver	Gold	% Upgrade	% Downgrade
% Breakdown Under Current Approach	Negative	93%	6%	0%	0%	0%	7%	0%
	Neutral	8%	91%	1%	0%	0%	1%	8%
	Bronze	2%	40%	55%	2%	0%	3%	42%
	Silver	1%	12%	26%	60%	2%	2%	39%
	Gold	1%	4%	11%	21%	63%	0%	37%
	All						2%	18%

Fixed Income

		% Breakdown Under Enhanced Approach						
		Negative	Neutral	Bronze	Silver	Gold	% Upgrade	% Downgrade
% Breakdown Under Current Approach	Negative	93%	7%	0%	0%	0%	7%	0%
	Neutral	4%	93%	2%	0%	0%	2%	4%
	Bronze	0%	26%	70%	4%	0%	4%	26%
	Silver	0%	12%	12%	73%	2%	2%	25%
	Gold	0%	4%	4%	13%	79%	0%	21%
	All						4%	9%

In general, we expect Allocation and Equity funds to see more ratings changes than Fixed Income funds. This reflects the fact that there tends to be greater dispersion of pre-fee alphas among more-volatile strategies like stock funds. Thus, the switch away from a dispersion-based measure of alpha potential to an approach that considers the likelihood and magnitude of positive pre-fee alphas is expected to have a larger impact on Allocation and Equity funds than it will bond funds.

<u>By Coverage Type</u>

In addition, we expect the ratings of funds assigned by analysts to be more heavily impacted by the change than those assigned algorithmically.

Analyst -assigned

		% Breakdown Under Enhanced Approach						
		Negative	Neutral	Bronze	Silver	Gold	% Upgrade	% Downgrade
% Breakdown Under Current Approach	Negative	93%	7%	0%	0%	0%	7%	0%
	Neutral	6%	93%	1%	0%	0%	1%	6%
	Bronze	0%	44%	55%	1%	0%	1%	44%
	Silver	0%	14%	23%	62%	1%	1%	37%
	Gold	0%	1%	3%	23%	72%	0%	28%
	All						1%	23%

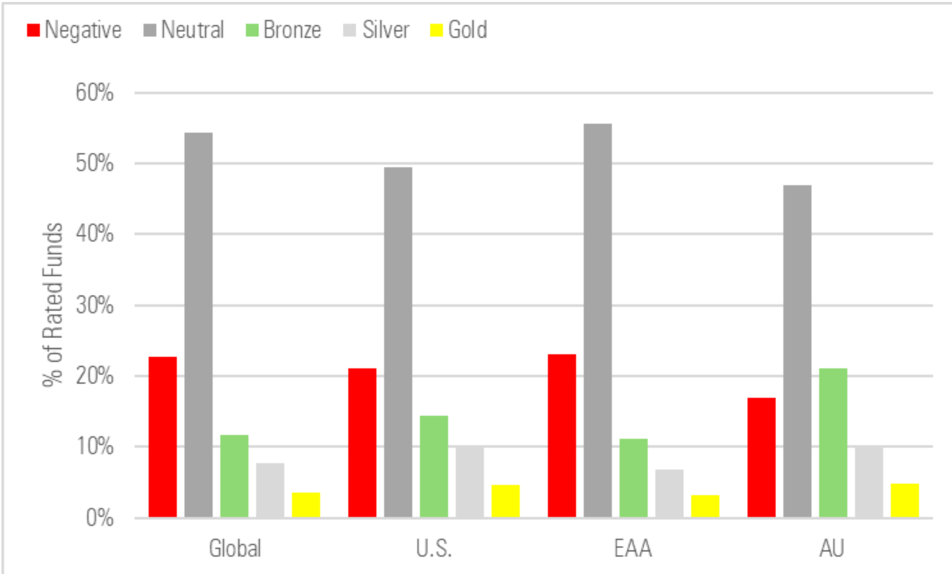
Algorithm-assigned

	Negative	Neutral	Bronze	Silver	Gold	% Upgrade	% Downgrade
Negative	92%	7%	0%	0%	0%	8%	0%
Neutral	6%	92%	1%	0%	0%	2%	6%
Bronze	1%	39%	56%	3%	0%	3%	40%
Silver	1%	15%	22%	60%	2%	2%	38%
Gold	1%	6%	9%	19%	65%	0%	35%
All						3%	14%

The higher rate of change among analyst-assigned Medalist Ratings is largely explained by the distribution of ratings. Namely, Gold-, Silver-, and Bronze-rated funds comprise a larger share of Medalist Ratings assigned by analysts than they do Medalist Ratings assigned by algorithm and we expect these higher-rated funds to see more changes than lower-rated funds. This is why we expect a higher rate of change among analyst-covered funds than funds assigned ratings by algorithm.

(Analyst-covered funds tend to boast lower expenses, more experienced management teams, and more proven parent firms, on average, than funds assigned Medalist Ratings by algorithm. This explains why Gold, Silver, and Bronze ratings account for a larger share of analyst-covered funds than they do Medalist Ratings assigned by algorithm.)

Taken together, we expect these changes will shift the Medalist Ratings distribution away from Gold, Silver, and Bronze ratings and towards Neutral and Negative ratings, as shown below.



(As of July 31, 2024; includes all rated vehicles globally.)

Following the change, we expect 23% of Medalist Ratings to be Gold, Silver, or Bronze and 77% to be Neutral and Negative, compared to 30% and 70%, respectively, under the current approach.

Timing of the Change

We expect the change to the Medalist Rating to go into effect on October 29, 2024. The exact timing of when the change will be reflected in Medalist Ratings will vary depending on how the rating is assigned, as explained further below.

Medalist Ratings Not Assigned by Analysts

We expect the Medalist Rating change to be incorporated into the Medalist Ratings of all funds not covered by an analyst on October 29, 2024. These ratings are updated monthly and therefore we expect the change to be effected as part of the monthly production process that's scheduled for October 29, 2024.

Medalist Ratings Assigned by Analysts

We expect the Medalist Rating change to be incorporated more gradually into the Medalist Ratings of funds covered by an analyst. For the Medalist Rating change to be incorporated into the Medalist Rating of a fund covered by an analyst, the analyst must update her rating of that fund. Analysts update these ratings every 14 months or so as part of their regular coverage schedule.

As such, we expect it will take around a year or so for the Medalist Rating change to be fully reflected in ratings of funds covered by analysts.

About Morningstar Manager Research

Morningstar Manager Research provides independent, fundamental analysis on managed investment strategies. Morningstar views are expressed in the form of Morningstar Medalist Ratings, which are derived through research of three key pillars—People, Process, and Parent. The Morningstar Medalist Rating is the summary expression of Morningstar's forward-looking analysis of investment strategies as offered via specific vehicles using a rating scale of Gold, Silver, Bronze, Neutral, and Negative. A global research team issues detailed research reports on strategies that span vehicle, asset class, and geography. Medalist Ratings are not statements of fact, nor are they credit or risk ratings, and should not be used as the sole basis for investment decisions. A Medalist Rating is not intended to be nor is a guarantee of future performance

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