

The benefits of using managed risk equity to improve portfolio returns: JDIEX a case in point

Provided by EAB Investment Group, LLC

Written by: Arnim Holzer and William Visconto, Portfolio Managers of James Alpha Managed Risk Domestic Equity Fund (JDIEX)

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Study Objectives:

The purpose of this study is to illustrate the positive impact of minimizing drawdowns during market stress as it relates to long term absolute returns. Specifically, we seek to make quantifiable the implications of the James Alpha Managed Risk Domestic Equity Fund's (JDIEX) performance asymmetry for strategic asset allocation and the confidence around mean expected portfolio returns. Over the past 15 years, there has been growing conviction in the value of alternative investments as a diversifying asset class, but most proponents recommend using these within a basket of alternatives rather than within a traditional asset class. While many of the alternative strategies align with or relate to the beta of traditional asset classes (such as long/short equity or long/short fixed income credit), these funds are often still bucketed within an alternatives allocation because their performance signatures may not optimize clearly with the more traditional asset class exposures. In the case of managed risk equity, however, the authors' conjecture that the asymmetry of the pattern of return and its systematic nature could present significant benefits being paired with other equity funds.

Asymmetry of return presents difficulties to asset allocation methodologies, which assume normality, often hiding the benefits of systematically reduced downside. In the case of JDIEX, a managed risk equity approach, the asymmetry of the performance signature arises from the unique leveraged options structure which reduces correlation to the S&P 500 during 1 to 2 standard deviation declines (see chart below). Rather than focus on a pure risk or volatility minimization approach (which are based often on Gaussian distributions), we have used advanced techniques to consider the value of asymmetry. Fundamentally, we believe advisors value greater certainty of outcomes and have become concerned with asset allocation's recent history of failure. These failures have been due to the greater than expected correlation instability and the reality that most funds' realized performance is not distributed normally. By targeting three levels of equity portfolio volatility risk we have isolated emphasis on the factors of drawdown risk and expected portfolio return dispersion. The results show an actionable set of overall improvement around tightened distribution of expected return, enhanced risk taking, and *reduced drawdowns*. The results present intuitively from both an investment as well as a planning basis. Fundamentally, the reduction of risk has its limitations but the improvement in outcome certainty has defined value that we believe can positively impact client/ advisor outcomes.

Summary Conclusions:

- The results show the advantages of mixing JDIEX with higher value-added, higher Beta investments in improving overall portfolio returns over the long term.
- Improves overall return and lowers drawdown risks for portfolios with higher risks instruments. The 20% target volatility portfolio merited an approximate 15% to 18% allocation to JDIEX and fostered inclusion of higher beta investments.
- A low risk 8% targeted equity portfolio volatility can be constructed combining JDIEX and selected equity satellites. This was not achievable by using S&P 500 (SPY) as the core.
- Tighter expected return distribution and/or lowered drawdown risk was achieved using JDIEX as the core strategy against which satellites were positioned.
- Expected return dispersion matters more than Sortino and Sharpe when working with non-normalized distributions.
- The portfolio simulations showed both notable early sequence of return improvement and end of period greater confidence around mean returns in Monte Carlo simulations.

Underlying Mechanics:

The approach utilizes advanced statistical methods to ascertain the portfolio impacting characteristics of JDIEX's asymmetrical distribution. In order to do this, we selected three commonly accepted target equity portfolio volatility levels of 8%, 14%, and 20% volatility. We took a non-gaussian (non-normal distribution) approach in order to construct Sharpe and Sortino optimized portfolios using JDIEX and non-JDIEX assets. We created four mirror core-satellite approaches at each targeted volatility level using either JDIEX or SPY as core with XAR (Aerospace and Defense), QQQ (NASDAQ), EFA (MSCI EAFE Ex US), IWM (Russell 2000), XBI (S&P Biotech), MJ (Cannabis ETF), and IGM (S&P expanded tech sector) as the satellite assets for the Sortino and Sharpe optimization. Each model portfolio maximized the ratios at those levels of volatility where possible. The list of ETFs is not meant to be all inclusive but covers a reasonable range of sector, regional, and high Beta equity ETFs. The use of diverse equity ETFs is important because it has been noted that the core-satellite approach is an effective way to exploit market inefficiency and maintain diversification while keeping overall fees reasonable. We populated the study with returns based on the last three years of market cycle including the 2016-2018 period. While three years may be considered a short time period, we see the period as a mini market cycle comprising both bull and bear periods.

Unusual, however, is the relatively low level of volatility and number of days up or down greater than 1%. Even 2018, with its higher number of down days than 2017, was lower than the 10-year average prior. Despite this we see the selected period as a reasonable (if not most preferential) test of expected return, correlation, and volatility characteristics over a market cycle. During this period, despite the positive equity skew, even diversified equity allocations seemed to disappoint against client volatility and drawdown expectations. We chose to benchmark against the S&P 500 (SPY), an arguably difficult benchmark upon which to improve, to test the benefits of correlation and drawdown management against the low fee accepted core strategy. As a managed risk fund, JDIEX performs at a demonstrably lower volatility than the S&P and (with its historic 40%-60% Delta to the S&P) provides pleasing market cycle Sharpe ratios as well. While many studies solely focus on volatility minimization or efficiency, this might not appropriately communicate the real performance characteristics of standard strategic asset allocations. This has often hindered alternative funds use. So rather than determine an expected return for a given allocation we optimized against overall portfolio volatility.

We then performed a Monte Carlo analysis of return across 10,000 randomized simulations of these optimized core-satellite portfolios. The distributions of returns for each volatility subset generally showed tighter distributions for the JDIEX portfolios and asymmetrically improved portfolio drawdown characteristics. We believe if the numbers had been extended to 10 years (difficult to do as the simulation should be run on a data set as robust as the data history, not possible as JDIEX return history is shorter) the implications are pretty clear that confidence with JDIEX is quite a bit better than without it.

Notably, with JDIEX we were able to achieve an 8% target volatility level, something not possible in our dataset without JDIEX.

We did not compare any of our competitors' data but believe the uniqueness of our systematic approach and our historic greater correlation reduction under market stress could hold true against them as well.

Statistical Methods Utilized:

Our methodology consists of several steps.

- First, we construct optimal portfolio compositions given the universe of nine chosen ETFs and JDIEX using the 3-year concurrent history ending on February 27, 2019. We optimize to the maximum Sortino or Sharpe ratios under several simultaneous constraints and bounds for individual component weights. The constraints can be set to request volatility within a narrow corridor of a target level. A constraint for target returns can be efficiently set in the similar fashion. Using a long only constraint, the sum of all weights is always 100%. To maximize for Sortino or Sharpe ratios we convert the original expression (containing numerator and denominator) into a different expression including a market price of risk coefficient. The use of market price of risk as an additional parameter of optimization allows us to capture better a balance between returns and risk while continue to optimize for a specific target. The process continues to solution through an optimization described as CVXPY and referred to in (*https://web.stanford.edu/~boyd/papers/pdf/cvxpy_paper. pdf*) for these calculations. If a problem does not yield to convex optimization, then a general purpose SLSQP optimization (*Kraft, D. A software package for sequential quadratic programming. 1988. Institute for Flight Mechanics, Koln, Germany*) is used.
- 2. Using historical prices and the target model allocation portfolios, we built a historical portfolio model sequence assuming no intermediate rebalancing. We understand that typically annual rebalancing is done but our purpose was to evaluate the impact of losses not confuse results with the risk minimization of rebalancing. Additional concerns over the form of rebalancing are avoided with this approach, allowing the study to focus on the specifics of non-Gaussian distribution. Once the portfolio's historical prices were established we utilized TARCH/ZARCH model (https://www.sciencedirect.com/science/article/pii/0165188994900396) from a family of asymmetric GJR-GARCH models. The Heavy-tail nature of returns were recognized via the use of Student's T distribution within the process.
- 3. Assuming the 3-year dataset of returns and cross product provide a reasonable set of observations and ETFs liquidity, we projected the portfolios future dynamics. For this we used a GARCH-like model to generate multiperiod forecasts following an assumed distribution (Student's T) for standardized residuals. A Monte Carlo approach is used to generate the potential scenario of a portfolio for the next three years. We intentionally kept the future horizon (3Y) to be the same as the historical data on which we generated the model. For each portfolio we generate 10,000 paths each containing 252*3 trading days. Standard statistical techniques are used to process the generated data and create distributions both in time and at the full three-year horizon.

JDIEX Leveraged Downside Protection and Correlation Protection Under Equity Stress

The systematic downside protection of JDIEX arises from its 150% of notional protection when the S&P 500 moves down into the -2% to -7% range. As the S&P drops into that range, the correlation of the fund dramatically drops reducing fund losses. The rapid drop of correlation during meaningful equity declines serves as a powerful diversifier. The chart below tangibly shows how responsively the systematic approach has behaved.

Charts:

JDIEX Asymmetry arises from a unique defensive options structure that reduces correlation under significant equity downdrafts as compared to other asset classes.





Source: Bloomberg Data and EAB Investment Group. Past performance is no guarantee of future results.

Study Components:

Beta to SPY								
JDIEX	SPY	IWM	XBI	IGM	XAR	QQQ	EFA	MJ
0.60	1.00	1.26	1.70	1.17	1.05	1.14	1.12	0.95
0.46	1.00	1.01	1.50	1.40	0.93	1.33	0.63	0.96
0.30	1.00	1.60	1.80	1.25	1.10	1.40	1.20	1.60
	JDIEX 0.60 0.46 0.30	Beta to SP JDIEX SPY 0.60 1.00 0.46 1.00 0.30 1.00	SPY IWM 0.60 1.00 1.26 0.46 1.00 1.01 0.30 1.00 1.60	Beta to SPY IWM XBI 0.60 1.00 1.26 1.70 0.46 1.00 1.01 1.50 0.30 1.00 1.60 1.80	Beta to SPY JDIEX SPY IWM XBI IGM 0.60 1.00 1.26 1.70 1.17 0.46 1.00 1.01 1.50 1.40 0.30 1.00 1.60 1.80 1.25	Beta to SPY JDIEX SPY IWM XBI IGM XAR 0.60 1.00 1.26 1.70 1.17 1.05 0.46 1.00 1.01 1.50 1.40 0.93 0.30 1.00 1.60 1.80 1.25 1.10	Beta to SPY JDIEX SPY IWM XBI IGM XAR QQQ 0.60 1.00 1.26 1.70 1.17 1.05 1.14 0.46 1.00 1.01 1.50 1.40 0.93 1.33 0.30 1.00 1.60 1.80 1.25 1.10 1.40	Beta to SPY IWM XBI IGM XAR QQQ EFA 0.60 1.00 1.26 1.70 1.17 1.05 1.14 1.12 0.46 1.00 1.01 1.50 1.40 0.93 1.33 0.63 0.30 1.00 1.60 1.80 1.25 1.10 1.40 1.20

Source: Bloomberg Data and EAB Investment Group. Past performance is no guarantee of future results.

Optimized Portfolios, Conditions, and Comments:

8% Target Volatility portfolio scenario provides alternative to fixed income for equity diversification while generating solid returns. Also addresses sequence of return sensitivity.

Strategy Portfolio	JDIEX	SPY	IWM	XBI	IGM	XAR	QQQ	EFA	MJ
8% Volatility Target with JDIEX Optimized for Sharpe	70.00%	0.30%	0.20%	0.20%	0.20%	0.20%	0.20%	23.67%	1.58%
8% Volatility Target with JDIEX Optimized for Sortino	70.00%	0.20%	0.20%	0.20%	0.20%	0.20%	0.20%	22.58%	1.53%
8% Volatility Target without JDIEX Optimized for Sharpe	0.01%	63.84%	0.20%	0.20%	0.20%	0.20%	0.20%	32.31%	2.84%
8% Volatility Target without JDIEX Optimized for Sortino	0.01%	63.84%	0.20%	0.20%	0.20%	0.20%	0.20%	32.31%	2.84%

Source: EAB Investment Group. Investors cannot directly invest in an index and unmanaged index returns do not reflect any fees, expenses or sales charges. Past performance is no guarantee of future results.

JDIEX heavy allocation with International developed satellite combines to achieve 8% target at satisfactory Sortino ratio. With SPY as the core an 8% target volatility portfolio was not achievable.

Strategy Portfolio	E(Return)	Volatility	Sharpe	Sortino	Dispersion
8% Volatility Target with JDIEX Optimized for Sharpe	7.73%	8.19%	0.94	1.11	23.93%
8% Volatility Target with JDIEX Optimized for Sortino	7.70%	8.13%	0.95	1.11	23.69%
8% Volatility Target without JDIEX Optimized for Sharpe	13.85%	12.44%	1.11	1.34	46.63%
8% Volatility Target without JDIEX Optimized for Sortino	13.85%	12.44%	1.11	1.34	47.28%

Optimized Portfolio Characteristics 8% target

Source: EAB Investment Group. Past performance is no guarantee of future results.

JDIEX Based portfolio targeting 8% annualized level of volatility provides tight distribution of expected returns with minimum downside risk.

(Time series of expected portfolio values at three years of daily simulation including 1st through 99th percentile.)



JDIEX Based portfolio targeting 8% annualized level of volatility provides significantly fewer larger 20-day drawdowns versus a non-JDIEX using portfolio

(Non-JDIEX portfolios could not quite achieve the low 8% target.)



Source: EAB Investment Group. Past performance is no guarantee of future results.

Conclusions: 8% target volatility is achievable through a 70% JDIEX allocation optimized for fixed income plus target returns with embedded dropping stress correlation to the S&P. <u>If advisors have concerns with fixed income or credit product diversification this portfolio could improve portfolio returns while enhancing overall portfolio return confidence.</u>

20% target volatility scenario improves return, Sharpe and Sortino ratios with lowered downside risks.

Strategy Portfolio	JDIEX	SPY	IWM	XBI	IGM	XAR	QQQ	EFA	MJ
20% Volatility Target with JDIEX Optimized for Sharpe	18.27%	1.56%	0.20%	32.17%	0.20%	0.20%	0.20%	8.10%	39.10%
20% Volatility Target with JDIEX Optimized for Sortino	14.99%	3.32%	2.16%	31.52%	1.65%	0.20%	0.20%	7.49%	38.46%
20% Volatility Target without JDIEX Optimized for Sharpe	0.00%	0.20%	0.20%	25.06%	0.20%	0.20%	0.20%	33.93%	40.00%
20% Volatility Target without JDIEX Optimized for Sortino	0.00%	0.20%	0.20%	25.06%	0.20%	0.20%	0.20%	33.94%	40.00%

Source: EAB Investment Group. Investors cannot directly invest in an index and unmanaged index returns do not reflect any fees, expenses or sales charges. Past performance is no guarantee of future results.

20% target equity volatility portfolios merit significant allocation in JDIEX and increase higher Beta strategy allocations.

Strategy Portfolio	E(Return)	Volatility	Sharpe	Sortino	Dispersion
20% Volatility Target with JDIEX Optimized for Sharpe	19.19%	20.05%	0.96	1.31	69.32%
20% Volatility Target with JDIEX Optimized for Sortino	19.57%	19.95%	0.98	1.34	71.37%
20% Volatility Target without JDIEX Optimized for Sharpe	18.52%	19.95%	0.93	1.25	67.49%
20% Volatility Target without JDIEX Optimized for Sortino	18.52%	19.95%	0.93	1.25	66.83%

Optimized Portfolio Characteristics-20% volatility target

20% target volatility portfolio distributions (whether Sharpe or Sortino optimized) show better potential expected return with less downside risk.

(Time series of expected portfolio values at three years of daily simulation focused on 25th through 75th percentiles.)



Source: EAB Investment Group. Past performance is no guarantee of future results.

Distribution of 20% target volatility Sortino optimized.

(Time series of expected portfolio returns at three years of daily simulation focused on 25th through 75th percentiles.)





20% target volatility portfolios that include JDIEX exhibit noticeably

Source: EAB Investment Group. Past performance is no guarantee of future results.

Conclusions: At the 20% target volatility level, the use of JDIEX increases expected return, reduces downdraft risk, and increases the positive skew of the blended portfolio. The 15%-18% allocation to JDIEX meaningfully changes the ability of the satellite portion to reach for return.

14% target return Equity Portfolio-Improved confidence levels through tighter distributions and lowered downside risks:

Strategy Portfolio	JDIEX	SPY	IWM	XBI	IGM	XAR	QQQ	EFA	MJ
14% Volatility Target with JDIEX Optimized for Sharpe	10.00%	7.00%	7.00%	11.90%	7.00%	7.00%	7.00%	36.10%	7.00%
14% Volatility Target with JDIEX Optimized for Sortino	10.00%	7.00%	7.00%	11.90%	7.00%	7.00%	7.00%	36.10%	7.00%
14% Volatility Target without JDIEX Optimized for Sharpe	0.01%	17.27%	7.00%	7.72%	7.00%	7.00%	7.00%	40.00%	7.00%
14% Volatility Target without JDIEX Optimized for Sortino	0.01%	17.27%	7.00%	7.72%	7.00%	7.00%	7.00%	40.00%	7.00%

Source: EAB Investment Group. Investors cannot directly invest in an index and unmanaged index returns do not reflect any fees, expenses, or sales charges. Past performance is no guarantee of future results.

14% target equity volatility portfolios using JDIEX increase Biotech (higher Beta).

Strategy Portfolio	E(Return)	Volatility	Sharpe	Sortino	Dispersion
14% Volatility Target with JDIEX Optimized for Sharpe	16.01%	13.95%	1.15	1.43	57.13%
14% Volatility Target with JDIEX Optimized for Sortino	16.01%	13.95%	1.15	1.43	57.81%
14% Volatility Target without JDIEX Optimized for Sharpe	16.27%	13.95%	1.17	1.43	58.69%
14% Volatility Target without JDIEX Optimized for Sortino	16.27%	13.95%	1.17	1.43	58.19%

Optimized Portfolio Characteristics-14% target

14% target volatility Sharper optimized portfolio distributions show similar potential expected return but tighten distribution around mean expected. (Distribution of 3-year expected returns.)



Source: EAB Investment Group. Past performance is no guarantee of future results.





Source: EAB Investment Group. Past performance is no guarantee of future results.

Conclusions: At the 14% target volatility level, the use of JDIEX in a 10% allocation reduces downdraft risk and modestly tightens the distribution of returns around the expected mean. While not as compelling a case as the low or high target volatility portfolios, the fact that the 14% optimizations justify a JDIEX allocation speaks to the underlying value in downside reduction. As the past three years of data was mostly characterized by low volatility, it is possible that the defensive qualities of JDIEX were of more moderate usefulness in the dataset. As a result, we believe the justified allocation in the 14% volatility range (or what may be called a "sweet spot" of equity risk) makes the case even more strongly should allocators or investors have concerns that future elevated volatility environments arise.

JA Managed Risk Domestic Equity Fund

As of 3/31/19

	3-Month	6-Month	1-Year	3-Year	Since Inception 8/3/2015
I Shares	6.48%	2.96%	7.48%	5.86%	4.13%
S&P 500	13.65%	-1.72%	9.50%	13.51%	10.75%

Investors cannot directly invest in an index and unmanaged index returns do not reflect any fees, expenses or sales charges. Performance data quoted above is historical. Past performance does not guarantee future results and current performance may be lower or higher than the performance data quoted. The investment return and principal value of an investment will fluctuate, so that shares when redeemed may be worth more or less than their original cost. The Funds' management has contractually waived a portion of its management fees until December 31, 2019. The performance shown reflects the waivers without which the performance would have been lower. The maximum sales charge on purchases of A Shares is 5.75%. For performance information current to the most recent month-end, please call 888.814.8180.

Expense Ratios:

Managed Risk Domestic Equity Fund

	I Shares	A Shares	C Shares
Before Reimbursement	2.35%	2.80%	3.55%
After Reimbursement	oursement 2.22%		3.43%

Pursuant to an operating expense limitation agreement between the Manager and the Portfolio, the Manager has agreed to waive its fees and/or absorb expenses of the Portfolios to ensure that Total Annual Portfolio Operating Expenses (excluding front end and contingent deferred sales loads, interest and tax expenses, dividends and interest on short positions, brokerage commissions, expenses incurred in connection with any merger, reorganization or liquidation, extraordinary or non-routine expenses and Acquired Fund Fees and Expenses) for the JA Managed Risk Domestic Equity Fund do not exceed 2.25%, 1.79%, and 3.0% of the Portfolio's average net assets for Class A, Class I, and Class C Shares, respectively, through December 31, 2019, (each an "Expense Cap").

Definitions:

Beta: A measure of the volatility, or systematic risk, of a security or a portfolio in comparison to the market as a whole. Beta is used in the capital asset pricing model (CAPM), a model that calculates the expected return of an asset based on its beta and expected market returns.

GARCH Model: The generalized autoregressive conditional heteroskedasticity (GARCH) process is an econometric term developed in 1982 by Robert F. Engle, an economist and 2003 winner of the Nobel Memorial Prize for Economics, to describe an approach to estimate volatility in financial markets.

Monte Carlo Simulations: Monte Carlo simulations are used to model the probability of different outcomes in a process that cannot easily be predicted due to the intervention of random variables. It is a technique used to understand the impact of risk and uncertainty in prediction and forecasting models.

S&P 500 Index: An index of 500 stocks chosen for market size, liquidity and industry grouping, among other factors. The S&P 500 is designed to be a leading indicator of U.S. equities and is meant to reflect the risk/return characteristics of the large cap universe.

Sequence of Returns: Involves the order in which investment returns occur and the impact of those returns on people who are near retirement, transitioning into retirement, or recently retired.

Sharpe Ratio: A measure for calculating risk-adjusted return, it is the average return earned in excess of the risk-free rate per unit of volatility or total risk. Generally, the greater the value of the Sharpe ratio, the more attractive the risk-adjusted return.

Sortino Ratio: The Sortino ratio is a variation of the Sharpe ratio that differentiates harmful volatility from total overall volatility by using the asset's standard deviation of negative portfolio returns, called downside deviation, instead of the total standard deviation of portfolio returns.

Student's T Distribution: Is any member of a family of continuous probability distributions that arises when estimating the mean of a normally distributed population in situations where the sample size is small and population standard deviation is unknown.

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EAB Investment Group, LLC specializes in risk mitigation strategies and works with hedge funds, family offices, highnet-worth individuals, investment companies and other advisors. EAB Investment Group uses equity and index option strategies based on a proprietary process with the goal to reduce portfolio risk and increase the probability of success. A deep understanding of options pricing enables EAB Investment Group to manage carry and attempt to mitigate costs over time, and potentially optimize monetization.

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Model returns do not reflect actual trading and may not reflect the impact that material economic and market factors may have had on the adviser's decision-making had the adviser actually managed client funds.

The S&P 500 Index consists of 500 stocks chosen for market size, liquidity, and industry group representation. It is a market-value weighted index (stock price times number of share outstanding), with each stock's weight in the Index proportionate to its market value. The S&P 500 is one of the most widely used benchmarks of US equity performance.

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Derivatives may be volatile and some derivatives have the potential for loss that is greater than the Portfolio's initial investment. If the Portfolio sells a put option, there is risk that the Portfolio may be required to buy the underlying investment at a disadvantageous price. If the Portfolio sells a call option, there is risk that the Portfolio may be required to sell the underlying investment at a disadvantageous price. If the Portfolio purchases a put option or call option, there is risk that the price of the underlying investment will move in a direction that causes the option to expire worthless. The Portfolio's ability to achieve its investment objective may be affected by the risks attendant to any investment in equity securities.

Shares of ETFs have many of the same risks as direct investments in common stocks or bonds. In addition, their market value is expected to rise and fall as the value of the underlying index or bond rises and falls. It is possible that the hedging strategy could result in losses and/or expenses that are greater than if the Portfolio did not include the hedging strategy. The use of leverage by the Fund or an Underlying Fund, such as borrowing money to purchase securities or the use of derivative, will indirectly cause the Fund to incur additional expenses and magnify the Fund's gains or losses. Because a large percentage of the Portfolio's assets may be invested in a limited number of issuers, a change in the value of one or a few issuers' securities will affect the value of the Portfolio more than would occur in a diversified fund.

The Portfolio will borrow money for investment purposes. Leveraging investments, by purchasing securities with borrowed money, is a speculative technique that increases investment risk while increasing investment opportunity. The dollar value of the Portfolio's foreign investments will be affected by changes in the exchange rates between the dollar and the currencies in which those investments are traded.

Past performance is not a guarantee nor a reliable indicator of future results. As with any investment, there are risks. There is no assurance that any portfolio will achieve its investment objective. Mutual funds involve risk, including possible loss of principal. Investors should carefully consider the investment objectives, risks, charges, and expenses of the Fund. This and other information is contained in the Fund's prospectus, which can be obtained by calling 888.814.8180 and should be read carefully before investing. The Saratoga Advantage Trust's Funds, including all of the James Alpha funds, are distributed by Northern Lights Distributors, LLC, member FINRA/SIPC. 11/11© Saratoga Capital Management, LLC; All Rights Reserved. Saratoga Capital Management LLC, EAB Investment Group LLC, and James Alpha Advisors, LLC are not affiliated with Northern Lights Distributors LLC. For additional Fund literature visit www.JamesAlphaAdvisors.com or www. SaratogaCap.com.

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