

What Should Investors Care About? Mutual Fund Ratings by Analysts vs. Machine Learning Technique

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1.Introduction

Background: Fund market situation

- As of December 2018, the total net assets (TNA) managed by 8,078 U.S. mutual funds exceeded 17.7 trillion dollars.
- An extensive literature documents that the average risk- and style-adjusted returns of mutual funds appear to be negative on an after-fee basis.

1.Introduction

Background: Fund market investment

- Retail investors hold 89% of U.S. mutual fund net assets and rely on mutual funds to meet long-term personal financial objectives.
- For individual investors, identifying a small subset of skilled managers and optimizing their capital allocation are not a trivial task.

1.Introduction

Motivation: Funds' rating qualities

- In 2011, Morningstar rolled out the forward-looking analyst rating of mutual funds.
- The analyst coverage is limited by the size of the Morningstar analyst team, and Morningstar further developed a machine learning model to create the quantitative rating in June 2017.
- **Little attention** has been devoted to the predictive qualities and information content of the analyst rating, analyst report, and quantitative rating.

1.Introduction

Questions and Solutions

- Whether and how analyst rating differs from the quantitative rating in providing investment recommendations?
 - Multiple regression
- What's the information content of analyst research?
 - Textual analysis(soft information)

1.Introduction

Questions and Solutions

- What's the qualities of analyst rating or quantitative rating? (Predictability)
 - portfolio sort and FM regression
- How investors react to these ratings?
 - Multiple regression.(Cash flow)
 - robustness test.

1.Introduction

Contributions

- Related to the burgeoning literature on the adoption of financial technology (fintech) and, in particular, to studies exploring investment recommendations generated by humans vs. machine learning.
- Are the first to uncover the informational value of analyst research in mutual fund investment and to highlight the importance of soft information in the age of big data and fintech.

1.Introduction

Contributions

- Contribute to the literature on the behavior of mutual fund investors.
- Provide a fresh look at the role of analysts in the mutual fund industry.
- Highlight the importance of mutual fund analysts in information production and imply a capital misallocation problem in mutual fund investment.

2.Data

Morningstar analyst ratings

- Morningstar analyst ratings are assigned on a five-tier scale gold, silver, bronze, neutral and negative.
- Morningstar identifies five keys to predicting the funds: people, process, parent, performance, and price.
- The ratings on each of these five pillars are assigned on a three-tier scale, negative, neutral, and positive.

Wells Fargo Premier Large Co Gr A EKJAX ★★★ Neutral

Analyst rating as of Nov 14, 2018

[Quote](#) [Fund Analysis](#) [Performance](#) [Risk](#) [Price](#) [Portfolio](#) [People](#) [Parent](#)

NAV / 1-Day Return 14.02 / 0.72%	Total Assets 2.6 Bil	TTM Yield 0.00%	Expense Ratio 1.110%	Fee Level Average	Load 5.75%
Category US Fund Large Growth	Category Index Russell 1000 Growth TR USD	Status Open	Investment Style Large Growth	Turnover 45%	Minimum Initial Investment 1,000

USD | NAV as of Sep 13, 2019 | 1-Day Return as of Sep 13, 2019 8:26 AM | Analyst Rating as of Nov 14, 2018 6:00 AM ⓘ

Morningstar's Analysis ⓘ

Analyst Take

Investment Objective

Performance Nov 14, 2018
○ Neutral

Price Nov 14, 2018
○ Neutral

Process Nov 14, 2018
○ Neutral

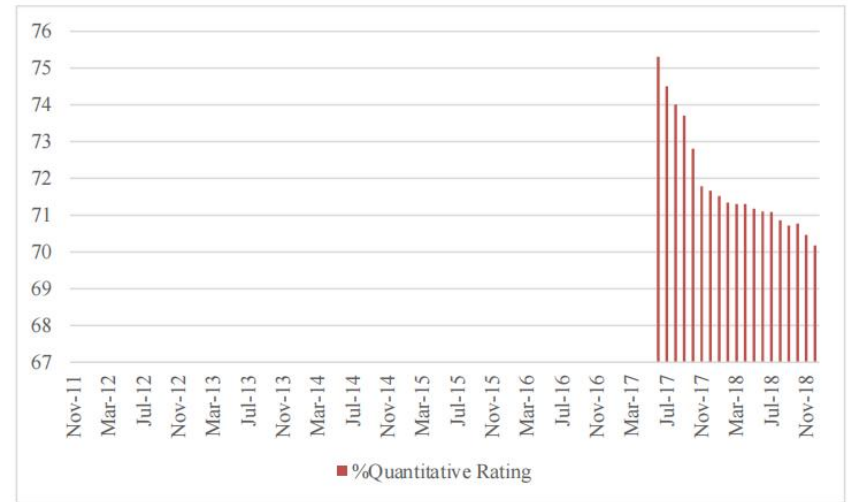
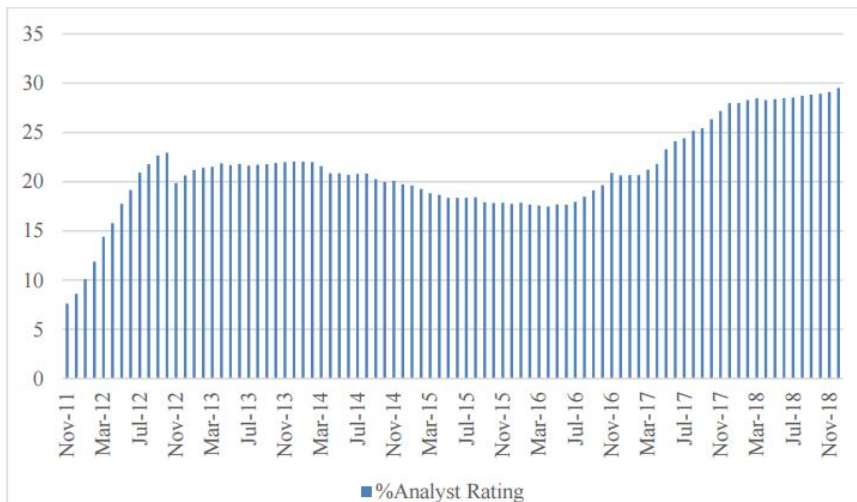
People Nov 14, 2018
+ Positive

Parent Apr 9, 2019
○ Neutral

2.Data

Morningstar quantitative ratings

- Morningstar analyst ratings:coverage is limited by the size of the Morningstar analyst team.
- To expand the number of funds covered, Morningstar developed a machine learning model using the decision-making processes of the analysts.
- Both the analyst rating and quantitative rating are available only to registered members.



2.Data

- Monthly analyst ratings, quantitative ratings, and star ratings(based on historical performance) from the Morningstar mutual fund database.
- The analyst reports from the Morningstar website.
- Monthly net-of-fee returns and TNA as well as other quarterly fund characteristics come from the Center for Research in Security Prices (CRSP) mutual fund database.
- Exclude funds identified by the CRSP “index_fund_flag”.
- Restrict sample to funds that have TNA of at least \$15 million.
- At least three years old to avoid incubation bias.

2.Data

- Full sample includes all U.S. actively managed equity mutual funds between November 2011 and December 2018.
- The analysis of the quantitative rating starts in June 2017.
- Final sample contains 3,256 unique equity funds, including 1,056 funds covered by Morningstar analysts at least once.

Analyst Rating	Star Rating					All
	1	2	3	4	5	
Panel A1: Number of Funds						
Noncovered	127	451	773	448	119	1,918
Negative	3	3	2	0	0	7
Neutral	9	47	73	41	11	181
Bronze	3	19	66	70	22	180
Silver	1	8	33	51	29	121
Gold	0	1	14	33	19	67
All	142	530	960	643	200	

3. Empirical results

The Analyst Rating vs. the Quantitative Rating

- Sort mutual funds into five portfolios based on the Morningstar analyst rating or quantitative rating.

Panel A: Value-Weighted Net-of-Fee Fund Returns Sorted by the Analyst Rating and Quantitative Rating

Rank	Analyst Rating								Quantitative Rating			
	Full Sample				Post-July 2017				Post-July 2017			
	1-Month		1-Year		1-Month		1-Year		1-Month		1-Year	
	Return	Style-Adj.	Return	Style-Adj.	Return	Style-Adj.	Return	Style-Adj.	Return	Style-Adj.	Return	Style-Adj.
Negative	-0.202 (-0.66)	-0.555** (-2.40)	-0.207 (-0.75)	-0.569*** (-2.83)	-0.321 (-0.52)	-0.227 (-0.83)	-0.568 (-1.12)	-0.405 (-1.70)	0.047 (0.06)	-0.094** (-2.45)	0.008 (0.01)	-0.103*** (-3.31)
Neutral	0.691*** (2.79)	0.003 (0.16)	0.688*** (2.77)	0.005 (0.20)	0.146 (0.19)	-0.059 (-0.82)	0.120 (0.16)	-0.061 (-0.91)	0.075 (0.11)	-0.087** (-2.26)	0.076 (0.11)	-0.083* (-1.83)
Bronze	0.708*** (2.90)	0.024 (1.32)	0.703*** (2.96)	0.023 (1.23)	0.138 (0.19)	0.011 (0.28)	0.126 (0.18)	0.004 (0.12)	0.102 (0.15)	-0.069 (-1.22)	0.125 (0.18)	-0.045 (-1.15)
Silver	0.761*** (3.00)	0.038*** (2.69)	0.782*** (3.09)	0.040*** (3.04)	0.114 (0.16)	0.015 (0.43)	0.145 (0.20)	0.022 (0.64)	0.233 (0.28)	-0.009 (-0.18)	0.185 (0.23)	-0.019 (-0.43)
Gold	0.696*** (3.05)	0.076*** (4.57)	0.673*** (2.94)	0.069*** (4.35)	0.302 (0.43)	0.122** (2.42)	0.264 (0.37)	0.104** (2.14)	0.121 (0.16)	0.034 (0.66)	0.212 (0.29)	0.032 (0.65)
Non-REC (\leq Neutral)	0.685*** (2.78)	0.001 (0.04)	0.682*** (2.75)	0.001 (0.07)	0.143 (0.19)	-0.060 (-0.85)	0.118 (0.16)	-0.062 (-0.93)	0.069 (0.10)	-0.088** (-2.33)	0.062 (0.09)	-0.086* (-2.05)
REC (\geq Bronze)	0.709*** (2.97)	0.044*** (5.28)	0.708*** (3.00)	0.042*** (4.87)	0.177 (0.25)	0.045* (1.82)	0.172 (0.24)	0.038 (1.49)	0.158 (0.21)	-0.026 (-0.58)	0.160 (0.22)	-0.021 (-0.57)
Gold-Negative	0.898*** (3.33)	0.631*** (2.69)	0.880*** (3.61)	0.638*** (3.12)	0.622** (2.20)	0.350 (1.29)	0.832** (2.71)	0.508* (2.04)	0.074 (0.58)	0.128** (2.35)	0.204 (1.61)	0.135** (2.56)
REC-Non-REC	0.024 (0.96)	0.043** (2.30)	0.026 (0.86)	0.041** (2.04)	0.034 (0.51)	0.105* (1.83)	0.053 (0.68)	0.100* (1.92)	0.089 (0.96)	0.062* (2.10)	0.098 (1.57)	0.066* (1.99)

3. Empirical results

The Analyst Rating vs. the Quantitative Rating

- Channel 1: Morningstar analysts may selectively cover a subset of funds with a higher potential to attract investors.
- Channel 2: Morningstar analysts may acquire soft information from interviews with portfolio managers and key executives, while the quantitative rating relies only on hard information.
- Let human analysts and the machine learning algorithm rate the same set of funds.

3. Empirical results

The Analyst Rating vs. the Quantitative Rating

- Reconstruct the quantitative ratings for all funds, following the methodology described Morningstar (2018).
- Train 2 RF models to predict analyst rating(that is Q rating), called **predicted analyst rating**.
- Both the analyst rating and predicted analyst rating successfully identify outperforming funds.
- The predicted analyst rating fails to identify outperforming funds in uncovered funds.

3. Empirical results

The Analyst Rating vs. the Quantitative Rating

- The analyst rating outperforms the quantitative rating in predicting fund performance mainly through the selective coverage channel.

Panel B: Value-Weighted Net-of-Fee Fund Returns Sorted by the Predicted Analyst Rating (Post-2014)												
Rank	Analyst-Covered Funds								Noncovered Funds			
	Analyst Rating				Predicted Analyst Rating				Predicted Analyst Rating			
	1-Month		1-Year		1-Month		1-Year		1-Month		1-Year	
	Return	Style-Adj.	Return	Style-Adj.	Return	Style-Adj.	Return	Style-Adj.	Return	Style-Adj.	Return	Style-Adj.
Negative	-0.640*	-0.766**	-0.702**	-0.797***	-0.357	-0.536**	-0.516*	-0.650***	0.351	-0.020	0.330	-0.017
	(-1.79)	(-2.42)	(-2.52)	(-3.00)	(-0.91)	(-2.16)	(-1.74)	(-3.14)	(1.31)	(-0.41)	(1.30)	(-0.32)
Neutral	0.482	-0.014	0.474	-0.017	0.449	-0.026	0.436	-0.035	0.474	-0.029	0.487	-0.029
	(1.56)	(-0.56)	(1.53)	(-0.71)	(1.46)	(-0.90)	(1.42)	(-1.35)	(1.59)	(-1.51)	(1.64)	(-1.31)
Bronze	0.450	0.005	0.458	0.005	0.471	-0.000	0.489	0.006	0.495	-0.066**	0.492	-0.032
	(1.52)	(0.26)	(1.58)	(0.23)	(1.61)	(-0.01)	(1.66)	(0.31)	(1.62)	(-2.25)	(1.60)	(-1.25)
Silver	0.512*	0.041**	0.534*	0.042**	0.390	-0.028	0.374	-0.030	0.302	-0.087	0.326	-0.070*
	(1.68)	(2.32)	(1.76)	(2.52)	(1.41)	(-1.12)	(1.37)	(-1.22)	(0.94)	(-1.67)	(1.12)	(-1.88)
Gold	0.556*	0.079***	0.533*	0.070***	0.602*	0.102***	0.612*	0.098***	0.398	-0.026	0.481*	0.021
	(1.85)	(3.62)	(1.77)	(3.50)	(1.91)	(5.17)	(1.93)	(5.51)	(1.37)	(-0.66)	(1.78)	(0.62)
Non-REC (\leq Neutral)	0.480	-0.015	0.470	-0.019	0.446	-0.028	0.431	-0.038	0.461	-0.030	0.473	-0.028
	(1.55)	(-0.62)	(1.52)	(-0.80)	(1.45)	(-0.99)	(1.41)	(-1.47)	(1.58)	(-1.65)	(1.63)	(-1.37)
REC (\geq Bronze)	0.499	0.038***	0.502*	0.037***	0.509*	0.040***	0.513*	0.039***	0.408	-0.074***	0.421	-0.045**
	(1.67)	(3.64)	(1.69)	(3.21)	(1.70)	(3.55)	(1.72)	(3.41)	(1.35)	(-3.24)	(1.44)	(-2.66)
Gold-Negative	1.196***	0.844**	1.235***	0.867***	0.959***	0.638**	1.128***	0.748***	0.047	-0.005	0.151	0.038
	(3.42)	(2.64)	(4.18)	(3.20)	(3.04)	(2.54)	(4.69)	(3.58)	(0.40)	(-0.07)	(1.23)	(0.52)
REC-Non-REC	0.019	0.054**	0.031	0.055**	0.063	0.068**	0.082**	0.076***	-0.054	-0.044*	-0.052	-0.017
	(0.68)	(2.48)	(1.03)	(2.58)	(1.59)	(2.51)	(2.45)	(3.26)	(-0.92)	(-1.95)	(-1.02)	(-0.75)

3. Empirical results

Regression Analysis of Return Predictability

- Examine the sources of such return predictability.

$$Perf_{f,t} = \alpha + \beta_1 Rating_{f,t-1} + cM_{f,t-1} + e_{f,t}$$

- The alternative rating proxies on the five-tier scale do not predict superior benchmark-adjusted performance.
- The quantitative rating has no return predictability.

Net-of-Fee Fund Returns Regressed on Lagged Fund Characteristics												
Rating =	Analyst Rating				Analyst Rating (Post-July 2017)				Quantitative Rating			
	Return		Style-Adj. Return		Return		Style-Adj. Return		Return		Style-Adj. Return	
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9	Model 10	Model 11	Model 12
Rating	0.001 (0.05)		0.002 (0.16)		-0.001 (-0.03)		0.014 (0.41)		0.011 (0.26)		0.003 (0.24)	
Negative		-0.484** (-2.30)		-0.138 (-1.11)		-0.702** (-2.55)		-0.149 (-0.72)		0.045 (1.10)		0.030 (1.16)
Bronze		-0.051 (-1.59)		-0.009 (-0.48)		-0.041 (-0.83)		0.020 (0.45)		0.019 (0.35)		0.008 (0.38)
Silver		-0.047 (-1.09)		-0.018 (-0.59)		-0.050 (-0.59)		0.018 (0.24)		0.093 (1.09)		0.024 (0.70)
Gold		-0.007 (-0.12)		0.010 (0.26)		0.055 (0.47)		0.054 (0.48)		-0.016 (-0.10)		0.031 (0.81)

3. Empirical results

Regression Analysis of Return Predictability

- The return predictability of the analyst rating could be attributed to known fund characteristics.
- This finding should not be taken as evidence against utilizing the analyst rating in mutual fund investment.
- Individual investors cannot easily estimate similar predictive models using a comprehensive dataset.

Net-of-Fee Fund Returns Regressed on Lagged Fund Characteristics												
Rating =	Analyst Rating				Analyst Rating (Post-July 2017)				Quantitative Rating			
	Return		Style-Adj. Return		Return		Style-Adj. Return		Return		Style-Adj. Return	
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9	Model 10	Model 11	Model 12
Turnover	-0.120** (-2.50)	-0.119** (-2.50)	0.001 (0.15)	0.002 (0.21)	-0.028 (-0.26)	-0.026 (-0.24)	0.012 (0.85)	0.013 (0.86)	-0.013 (-0.27)	-0.015 (-0.30)	0.004 (0.22)	0.003 (0.18)
Log(Fund Age)	-0.050 (-0.79)	-0.053 (-0.83)	0.046** (2.21)	0.044** (2.16)	-0.053 (-0.29)	-0.057 (-0.31)	0.027 (0.61)	0.028 (0.61)	-0.029 (-0.11)	-0.032 (-0.12)	0.080 (1.62)	0.078 (1.60)

3. Empirical results

The Textual Analysis of the Analyst Report

- The analyst rating is a discrete measure on a five-tier scale, while the underlying fund quality is continuous.
- Following the Loughran-McDonald Sentiment Word Lists (Loughran and McDonald 2011, 2016) to identify positive and negative tones by using analyst report.
- Sort mutual funds into 15 (5×3) portfolios based on the analyst rating and positive tone in the full analyst report.

3. Empirical results

The Textual Analysis of the Analyst Report

- funds with a high positive tone (low negative tone) perform better. Negative-rated funds with a low positive tone (high negative tone) underperform.
- Return predictability is further enhanced when the tone is at odds with the five-tier analyst rating.

Value-Weighted Net-of-Fee Fund Style-Adjusted Returns Sorted by the Analyst Rating and Tone								
Rank	PosTone				NegTone			
	Low	Med	High	HML	Low	Med	High	HML
Negative	-0.548** (-2.35)	-0.071 (-0.64)	-0.080 (-1.47)	0.467* (1.90)	-0.063 (-0.82)	-0.143 (-1.33)	-0.487** (-2.06)	-0.424* (-1.69)
Neutral	-0.016 (-0.62)	0.010 (0.33)	0.044 (1.30)	0.061* (1.78)	0.008 (0.39)	-0.005 (-0.16)	0.024 (0.91)	0.016 (0.66)
Bronze	-0.017 (-0.55)	0.021 (0.94)	0.057** (2.00)	0.074* (1.86)	0.013 (0.49)	0.041* (1.74)	0.018 (0.71)	0.005 (0.16)
Silver	0.012 (0.49)	0.048* (1.88)	0.039 (1.28)	0.028 (0.71)	0.044** (2.40)	0.036 (1.48)	0.029 (1.06)	-0.016 (-0.50)
Gold	0.140 (1.57)	0.038* (1.86)	0.083*** (3.02)	-0.057 (-0.61)	0.156*** (3.87)	0.082*** (3.30)	0.014 (0.48)	-0.143*** (-2.66)
Gold-Negative	0.688** (2.56)	0.109 (0.91)	0.163*** (2.69)	-0.524* (-1.88)	0.219** (2.50)	0.225** (2.07)	0.500** (2.10)	0.281 (1.11)
All	0.007 (0.32)	0.029** (2.11)	0.057*** (3.34)	0.050* (1.82)	0.047*** (3.26)	0.041*** (2.90)	0.023 (1.51)	-0.024 (-1.11)

3. Empirical results

The Textual Analysis of the Analyst Report

- Estimate the following monthly panel regression:

$$Perf_{f,t} = \alpha + \beta_1 Rating_{f,t-1} + \beta_2 Tone_{f,t-1} + \beta_3 Rating_{f,t-1} \times Tone_{f,t-1} + cM_{f,t-1} + e_{f,t}$$

Net-of-Fee Fund Returns Regressed on Lagged Fund Characteristics								
	Return				Style-Adjusted Return			
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
Analyst Rating	-0.013 (-0.66)				-0.001 (-0.10)			
Negative		-0.424** (-2.21)	-1.598*** (-3.33)	-2.942* (-1.99)		-0.123 (-1.00)	-0.256 (-1.29)	-1.074 (-1.15)
Bronze		-0.086** (-2.38)	-0.086** (-2.34)	-0.076** (-2.22)		-0.019 (-0.90)	-0.019 (-0.92)	-0.021 (-0.86)
Silver		-0.084* (-1.68)	-0.083 (-1.63)	-0.102** (-2.05)		-0.028 (-0.86)	-0.029 (-0.88)	-0.051 (-1.35)
Gold		-0.045 (-0.72)	0.564*** (2.97)	0.717*** (3.80)		0.000 (0.01)	0.284*** (3.18)	0.390*** (2.99)
PosTone	0.131** (2.21)	0.137** (2.31)	0.143** (2.22)	0.114*** (2.83)	0.034** (2.46)	0.036** (2.54)	0.043*** (2.78)	0.044* (1.92)
NegTone	-0.078* (-1.67)	-0.069 (-1.55)	-0.026 (-0.70)	0.055* (1.68)	-0.020 (-1.11)	-0.017 (-0.98)	-0.001 (-0.03)	0.016 (0.59)
Negative × PosTone			0.569*** (3.09)	1.347*** (3.27)			0.180** (2.10)	0.580** (2.09)
Negative × NegTone			0.166 (1.26)	0.023 (0.08)			-0.056 (-0.80)	-0.169 (-0.82)
Gold × PosTone			-0.044 (-0.63)	-0.113* (-1.78)			-0.063* (-1.70)	-0.108** (-2.42)
Gold × NegTone			-0.365*** (-3.94)	-0.350*** (-3.67)			-0.116*** (-3.82)	-0.126** (-2.13)

3. Empirical results

The Textual Analysis of the Analyst Report

- Positive tone is a strong predictor of future performance.
- Return predictability is enhanced when the tone is at odds with the five-tier analyst rating.
- The tone of the analyst report predicts fund performance after controlling for other managerial skill proxies documented in the literature (Models 4 and 8).
- Active share, Industry, Return Gap.
- Morningstar analysts possess unique soft information that is reflected in detailed discussions in the analyst report rather than in the five-tier analyst rating.

3. Empirical results

Do Fund Investors React to Forward-Looking Ratings?
Investors' Reaction to the Analyst Rating and Quantitative Rating

$$Flow_{f,t} = \alpha + \beta_1 Rating_{f,t-1} + cM_{f,t-1} + e_{f,t}$$

- Estimate the following monthly panel regression:

Fund Flows Regressed on Lagged Fund Characteristics									
Rating =	Analyst Rating			Analyst Rating (Post-July 2017)			Quantitative Rating		
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9
Rating	0.104*** (6.13)	-0.012 (-0.65)		0.058** (2.75)	-0.014 (-0.64)		0.242*** (8.49)	0.063** (2.64)	
Negative			0.137 (1.08)			-0.011 (-0.06)			-0.004 (-0.07)
Bronze			0.064* (1.67)			0.048 (0.88)			0.044 (0.72)
Silver			0.012 (0.23)			-0.018 (-0.32)			0.145** (2.41)
Gold			-0.052 (-0.86)			-0.063 (-0.85)			0.264* (1.89)
Star Rating	0.395*** (15.88)	0.394*** (15.69)		0.368*** (10.04)	0.369*** (9.98)		0.314*** (9.54)	0.320*** (9.38)	

3. Empirical results

Do Fund Investors React to Forward-Looking Ratings?

Investors' Reaction to the Analyst Rating and Quantitative Rating

- Past performance is a strong predictor of fund flows in all specifications, the predictive power of the analyst rating is subsumed by the star rating in the joint specification.
- The quantitative rating is positively associated with future inflows after controlling for past fund returns and the star rating, especially for gold-rated funds.

3. Empirical results

Do Fund Investors React to Forward-Looking Ratings?
Investors' Reaction to the Tone of the Analyst Report

- Estimate the following monthly panel regression:

$$\begin{aligned} Flow_{f,t} = & \alpha + \beta_1 Rating_{f,t-1} + \beta_2 Tone_{f,t-1} + \beta_3 Rating_{f,t-1} \times Tone_{f,t-1} \\ & + \beta_4 Tone_{f,t-1} \times INST_{f,t-1} \\ & + \beta_5 Rating_{f,t-1} \times Tone_{f,t-1} \times INST_{f,t-1} + \beta_6 INST_{f,t-1} \\ & + cM_{f,t-1} + e_{f,t} \end{aligned}$$

- investors mostly react to a negative tone in addition to past fund returns and the star rating.

	Fund Flows Regressed on Lagged	
	Model 1	Model 2
Analyst Rating	-0.012 (-0.66)	
Negative		0.176 (1.39)
Bronze		0.061 (1.54)
Silver		0.011 (0.21)
Gold		-0.047 (-0.77)
PosTone	0.015 (0.58)	0.009 (0.33)
NegTone	-0.058** (-2.07)	-0.059** (-2.10)

3. Empirical results

The Title and Summary Section of the Analyst Report

- The title and summary of the report could easily attract readers' attention.
- Investors react to a negative tone in the title of the report, but they do not react to the tone of the full report.

Net-of-Fee Fund Returns and Fund Flows Regressed on Lagged Fund Characteristics						
	Return		Style-Adjusted Return		Flow	
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Analyst Rating	-0.014 (-0.72)		-0.002 (-0.15)		-0.012 (-0.65)	
Negative		-0.422** (-2.16)		-0.124 (-1.01)		0.185 (1.47)
Bronze		-0.088** (-2.40)		-0.020 (-0.96)		0.057 (1.43)
Silver		-0.088* (-1.75)		-0.030 (-0.91)		0.009 (0.17)
Gold		-0.048 (-0.76)		-0.002 (-0.05)		-0.045 (-0.73)
PosTone	0.120** (2.13)	0.125** (2.20)	0.036* (1.90)	0.037* (1.95)	-0.030 (-0.89)	-0.035 (-1.00)
NegTone	-0.130* (-1.98)	-0.121* (-1.91)	-0.026 (-1.21)	-0.023 (-1.07)	0.038 (0.92)	0.036 (0.89)
PosTone_Summary	0.012 (0.61)	0.013 (0.66)	-0.002 (-0.21)	-0.002 (-0.17)	0.032* (1.80)	0.031* (1.73)
NegTone_Summary	0.038 (1.64)	0.038* (1.70)	0.004 (0.41)	0.005 (0.45)	-0.061*** (-3.25)	-0.061*** (-3.25)
PosTone_Title	-0.000 (-0.46)	-0.000 (-0.29)	0.001 (1.11)	0.001 (1.22)	0.001 (1.38)	0.001 (1.28)
NegTone_Title	-0.000 (-0.17)	-0.000 (-0.11)	0.000 (0.07)	0.000 (0.09)	-0.004** (-2.28)	-0.004** (-2.29)

3. Empirical results

Rating Initiation and Termination

- Mutual funds are sorted into two portfolios based on the change in analyst coverage at the end of month.
- Past performance is not the primary selection criterion for analyst coverage.
- Morningstar analysts choose to cover better funds with a higher potential to attract investors.

Value-Weighted Net-of-Fee Fund Returns around the Rating Switch				
Rank	[-12, -1]		[+1, +12]	
	Return	Style-Adj.	Return	Style-Adj.
Analyst Initiation	0.837** (2.65)	0.065 (1.52)	-0.022 (-0.03)	0.034 (0.92)
Analyst Termination	0.418 (1.08)	-0.094 (-0.28)	-0.887 (-1.21)	-0.873** (-2.54)
Termination-Initiation	-0.419* (-1.92)	-0.159 (-0.49)	-0.865*** (-2.99)	-0.907** (-2.64)

3. Empirical results

Other additional analyses: Five Pillars of the Analyst Rating

- Provide an additional analysis to better understand how the five key areas related to the analyst rating affect fund performance and flow. (people, process, parent, performance, and price.)
- none of the five pillars predicts fund performance on a style-adjusted basis.
- higher ratings on the parent and price pillars are associated with more capital inflows.
- process pillar is negatively associated with fund flows.

4. Conclusion

- The analyst rating not only identifies outperforming funds but also allows investors to focus on a small subset of funds when making investment decisions due to the selection of analyst coverage.
- The quantitative rating fails to identify funds that outperform their peers.
- The analyst report contains unique soft information on future performance, return predictability is enhanced when the tone is at odds with the analyst rating.
- The analyst rating is easy to observe and follow, BUT investors instead rely on the quantitative rating.