

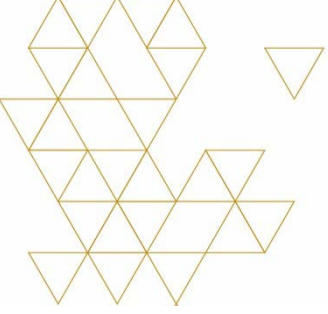
Touchstone Active Management Academy

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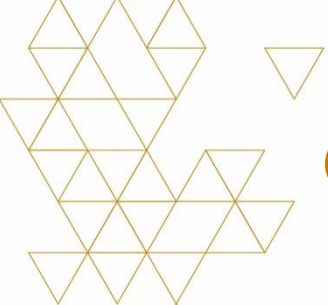
University of Notre Dame
Mendoza College of Business
Stayer Center for Executive Education





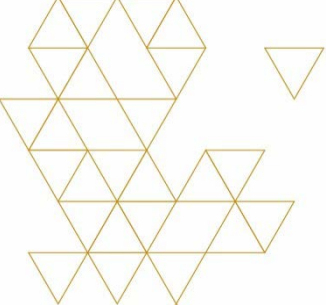
Measuring Skill

Overcoming the typical pitfalls of fund evaluation

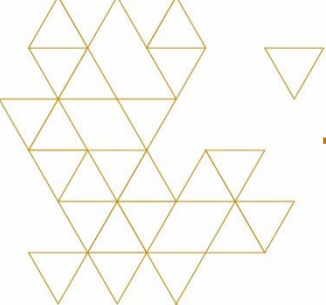


Objectives

- ▶ Explore typical industry practices
- ▶ Itemize typical measures of skill
- ▶ Discuss relevant issues for advisors in evaluating skill



Typical Practices & the Impetus for Change



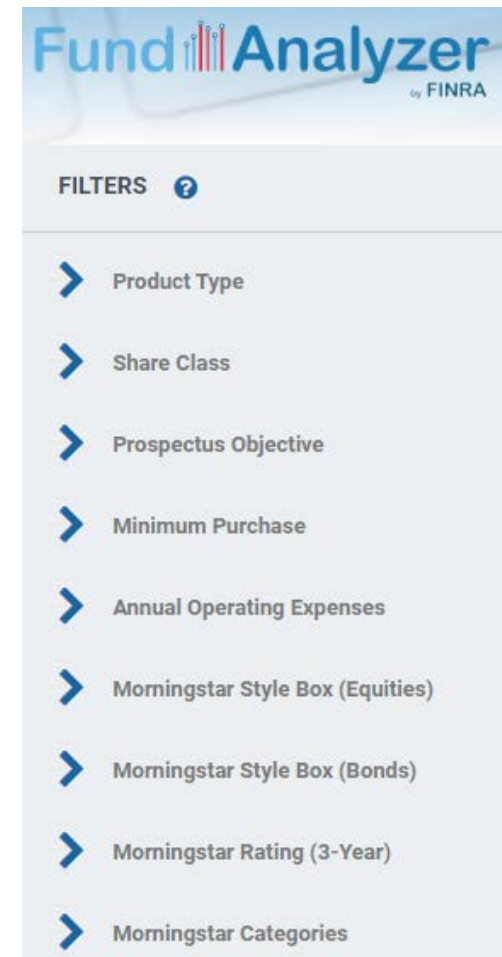
Typical Practices?

What measures of “skill” do investors – and advisors – tend to rely on when evaluating funds?



Recency Bias

- ▶ **Trailing Period Returns**
 - Through most recent month or quarter end
 - Typically 1-, 3-, 5-, 10-year and Since Inception
- ▶ **Periods consistent with FINRA/SEC Requirements for advertising and disclosure purposes**



The “Hot Dot”

Trailing Returns

	1-Day	1-Week	1-Month	3-Month	YTD	1-Year	3-Year	5-Year	10-Year	15-Year	Since Incep
Total Return %	-1.29	-1.66	-0.38	5.93	3.34	24.53	15.95	11.56	14.70	9.37	11.84
+/- Category	-0.33	-0.93	-0.29	0.63	1.98	12.74	8.21	4.86	3.61	1.57	—
+/- Index	-0.22	-0.85	-0.81	-0.75	0.50	7.93	5.01	2.55	1.37	-0.32	—
Morningstar Rating ⓘ							★★★★★	★★★★★	★★★★★	★★★★★	
Quartile Rank	☐☐☐☐	☐☐☐☐	☐☐☐☐	☐☐☐☐	☐☐☐☐	☐☐☐☐	☐☐☐☐	☐☐☐☐	☐☐☐☐	☐☐☐☐	—
Percentile Rank	94	98	65	34	13	1	1	1	1	16	—
# of Funds in Cat.	422	422	422	415	421	402	362	292	220	146	—

Source: Morningstar Direct



Chasing Stars Pitfalls



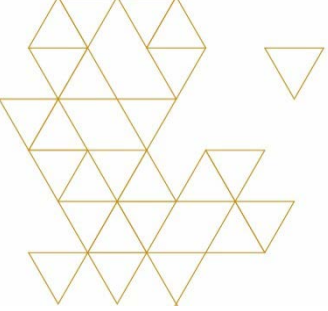
<https://www.wsj.com/articles/the-morningstar-mirage-1508946687>



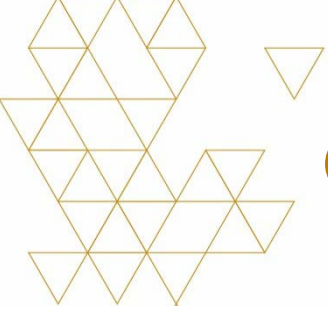
Drivers of Fund Flows

- ▶ 2019 Working Paper, Fisher College of Business, Ohio State University
https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3292317##

“...fund flow data are most consistent with investors relying blindly on fund rankings (specifically, Morningstar ratings) and chasing recent returns”



Reviewing Common Options for Skill Measurement?



Options for Evaluating Skill

- ▶ Raw Returns
- ▶ Beat Benchmark?
- ▶ “Risk”-Adjusted Returns



Raw Return

- ▶ The *raw return* on a portfolio, R_p , is simply the total percentage return on a portfolio
- ▶ The raw return is a *naive* performance evaluation measure because:
 - The raw return has no adjustment for risk
 - The raw return is not compared to any benchmark
- ▶ Therefore, the usefulness of the raw return in evaluating skill is very limited
 - Granted, a very high raw return may be tremendously useful to investors!



Excess Return

- ▶ The *excess return* on a portfolio, $R_P - R_B$, is the return of the portfolio less the return of the benchmark.
- ▶ The excess return introduces an element of skill by comparing to the benchmark. However, the excess return still has no adjustment for risk.
- ▶ The usefulness of excess return is dependent on the relevance of the benchmark comparison.



Risk-Adjusted Measures Intro

- ▶ Many risk-adjusted skill measures to choose from
- ▶ Measures should be evaluated based on type of risk adjustment:
 - “Total” Volatility-based: Sharpe Ratio, Value-at-Risk
 - “Downside” Volatility-based: Sortino Ratio, Excess Return/Drawdown
 - “Volatility of Excess Return”-based: Information Ratio
 - “CAPM/Market Risk”-based: Treynor Ratio, Jensen’s Alpha
 - “Factor Risk”-based: Multi-Factor Model Alpha
- ▶ Risk-adjusted measures of fund performance required for publication in respected academic journals:
 - CAPM Alpha
 - Fama/French (and related) Factor Model Alpha



Sharpe Ratio

- ▶ The Sharpe ratio is a reward-to-risk ratio that focuses on **“total” risk**
- ▶ It is computed as a portfolio’s risk premium (portfolio return less risk-free rate) divided by the standard deviation of the portfolio’s return

$$\text{Sharpe ratio} = \frac{R_p - R_f}{\sigma_p}$$



Sharpe Ratio Example

- ▶ LexFund has an average annual return of 17% with a standard deviation of 35%.
- ▶ OsFund has an average annual return of 12% with a standard deviation of 26%.
- ▶ If the risk-free rate is 1%, what is the Sharpe Ratio for each fund?

$$SR_L = \frac{17\% - 1\%}{35\%} = 0.457$$

$$SR_O = \frac{12\% - 1\%}{26\%} = 0.423$$



Treynor Ratio

- ▶ The Treynor ratio is a reward-to-risk ratio that only considers “**systematic**” or “**market**” risk
- ▶ It is computed as a portfolio’s risk premium divided by the portfolio’s beta coefficient

$$\text{Treynor ratio} = \frac{R_p - R_f}{\beta_p}$$



Treynor Ratio Example

- ▶ LexFund had a return of 14% during the previous year with a beta of 1.2 (20% more market risk than benchmark)
- ▶ OsFund had a return of 16% during the previous year with a beta of 1.3 (30% more market risk than benchmark)
- ▶ If the risk-free rate is 3%, what is the Treynor Ratio for each fund?

$$TR_L = \frac{14\% - 3\%}{1.2} = 9.2\%$$

$$TR_O = \frac{16\% - 3\%}{1.3} = 10.0\%$$



Jensen's Alpha

- ▶ *Jensen's alpha* is the excess return above or below the security market line
- ▶ It can be interpreted as a measure of by how much the portfolio “beat the market” after adjusting for “extra” volatility of the portfolio
- ▶ It is computed as the raw portfolio return less the expected portfolio return as predicted by the CAPM

$$\alpha_p = R_p - \left\{ R_f + \beta_p \times [E(R_M) - R_f] \right\}$$

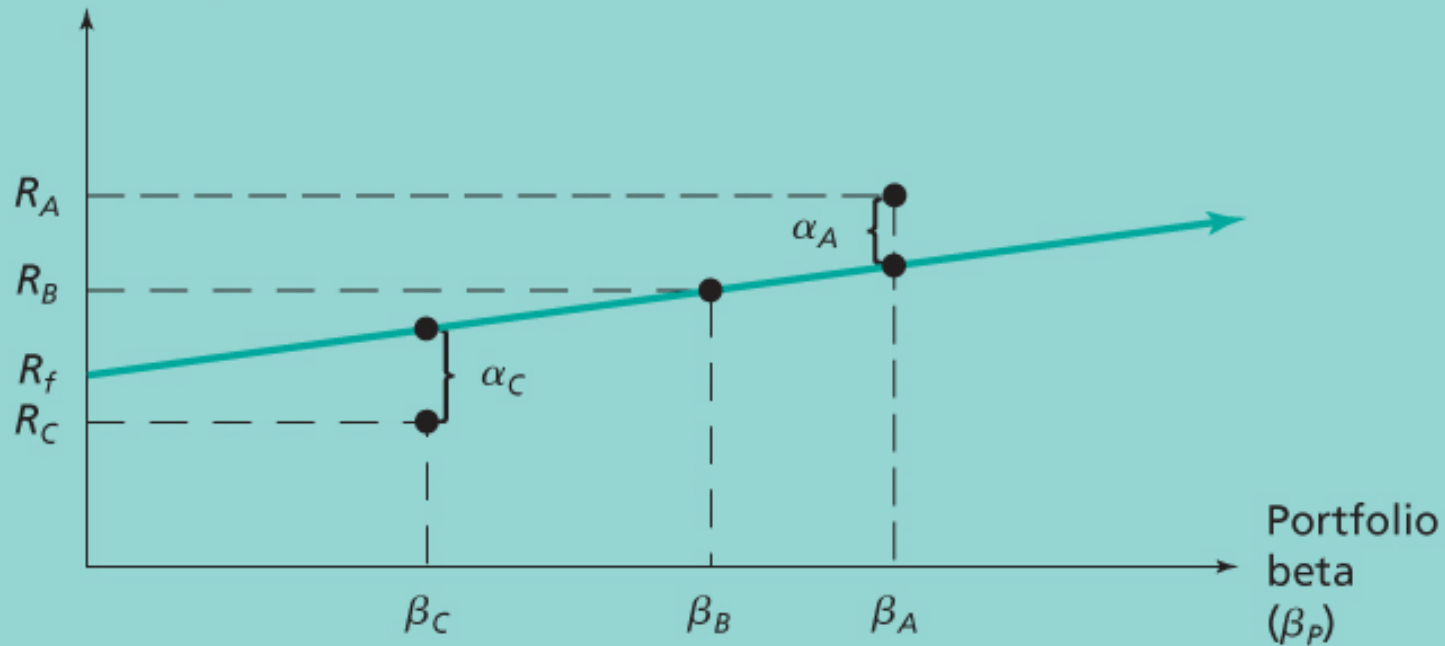
“Extra”
Return

Actual
return

CAPM Risk-Adjusted ‘Predicted’ Return

Jensen's Alpha Charted

Portfolio expected
return ($E(R_p)$)



Portfolio A plots above the Security Market Line (SML) and has a positive alpha.
Portfolio B has a zero alpha.
Portfolio C plots below the SML and has a negative alpha.



Jensen's Alpha Example

- ▶ LexFund had a return of 25% during the previous year with a beta of 1.4
- ▶ OsFund had a return of 16% during the previous year with a beta of 0.7
- ▶ If the risk-free rate is 3% and the market had a return of 20% during the previous year, what is the Jensen's alpha for each fund?

$$\alpha_L = 25\% - [3\% + 1.4 \times (20\% - 3\%)] = -1.8\%$$

$$\alpha_O = 16\% - [3\% + 0.7 \times (20\% - 3\%)] = 1.1\%$$



The Information Ratio

- ▶ Suppose a mutual fund reports a positive excess return
- ▶ The information ratio is a fund's excess return divided by its tracking error
- ▶ Tracking error measures the volatility of the fund's returns relative to its benchmark
- ▶ Adjusting for excess return assumes investors prefer to track the benchmark more closely for a given level of excess return



Calculating IR Components

- ▶ Consider a fund that over the previous five years had returns of 14%, 12%, 15%, -4%, and 5%
- ▶ During the same five years, the fund's benchmark had returns of 12%, 8%, 35%, -18%, 15%
- ▶ The tracking error is the standard deviation of the differences in return between the fund and its benchmark

$$\text{Average Difference} = \frac{(14 - 12) + (12 - 8) + (15 - 35) + (-4 + 18) + (5 - 15)}{5} = -2$$

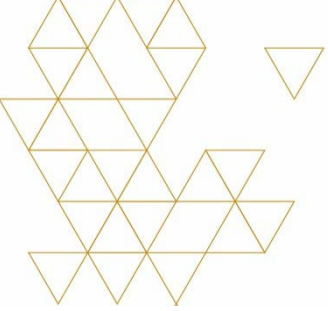
$$\text{Tracking Error} = \sqrt{\frac{((14 - 12) + 2)^2 + ((12 - 8) + 2)^2 + ((15 - 35) + 2)^2 + ((-4 + 18) + 2)^2 + ((5 - 15) + 2)^2}{4}} = 13.2$$



Information Ratio Example

- ▶ LexFund had an alpha of 2% during the previous year with a tracking error of 7%
- ▶ OsFund had an alpha of 2% during the previous year with a tracking error of 3%
- ▶ Which investment is preferable?

$$IR_L = \frac{2\%}{7\%} = 0.29 \quad IR_O = \frac{2\%}{3\%} = 0.67$$



Using and Overcoming Challenges of Typical Risk-Adjusted Measures

What Can We Find Easily Online?

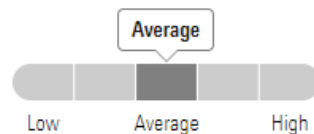
Trailing Returns

	1-Day	1-Week	1-Month	3-Month	YTD	1-Year	3-Year	5-Year	10-Year	15-Year	Since Incep
Total Return %	0.82	1.95	2.93	6.79	27.99	24.38	17.86	13.65	13.97	10.82	12.56
+/- Category	0.04	0.04	0.16	0.24	-2.23	-1.70	0.71	0.94	0.58	1.54	—
+/- Index	0.01	0.01	0.18	-1.32	-6.29	-5.46	-1.63	-1.59	-1.20	0.39	—
Morningstar Rating							★★★★	★★★★★	★★★★★		
Quartile Rank											—
Percentile Rank	45	49	43	50	73	66	43	39	39	16	—
# of Funds in Cat.	1,399	1,399	1,398	1,386	1,352	1,351	1,211	1,075	805	545	—

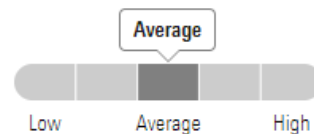
Risk 3-Yr 5-Yr 10-Yr

Morningstar Risk & Return

Risk vs. Category



Return vs. Category



Category: Large Growth as of Nov 30, 2019 | Rankings are out of 1,223 funds.

Risk & Volatility Measures

Trailing	Fund	Category	Index
Alpha	2.16	1.67	3.59
Beta	1.06	1.05	1.06
R ²	85.38	86.71	93.55
Sharpe Ratio	1.15	1.13	1.31
Standard Deviation	13.84	13.70	13.24

Fund as of Nov 30, 2019 | Category: Large Growth as of Nov 30, 2019 | Index: Russell 1000 Growth TR USD as of Nov 30, 2019 | Calculation Benchmark: S&P 500 TR USD

Source: Morningstar Direct

Challenges in Comparing Measures

Investment Performance Data

Portfolio	R_p	σ_p	β_p
A	12%	40%	.5
B	15	30	.75
C	20	22	1.4
M	15	15	1
F	5	0	0

Portfolio Performance Measurement

Portfolio	Sharpe Ratio	Treynor Ratio	Jensen's Alpha
A	.175	.14	2 %
B	.333	.133	2.5
C	.682	.107	1
M	.667	.10	0



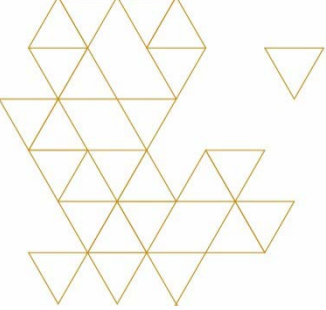
Sharpe Ratio Usage & Challenges

- ▶ Appropriate to evaluate risk when portfolio lacks an appropriate benchmark or has high idiosyncratic risks
 - Penalizes for being undiversified, because, in general, total risk \approx systematic risk only for relatively well-diversified portfolios
- ▶ Challenges:
 - Penalizes both upside and downside volatility when investors rationally aren't concerned about upside
 - Typically computed using monthly return series, then annualized; annualized standard deviation of monthly returns may overstate risk to long-term investors



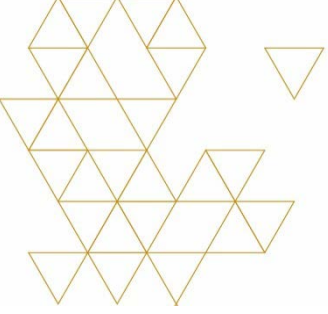
Alpha Usage & Challenges

- ▶ Generally interchangeable measures but don't compare Jensen of one fund to Treynor of another
- ▶ Challenges:
 - Require a beta estimate
 - Betas from different sources can differ a lot
 - Beta and Alpha are not reliable if low R2 with benchmark (which suggests that there is much undiversified risk relative to the benchmark used...and likely a bad benchmark)
 - Beta is computed using all return observations and may over- or under-state risk in down markets



Information Ratio Usage & Challenges

- ▶ Appropriate when investor is highly sensitive to portfolio returns that diverge from benchmark returns
- ▶ Challenges:
 - Assumes that the benchmark return pattern is preferable to the investor
 - May be inconsistent with Sharpe and Alpha which assume that investors will prefer lower volatility for the same level of return



Putting It All Together:

Enhancing Skill Evaluation and Integrating Other Characteristics



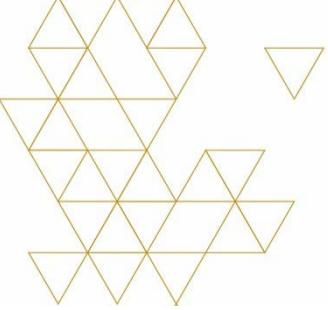
Why Adapt?

- ▶ Reg BI “Best Interest” Care Obligation & Evolving Fiduciary Responsibilities
- ▶ Academic Research evidencing that simple, backward looking ratings continue to be sole driver of fund flows
- ▶ Industry Statistics (i.e., Investor Returns, Dalbar) demonstrating that current methods are failing investors
- ▶ Options for advisors:
 - Rely on home office resources for recommended funds and supporting documentation
 - Leverage third party resources for model construction and fund evaluation
 - Develop, document and apply a process evidencing reasonable diligence, care and skill



Improving Skill Measurement

- ▶ Go Beyond 3/5/10
- ▶ Incorporate Rolling Period Analysis
- ▶ Combine Absolute and Risk-Adjusted
- ▶ Integrate Benchmark & Peer Relative
- ▶ Recognize that Fund Rating services must keep things simple in order to rate and cover thousands of funds, many with limited track records



Integrating Qualitative Factors

- ▶ What other factors are important to you and your clients?
- ▶ What factors have historically been related to future returns?
- ▶ “COPE” elements are examples
- ▶ Challenges
 - Data Availability / Computation (e.g., Capacity)
 - Efficiency
 - Team Resources
 - Behavioral Instincts

Touchstone's Multi-Pronged Approach: Three Lenses

RECENCY LENS – Important but not comprehensive

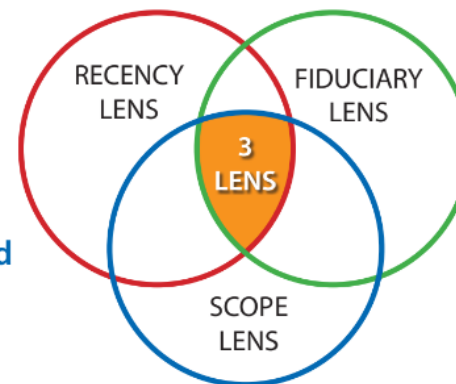
Recency Lens is evaluation based on data points that look backwards. You are likely familiar with this type of assessment, which involves readily available information and industry tools. It is beneficial to include but if it is the only method used, it can result in the potential for behavioral-biased decision-making such as buying at peaks or selling at lows of relative performance.

FIDUCIARY LENS – Expands the breadth of characteristics being considered

The Fiduciary Lens is based on the Fi360 Fiduciary Score, which provides a peer percentile ranking of an investment against a set of quantitative due diligence criteria selected to reflect prudent fiduciary management.

SCOPE LENS – Critical component for a comprehensive view

Exclusive from Touchstone is the SCOPE Lens. This proprietary model combines an asset manager's historical consistency of success with the academic research on elements that have shown to drive future success. The research is largely based on that of Dr. Martijn Cremers* of The University of Notre Dame. Touchstone believes it is critical to evaluate these specific elements of asset managers: Skill, Conviction, Opportunity, Patience, and reasonable Expenses — otherwise known as SCOPE.



TOUCHSTONE'S THREE LENS REVIEW

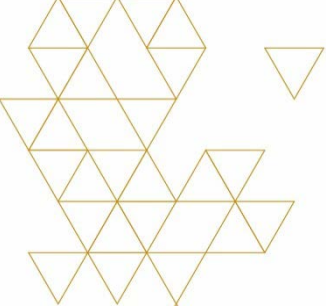
Holistically combining the SCOPE Lens with the Recency and Fiduciary Lenses, helps provide a distinctive way of evaluating your book for consistency of success. The incorporation of the SCOPE Lens as part of Touchstone's Three Lens Review helps to evaluate risks and opportunities to achieve a more defensible, scalable and efficient practice.

THREE LENS FUND EVALUATION								"RECENT LENS"	FIDUCIARY LENS	"SCOPE LENS"	"SCOPE SUMMARY"	AGGREGATE LENS			
Ticker (Input)	Fund Name	"Share Class/ Fund Type"	Accts holding Share Class	Accts holding Strategy	Share Class Assets	Strategy Assets	Morningstar Category	"Statement Risk Score"	"Fi360 Fiduciary Score"	"SCOPE Score"	S	CO	P	E	Combined Lens Evaluation
XXXXX	Fund K	Inst	✓ 26	✓ 26	102,650	102,650	US Fund Large Blend	✗ 88	✗ 84	✗ 76	⊕	⊕	⊕		3 Flags
XXXXX	Fund NH	Other	✗ 1	✗ 1	74,298	74,298	US Fund Large Blend	✗ 88	✗ 98	⚠ 47	⊕	⊕	⊕	⊕	2 Flags
XXXXX	Fund AT	A	✗ 1	✗ 1	35,853	35,853	US Fund Large Blend	✗ 88	⚠ 53	✗ 55	⊕	⊕	⊕	⊕	2 Flags



What Comes Next?

- ▶ Regional Reps will follow up with each attendee to:
 - Gather your personal feedback on this event
 - Deliver your Certificate
 - Share our ActiveShare.Info Users Guide
 - Introduce Touchstone's Three Lens Evaluation and personalize an analysis for you
 - Identify relevant next steps for you and your team



Touchstone Securities, Inc., has partnered with Professor Martijn Cremers to provide consulting services. Touchstone and Professor Martijn Cremers are independent of each other.

Active Share measures the percentage of the Fund's holdings that differ from those of the benchmark. It is calculated by taking the sum of the absolute difference between all of the holdings and weights in the portfolio and those of the benchmark holdings and weights and dividing the result by two. Index performance is not indicative of fund performance. Investing in an index is not possible. Active Share is not a performance measurement. There are no assurances that any strategy or investment approach will meet its objectives. This information should not be considered as investment advice or a recommendation of any particular security, strategy or investment product. Past performance is not indicative of future results.

*Performance data quoted represents past performance, which is no guarantee of future results. The investment return and principal value of an investment in the Fund will fluctuate so that an investor's shares, when redeemed, may be worth more or less than their original cost. Current performance may be higher or lower than performance data given. **For performance information current to the most recent month-end, visit TouchstoneInvestments.com/mutual-funds.** From time to time, the investment advisor may waive some fees and/or reimburse expenses, which if not waived or reimbursed, will lower performance. Performance by share class will differ due to differences in sales charges and class expenses. Calendar year returns of the Fund and the Benchmark do not include the effects of the applicable sales charge which would lower returns. Returns assume reinvestment of all distributions.*

Please consider the investment objectives, risks, charges and expenses of the Fund carefully before investing. The prospectus and the summary prospectus contain this and other information about the Fund. To obtain a prospectus or a summary prospectus, contact your financial advisor or download and/or request one at TouchstoneInvestments.com/resources or call Touchstone at 866.610.6673. Please read the prospectus and/or summary prospectus carefully before investing.

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