



Morningstar Ratings Fail over a Full Market Cycle

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Portfolio values have been whipsawed by the 2008 bear market and now the 2009 bull market. While most investors suffered substantial declines, the recent topsy-turvy market environment has been an excellent laboratory in which to test the skills of active managers.

And when managers are tested, so are the systems used to predict their performance. Perhaps no system is as widely used as Morningstar's "star" rating system.

We originally reviewed the predictive ability of Morningstar's ratings in October of 2007, and here we update the results of that study, using data for the three years ending September 30, 2009.

Our analysis found that Morningstar's ratings lost virtually all of their predictive ability when measured over a full market cycle.

When we measured the effectiveness of the ratings in 2007 (see [here](#)), we found that they had consistent predictive ability. At that time, we noted in our study that the testing period (the three years 2004-2006) consisted almost entirely of bull market conditions and that a comprehensive test of the ratings methodology needed to incorporate a full market cycle, including a down market.

If one could rely on continued bull markets, an index fund would do just fine. Active managers would not be necessary, and nor would be the predictive systems, such as Morningstar ratings, used to assess them.

It is precisely because markets are unpredictable that active managers are valuable, and when predictive systems meant to assess those managers fail in volatile conditions, one must ask whether those systems serve any useful purpose.

In our view, they don't.

Methodology

Our measure of predictive ability is the probability that a randomly selected higher-rated fund will outperform a randomly selected lower-rated fund. For example, we looked at the chances of a randomly selected 5-star fund outperforming a 4-star fund.



We believe this metric is the most meaningful way to assess the usefulness of the rating system from the perspective of a financial advisor. Advisors need to know the incremental improvement they obtain by, for example, trading up from a 4-star to a 5-star fund.

Most studies, including Morningstar's own [study](#), look at the average performance of funds within a star category. For example, Morningstar compared the average performance of 5-star funds and 4-star funds. This methodology has limited value, because the only way advisors can obtain this performance differential is by purchasing all the funds in a given rating category, which is obviously impractical.

As in our 2007 study, we calculated the probabilities across five Morningstar fund categories: US Equity, International Equity, Balanced, Taxable Bond, and Muni Bond.

We chose three years as our measurement period because that was the time period used by Morey and Gottesman (M-G) in their study (see [here](#)). The M-G study is the most prominent research conducted on Morningstar's ratings since Morningstar revised their ratings methodology in 2002.

We compared the difference in probabilities between the current study and the 2007 study. This showed the net gain or loss in predictive ability from the up-market environment of the original study to the volatile environment of the current study.

We calculated these probabilities using the raw annualized returns and Morningstar's risk-adjusted annualized returns.

Only funds that survived over the three year period were considered. Index funds, ETFs, and other funds not rated by Morningstar were excluded from this analysis. Each share class of a fund was treated separately (since different share classes can be rated differently).

Results and implications

Our results are presented in tables 1-6. Tables 1 and 2 show the differences in probabilities for the raw returns and the risk-adjusted returns, respectively. A negative number, shown in red, indicates a decrease in predictive ability.

Tables 3 and 4 show the probabilities from the current study, based on raw and risk-adjusted returns, respectively. Tables 5 and 6 show the probabilities based on 2004-2006 data, and are reproduced from the original study.

A key criterion we used to assess the effectiveness of the ratings is whether the results are monotonic. Results are monotonic if 5-star funds outperform 4-star funds, 4-star funds outperform 3-star funds, etc.



Our second criterion is the average probability of improving performance by moving to a fund with a rating that is one star higher. We averaged the probabilities of 5- v. 4-star, 4- v. 3-star, 3- v. 2-star and 2- v. 1-star fund comparisons. A typical decision for an advisor is whether to move to a fund with a rating one star higher, and this criterion measures the average effectiveness of that decision.

Significant findings for the raw returns include:

- US equity funds, which had monotonic results in 2007, are no longer monotonic. Funds rated 2-stars outperformed those rated 3-stars. In virtually all cases, the correlation between adding a star and improving performance declined from the previous study. This time, only 52.1% of one-star upgrades yielded improvement, down from 53.5% in 2007. US Equities were the most robust category in the current study; results for the other four categories deteriorated more significantly.
- International funds, which were the only non-monotonic category in the previous study, were again non-monotonic. The average likelihood of one-star improvement declined from 51.2% to 50.4%.
- Balanced funds, which were monotonic in the original study, are no longer monotonic – 5-star funds underperformed 4-star funds and 4-star funds underperformed 3-star funds. The average one-star improvement declined significantly from 58.5% to 49.2%. (A value below 50% indicates that advisors would be better off with a fund rated one star lower.)
- Taxable bond funds remained monotonic, but the average one-star improvement declined from 58.3% to 52.7%.
- Municipal bond funds are no longer monotonic. Notably, the probability of a 5-star fund outperforming a 4-star fund declined from 61.5% to 34.2%. The odds were nearly two-to-one that a 4-star fund would outperform a 5-star fund. By the same token, a 4-star muni fund will beat a 2-star in the same category 63.6% of the time, but a 1-star only 55.5% as often. The average one-star improvement declined from 61.2% to 48.6%

Funds given 5 stars did not perform well in a number of categories. Among muni bond, taxable bond and international funds, 5-star funds had the lowest raw returns of any star category.



The one-star improvement across all five fund categories is now 50.6%. Advisors might as well flip a coin to decide whether to move to a fund with a rating that is one star higher.

These results are for raw returns. Risk-adjusted returns provide a very slight improvement – the one-star improvement across all five categories 50.7%, but our overall conclusions remain.

In his analysis, Russel Kinnel of Morningstar states, “In short, the star rating is a backward-looking measure of past performance. What it is not is a forward-looking measure of fundamentals.”

We concur that the ratings are not an effective forward-looking measure, but that is not how they are used in the industry. By calling this calculation a rating, Morningstar imparts at least the implicit endorsement of higher-rated funds and an expectation that their relative performance advantage will endure.

If Morningstar truly believes that its ratings lack forward-looking value, then they should rename them “Historical Performance Measures” or something to that effect. In this case, however, advisors would be better served by looking at underlying data – the three-, five- and 10-year performance numbers used in Morningstar’s calculation. Combining these numbers into a single star rating – or historical performance measure – merely obscures the value of the underlying data.

Caveats

As we noted in our original study, there are a number of important caveats that apply to our results:

- This analysis does not take into account survivorship. As we know from the M-G study, approximately 20% of funds that existed when the three-year period began will be merge or be terminated by the end of the period, and they are excluded from this study. This is much more likely to occur with lower rated funds (specifically 1- and 2-star funds), since fund companies are less likely to merge or terminate a higher-rated fund. As a result, we can expect that the probabilities below understate the true probabilities for funds outperforming these lower rated funds. But this is only conjecture and would need to be verified by additional data analysis.
- Morningstar’s assignment of ratings takes into account the effect of sales loads, but the rate of return calculations below (both total rate of return and risk-adjusted rate of return) do not reflect sales loads. The universe of funds used includes load and no-load funds. The inclusion of loads would reduce the



performance of some funds. If Morningstar had included the effect of star ratings on the total return and risk-adjusted return calculations, the results would have been better for the predictive value of the rating, as load funds have lower overall ratings than no-load funds. So, in that sense, this study is a conservative look at the predictive value of the ratings because, to the extent that any loads are paid, the ratings would perform better. Ideally, from an advisor's perspective, we would like to see this analysis done with a universe of no-load or load-waived funds.

- This analysis does not use the risk-adjustment [metrics](#) employed by M-G (alpha and Sharpe Ratio). Ideally, advisors would like to know the probabilities of fund outperformance based on alpha (i.e., what is the probability of a fund with rating x outperforming a fund with rating y on a risk-adjusted basis?)

David Raileanu assisted in the research and writing of this article.

**Table 1 – Change in probabilities from the 2007 to the current study (Raw return)
(Values in red indicate a decrease in predictive ability)**

Broad Asset Group	Funds Rated ...	Return	1 star	2 stars	3 stars	4 stars	5 stars
U.S. Equity	1 star	-15.41					
	2 stars	-14.87	1.5				
	3 stars	-15.25	-0.8	-2.6			
	4 stars	-15.76	-4.4	-6.5	-4.0		
	5 stars	-15.63	-4.6	-7.4	-5.0	-0.8	
International Equity	1 star	-21.54					
	2 stars	-21.66	-2.5				
	3 stars	-21.63	0.9	3.4			
	4 stars	-22.91	-3.9	-1.2	-4.5		
	5 stars	-22.56	-6.6	-2.9	-4.5	0.4	
Balanced	1 star	-7.98					
	2 stars	-8.13	-2.4				
	3 stars	-8.74	-8.8	-7.4			
	4 stars	-9.21	-17.9	-19.6	-9.9		
	5 stars	-10.07	-30.4	-30.1	-24.2	-17.6	
Taxable Bond	1 star	0.64					
	2 stars	0.83	1.7				
	3 stars	0.12	-5.9	-9.2			
	4 stars	-0.42	-13.9	-18.0	-9.2		
	5 stars	-1.28	-17.8	-22.6	-14.8	-6.1	
Muni Bond	1 star	0.83					
	2 stars	0.28	-13.9				
	3 stars	-0.23	-23.4	-11.1			
	4 stars	-0.21	-26.3	-9.2	1.3		
	5 stars	-2.39	-44.5	-38.1	-27.8	-27.0	



**Table 2 – Change in probabilities from the 2007 to the current study (Risk-adjusted return)
(Values in red indicate a decrease in predictive ability)**

Broad Asset Group	Funds Rated ...	Return	1 star	2 stars	3 stars	4 stars	5 stars
U.S. Equity	1 star	-18.54					
	2 stars	-18.12	-0.4				
	3 stars	-18.42	-2.0	-1.7			
	4 stars	-18.89	-4.8	-4.7	-3.1		
	5 stars	-18.93	-7.1	-7.8	-6.4	-3.0	
International Equity	1 star	-25.93					
	2 stars	-26.36	-4.7				
	3 stars	-25.88	3.1	6.7			
	4 stars	-26.78	0.2	2.9	-3.6		
	5 stars	-28.04	-8.1	-2.3	-9.3	-4.7	
Balanced	1 star	-4.34					
	2 stars	-9.76	-1.6				
	3 stars	-10.11	-7.5	-6.9			
	4 stars	-10.44	-14.9	-16.7	-7.5		
	5 stars	-11.64	-28.6	-28.9	-23.9	-19.0	
Taxable Bond	1 star	0.08					
	2 stars	0.23	2.1				
	3 stars	-0.40	-3.6	-6.9			
	4 stars	-0.75	-11.3	-15.2	-8.7		
	5 stars	-1.47	-15.3	-19.9	-13.8	-5.5	
Muni Bond	1 star	0.48					
	2 stars	-0.12	-17.9				
	3 stars	-0.58	-26.0	-10.3			
	4 stars	-0.37	-25.3	-5.3	3.6		
	5 stars	-3.04	-38.3	-30.8	-21.7	-22.8	



Table 3 – Probabilities based on raw return (Q3 2006 – Q3 2009)

Broad Asset Group	Funds Rated ...	Based on Total Return					
		Average Return	% of Group Beaten by the Average Fund				
			1 star	2 stars	3 stars	4 stars	5 stars
U.S. Equity	1 star	-5.60	-	44.9%	45.7%	45.7%	42.0%
	2 stars	-4.36	55.1%	-	50.9%	50.7%	46.9%
	3 stars	-4.52	54.3%	49.1%	-	49.8%	46.0%
	4 stars	-4.37	54.3%	49.3%	50.2%	-	46.2%
	5 stars	-3.75	58.0%	53.1%	54.0%	53.8%	-
International Equity	1 star	-2.23	-	49.9%	45.7%	47.0%	50.9%
	2 stars	-1.93	50.1%	-	45.9%	47.0%	50.6%
	3 stars	-1.70	54.3%	54.1%	-	50.8%	52.6%
	4 stars	-1.98	53.0%	53.0%	49.2%	-	51.9%
	5 stars	-2.37	49.1%	49.4%	47.4%	48.1%	-
Balanced	1 star	-1.22	-	49.6%	47.9%	48.8%	53.3%
	2 stars	-1.01	50.4%	-	48.1%	49.7%	54.5%
	3 stars	-1.00	52.1%	51.9%	-	51.1%	55.8%
	4 stars	-0.95	51.2%	50.3%	48.9%	-	54.4%
	5 stars	-0.72	46.7%	45.5%	44.2%	45.6%	-
Taxable Bond	1 star	4.00	-	46.8%	42.9%	43.5%	40.7%
	2 stars	4.13	53.2%	-	46.0%	46.3%	43.1%
	3 stars	4.24	57.1%	54.0%	-	49.9%	46.4%
	4 stars	4.16	56.5%	53.7%	50.1%	-	46.7%
	5 stars	4.05	59.3%	56.9%	53.6%	53.3%	-
Muni Bond	1 star	3.47	-	49.4%	47.5%	45.7%	56.3%
	2 stars	3.45	50.6%	-	48.1%	40.5%	58.0%
	3 stars	3.42	52.5%	51.9%	-	42.4%	59.3%
	4 stars	3.67	54.3%	59.5%	57.6%	-	65.8%
	5 stars	1.98	43.7%	42.0%	40.7%	34.2%	-



Table 4 – Probabilities based on risk-adjusted return (Q3 2006 – Q3 2009)

		Based on Morningstar Risk-Adjusted Return					
		Average Return	% of Group Beaten by the Average Fund				
Broad Asset Group	Funds Rated ...		1 star	2 stars	3 stars	4 stars	5 stars
U.S. Equity	1 star	-14.28	-	45.5%	45.0%	44.1%	42.0%
	2 stars	-12.53	54.5%	-	49.3%	48.2%	46.1%
	3 stars	-12.50	55.0%	50.7%	-	48.9%	46.7%
	4 stars	-12.26	55.9%	51.8%	51.1%	-	47.8%
	5 stars	-11.71	58.0%	53.9%	53.3%	52.2%	-
International Equity	1 star	-12.42	-	52.3%	43.7%	42.1%	50.9%
	2 stars	-12.50	47.7%	-	42.4%	41.5%	47.9%
	3 stars	-11.66	56.3%	57.6%	-	48.8%	55.1%
	4 stars	-11.49	57.9%	58.5%	51.2%	-	56.6%
	5 stars	-13.35	49.1%	52.1%	44.9%	43.4%	-
Balanced	1 star	-1.22	-	48.9%	46.0%	45.8%	51.5%
	2 stars	-6.29	51.1%	-	46.8%	46.6%	53.0%
	3 stars	-6.03	54.0%	53.2%	-	49.3%	55.5%
	4 stars	-5.89	54.2%	53.4%	50.7%	-	55.4%
	5 stars	-6.07	48.5%	47.0%	44.5%	44.6%	-
Taxable Bond	1 star	0.07	-	46.3%	40.3%	40.7%	38.5%
	2 stars	0.17	53.7%	-	43.7%	43.5%	40.9%
	3 stars	0.32	59.7%	56.3%	-	49.4%	46.0%
	4 stars	0.40	59.3%	56.5%	50.6%	-	46.7%
	5 stars	0.37	61.5%	59.1%	54.0%	53.3%	-
Muni Bond	1 star	-0.20	-	53.4%	49.9%	44.5%	50.1%
	2 stars	-0.29	46.6%	-	47.2%	36.4%	50.8%
	3 stars	-0.29	50.1%	52.8%	-	40.0%	53.6%
	4 stars	0.14	55.5%	63.6%	60.0%	-	62.2%
	5 stars	-2.07	49.9%	49.2%	46.4%	37.8%	-



Table 5 – Probabilities based on raw return (2004-2006)

Broad Asset Group	Funds Rated ...	Based on Total Return					
		Average Return	% of Group Beaten by the Average Fund				
			1 star	2 stars	3 stars	4 stars	5 stars
U.S. Equity	1 star	9.81	-	46.31	44.84	41.23	37.30
	2 stars	10.51	53.62	-	48.22	44.17	39.47
	3 stars	10.73	55.10	51.71	-	45.75	40.90
	4 stars	11.39	58.71	55.76	54.18	-	45.29
	5 stars	11.88	62.64	60.47	59.03	54.64	-
International Equity	1 star	19.31	-	47.34	46.50	43.08	44.23
	2 stars	19.73	52.61	-	49.26	45.74	47.63
	3 stars	19.93	53.44	50.67	-	46.27	48.08
	4 stars	20.93	56.87	54.20	53.67	-	52.28
	5 stars	20.19	55.68	52.33	51.86	47.66	-
Balanced	1 star	6.76	-	47.04	38.95	30.87	22.81
	2 stars	7.12	52.80	-	40.56	29.91	24.31
	3 stars	7.74	60.90	59.29	-	41.03	31.49
	4 stars	8.26	69.05	69.92	58.78	-	36.69
	5 stars	9.35	77.08	75.59	68.36	63.17	-
Taxable Bond	1 star	3.36	-	48.32	36.85	29.45	22.76
	2 stars	3.30	51.49	-	36.62	28.17	20.37
	3 stars	4.12	62.99	63.15	-	40.55	31.47
	4 stars	4.58	70.42	71.67	59.25	-	40.37
	5 stars	5.33	77.09	79.51	68.38	59.43	-
Muni Bond	1 star	2.64	-	35.22	23.86	19.25	11.67
	2 stars	3.17	64.49	-	36.79	31.08	19.72
	3 stars	3.65	75.92	62.95	-	43.42	31.24
	4 stars	3.88	80.57	68.69	56.29	-	38.56
	5 stars	4.37	88.20	80.11	68.47	61.15	-



Table 6 – Probabilities based on risk-adjusted return (2004-2006)

Broad Asset Group	Funds Rated ...	Based on Morningstar Risk-Adjusted Return					
		Average Return	% of Group Beaten by the Average Fund				
			1 star	2 stars	3 stars	4 stars	5 stars
U.S. Equity	1 star	4.26	-	45.08	42.93	39.27	34.81
	2 stars	5.59	54.86	-	47.49	43.40	38.18
	3 stars	5.92	57.02	52.44	-	45.69	40.20
	4 stars	6.63	60.67	56.53	54.24	-	44.72
	5 stars	7.22	65.13	61.74	59.73	55.21	-
International Equity	1 star	13.51	-	47.56	46.72	42.24	42.72
	2 stars	13.86	52.35	-	49.03	44.37	45.58
	3 stars	14.22	53.19	50.91	-	45.13	45.74
	4 stars	15.29	57.71	55.56	54.82	-	51.81
	5 stars	14.69	57.22	54.38	54.19	48.12	-
Balanced	1 star	3.12	-	47.14	38.31	30.80	22.90
	2 stars	3.47	52.74	-	39.71	29.78	23.98
	3 stars	4.08	61.51	60.10	-	41.60	31.52
	4 stars	4.55	69.05	70.06	58.24	-	36.30
	5 stars	5.57	77.10	75.94	68.38	63.59	-
Taxable Bond	1 star	-0.01	-	48.17	36.51	29.25	23.07
	2 stars	-0.06	51.57	-	36.51	28.12	20.83
	3 stars	0.72	63.28	63.24	-	40.53	32.01
	4 stars	1.15	70.60	71.69	59.25	-	40.99
	5 stars	1.84	76.83	79.04	67.80	58.81	-
Muni Bond	1 star	-0.68	-	35.19	23.68	19.06	11.70
	2 stars	-0.17	64.54	-	36.67	30.87	19.83
	3 stars	0.29	76.10	63.05	-	43.27	31.62
	4 stars	0.51	80.75	68.88	56.42	-	39.16
	5 stars	0.97	88.18	79.97	68.06	60.55	-

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