

# AN APPROACH FOR CAPTURING BEHAVIORAL ALPHA

## AQIS Frequently Asked Questions

January 1, 2019

### MARKETS ARE DYNAMIC

Dynamic environments require dynamic strategy, systematically implemented to enhance the durability of alpha capture, and to capitalize on the biases and emotions that often pollute the discretionary investment process.

### AUTHOR

**K. C. Hamann**

Founder and Managing Member

## FAQ

AQIS DIVERSIFIED ALPHA II

### ABOUT

**AQIS** manages the AQIS Diversified Alpha I Fund, a quantitative hedge fund strategy launched in April of 2017 and focused on systematic long/short equity investing.

**AQIS** believes stock-picking skill exists, but the average professional investor is a sub-optimal portfolio manager. AQIS finds that on average, the effort of fundamental discretionary managers is seasonal and appears to be impacted by the accumulation of carried interest, position sizing is not a durable skill and is likely polluted by marketing strategy, and style-bias tends to corrupt return consistency. These issues create generally predictable behavioral patterns that have historically diminished the return stream LPs receive. AQIS was founded to transform behavioral issues from a bug polluting the alpha-capture LPs receive, into a feature of human behavior to be profited from.

### FOR MORE INFORMATION

To learn more about AQIS, please contact us by email at [Information@AQISinvest.com](mailto:Information@AQISinvest.com) or by phone at 203-433-8103.

### Table of Contents

Q: What is the firm philosophy? What is your edge? .....	2
Q: How does Fund II compare to Fund I? .....	3
Q: What does a typical portfolio look like? .....	4
Q: How are risk and factor exposures managed? Does the strategy generate Alpha? .....	4
Q: What is “Behavioral Alpha”? .....	5
Q: Are other investors using 13-F data the same way AQIS is? .....	7
Q: What is the greatest risk to the strategy? .....	8
Q: What is the capacity of the strategy? .....	8
Q: The beta indicator is used to govern net and gross exposures. How confident are you the beta indicator has true predictive capacity? .....	9
Q: Why invest in AQIS relative to peers, and why invest now? .....	13
Q: What are the backgrounds of the managers? .....	14

### Q: What is the firm philosophy? What is your edge?

The AQIS strategy was designed to systematically harvest the collective wisdom of professional discretionary investors. The goal was to leverage our discretionary investing experience and create a systematic process that would deliver a superior return to hedge fund investors by reducing the deleterious impact sub-optimal decision making and risk management biases tend to have on the investing processes of the typical fundamental discretionary investment manager.

AQIS believes returns are a function of skill, behavioral drag, and beta exposure, and that most funds produce returns that are significantly lower than what they could generate otherwise. AQIS believes this is due to the impact of sub-optimal behaviors, behaviors that are likely motivated by loss aversion and a myopic embrace of calendar year compensation schedules. The core belief of AQIS is that stock-picking skill exists, but the traditional strategy allocators have been subjected to of relying on fundamental discretionary investors to access and monetize that skill in discretionary long/short equity vehicles is a demonstrably sub-optimal approach, to say the least. To say the worst, it has been a multi-decade experiment that has arguably failed investors in the broader hedge fund landscape.

AQIS finds that on average, the effort of fundamental discretionary managers is seasonal and we believe this is a consequence of the accumulation of carried interest and a managers desire to protect the fee they are owed at year-end. AQIS also finds evidence that position sizing is sub-optimal and a non-durable skill and evidence suggests the reason this occurs is because position sizing decisions can be polluted by marketing strategy. Style-bias is another issue that an exhaustive data analysis reveals to be a phenomenon that corrupts return consistency. AQIS believes these issues lead to crowded trades, correlated return streams, and inferior alpha-capture compared to what is possible if one follows a systematic approach to monetizing discretionary insights. Leveraging an intimate familiarity of the biased behavior that is pervasive across the hedge fund landscape, AQIS was founded to transform behavioral issues from a bug polluting the alpha-capture LPs receive, into a feature of human behavior to be profited from.

The AQIS edge is derived from experience and practitioner knowledge of how hedge funds behave and what drives stock returns. To construct models capable of achieving our goal of transforming bias from a return headwind into an engine of alpha-capture likely requires years of experience developing detailed knowledge of the fundamental drivers of stocks. AQIS believes it also requires developing an ability to form an accurate opinion about the appeal of a group of stocks as longs or shorts using three primary inputs: (i) the 13-F data of the transacting firm, their history, and their peer group history in the current market regime, (ii) fundamental data on the underlying stock and (iii) technical data on the underlying stock. The AQIS edge resides in understanding how to measure the fingerprints of hedge funds and leverage this insight to harvest the information content of their trading behavior, accumulating positions in stocks that are likely to generate long or short alpha, and leaving behind positions with inferior appeal.

With a source of alpha that is derived from an understanding of behavior, as opposed to the distillation of big data sets or the fundamental or technical characteristics of a stock, which often leads to a strategy with style-bias, AQIS is a quantitative firm specializing in *small data*, with a foundational strategy designed to capture “behavioral alpha”. These are returns AQIS has demonstrated are available by taking a statistical fingerprint of thousands of individual hedge fund firms and monetizing their behavior.

The unique insight of AQIS is applying practitioner knowledge of how to measure and identify hedge fund biases and how to properly measure conviction, which AQIS uses as a compass to systematically construct portfolios of long and short positions based on the behavior of the managers AQIS tracks. AQIS was launched in response to deep reflection about the problems that plague the typical discretionary investing process and the skill that is disguised by allowing subjecting decision making to control portfolio management processes. Through the systematic application of market-tested models designed to monetize the stock-picking skill of hundreds of independent hedge fund firms, AQIS is a non-traditional quantitative investing firm that relies on discretionary experience to harvest behavioral alpha.

For a detailed description of the AQIS strategy, please see the firm white paper, AQIS Strategy Review. Qualified investors may submit requests by email inquiry to [Information@AQISinvest.com](mailto:Information@AQISinvest.com).

#### Q: How does Fund II compare to Fund I?

The AQIS Fund II strategy is a systematic long/short equity strategy that will primarily transact in U.S. equities. The fund intends to target low net exposure (e.g. -10 to +25%), modest gross exposure (e.g. 100-300%), and tends to own heavily diversified portfolios (e.g. an average of roughly 100-400 long positions and 75-300 short positions at a time). AQIS is constantly conducting research that could lead to the intended portfolio structure and exposure targets changing over time, but only in response to empirical evidence of a superior strategy, evaluated using best practices in statistical analysis and in-sample and out-of-sample backtesting. The intended strategy offers a market-tested approach to data-driven investing, sourcing alpha from stock-picking skill through a systematic, repeatable process designed to reduce the impact of sub-optimal portfolio management behaviors like style-bias, seasonal effort, and poor position sizing.

The AQIS Diversified Alpha II strategy is the second Fund for AQIS and differs from Fund I by offering the same alpha-capture strategy as Fund I, but packaging that alpha in a lower net, higher gross vehicle compared to Fund I, which targets 0-80% net and 185% gross exposure. Fund II is designed to appeal to investors interested in lower downside volatility and consequently, a higher Sharpe Ratio than what Fund I will likely offer over the long-term. AQIS Management has designed both strategies to target positive returns over any trailing twelve-month period and outperform the broader U.S. stock market indices over any trailing 36-month period. AQIS expects Fund I will be more volatile than Fund II, but it has the potential to produce slightly higher returns. Fund II should exhibit less volatility and if both return goals are successfully achieved, Fund II has the potential to generate double-digit net returns in the mid-teens or higher over a multi-year period. A comparison of both Funds is available below in Figure 1.

Figure 1. AQIS Fund I vs. Fund II

	AQIS Diversified Alpha I	AQIS Diversified Alpha II
	AQIS Behavioral Alpha Strategy with 0-80% net exposure, modest leverage and limited factor risk	AQIS Behavioral Alpha Strategy with -10% to +25% net exposure, up to 3x gross leverage and limited factor risk
STYLE	Systematic Long/Short Equity	Systematic Long/Short Equity
EDGE	Systematic application of discretionary insights	Systematic application of discretionary insights
TURNOVER	Unconstrained	Unconstrained
RISK MANAGEMENT	Active quant with discretionary crisis lever for de-risking	Active quant with discretionary crisis lever for de-risking
FACTOR EXPOSURES	Exposure managed across Styles and Sectors (target max beta loading of 0.5)	Exposure managed across Styles and Sectors (target max beta loading of 0.5)
NET EXPOSURE	Target 0% to +80%	Target -10% to +25%
GROSS EXPOSURE	Target 185%	Target 100% to 300%
SECTOR EXPOSURES	Unconstrained	Target Max 2x Index Weight
SUBSCRIPTIONS	Monthly	Monthly
REDEMPTIONS	Quarterly, 45-days notice	Quarterly, 45-days notice
LAUNCH	April 2017	Target launch of 2Q 2019
ASSETS	~\$10 million AUM	Pre-launch

### Q: What does a typical portfolio look like?

On average, the typical AQIS portfolio will likely consist of roughly 100-400 long positions and 75-300 short positions across all sectors and will typically be biased toward small and mid-capitalization stocks. Positions will be weighted according to a probabilistic assessment of the likely payoff of each stock per unit of risk for each stock and the factor exposure tilt the security introduces to the portfolio.

### Q: How are risk and factor exposures managed? Does the strategy generate Alpha?

Gross and net exposures are managed using the AQIS beta indicator as a governor on capital at-risk and factor exposures are currently managed using the Axioma U.S. Equity Risk Model. AQIS governs exposure to factor tilts through an optimization process that has generally resulted in Style and Sector beta loadings in a range of +/-0.5 and +/- 0.2, respectively when operating market neutral. AQIS runs this optimization process at the beginning of each month and after each 13-F release for a total of sixteen times per year. An example of the output of the AQIS optimization process from December 2018 can be found below in Figures 2 and 3.

Figure 2. AQIS Style Factor Loadings

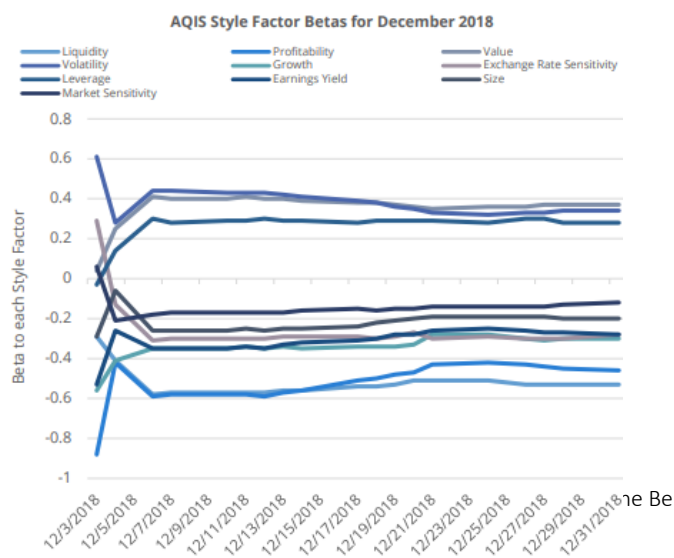
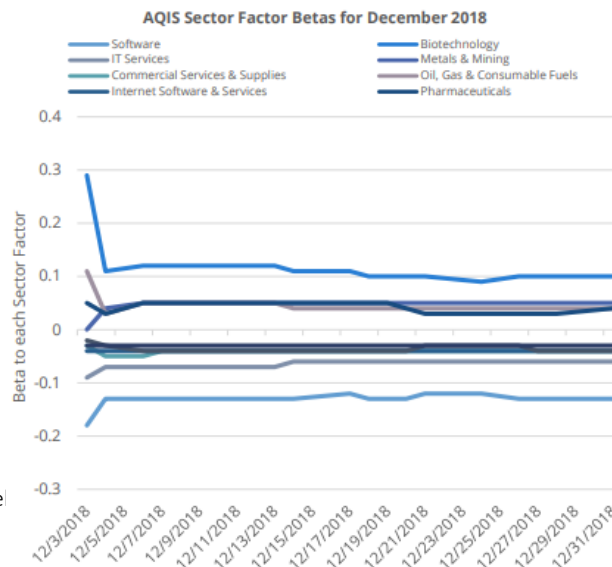
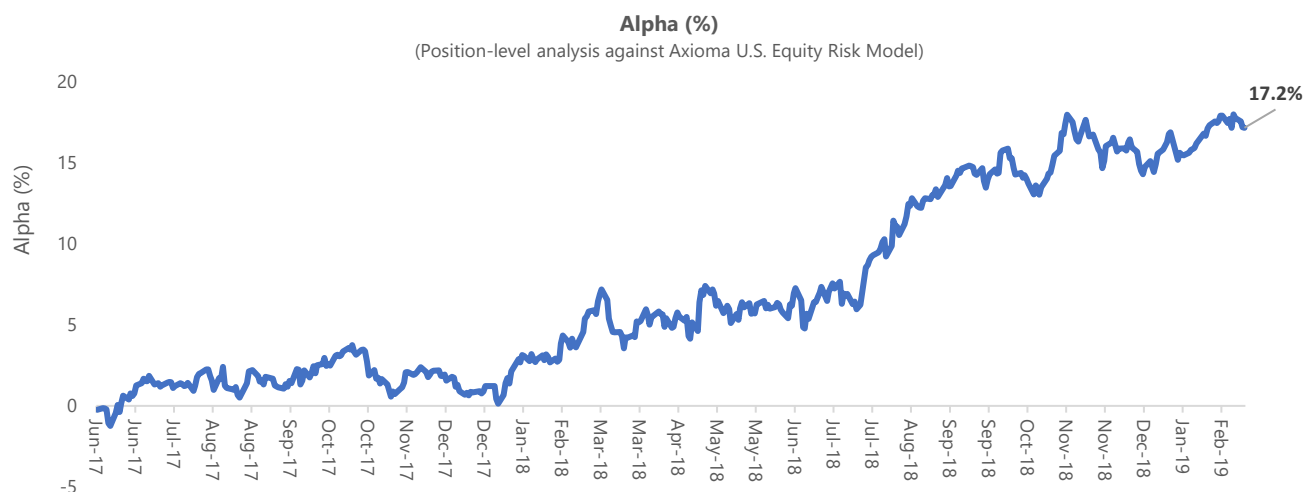


Figure 3. AQIS Sector Factor Loadings



AQIS measures the alpha generation of the strategy using a position level factor regression against the Axioma U.S. Equity Risk Model. Figure 4 reviews a historical record of live alpha generation for AQIS Fund I.

Figure 4. Historical Alpha Generation of AQIS Fund I



### Q: What is “Behavioral Alpha”?

Behavioral Alpha is a term we use to describe the alpha AQIS harvests from mining the insights of fundamental discretionary investors whose trading history is partially represented in Form 13-F filings. It represents the returns AQIS has demonstrated have been available since August of 2007 by taking a statistical fingerprint of thousands of individual hedge fund firms and monetizing their behavior by obtaining exposure to what we perceive to be their skillfully selected investments and attempting to avoid exposure to positions that we believe represent the bias drag that pollutes the portfolios of most investors. Experience and academic research reveal that on average, fundamental discretionary investors tend to invest with style-bias, exhibit seasonal effort, and generally mismanage their portfolio from a position sizing and risk management perspective. We also find managers and firm employees operate with different and relatively consistent risk preferences over time. This creates a behavioral fingerprint AQIS can mine for insights<sup>1</sup>. Within the context of these tendencies, AQIS has developed

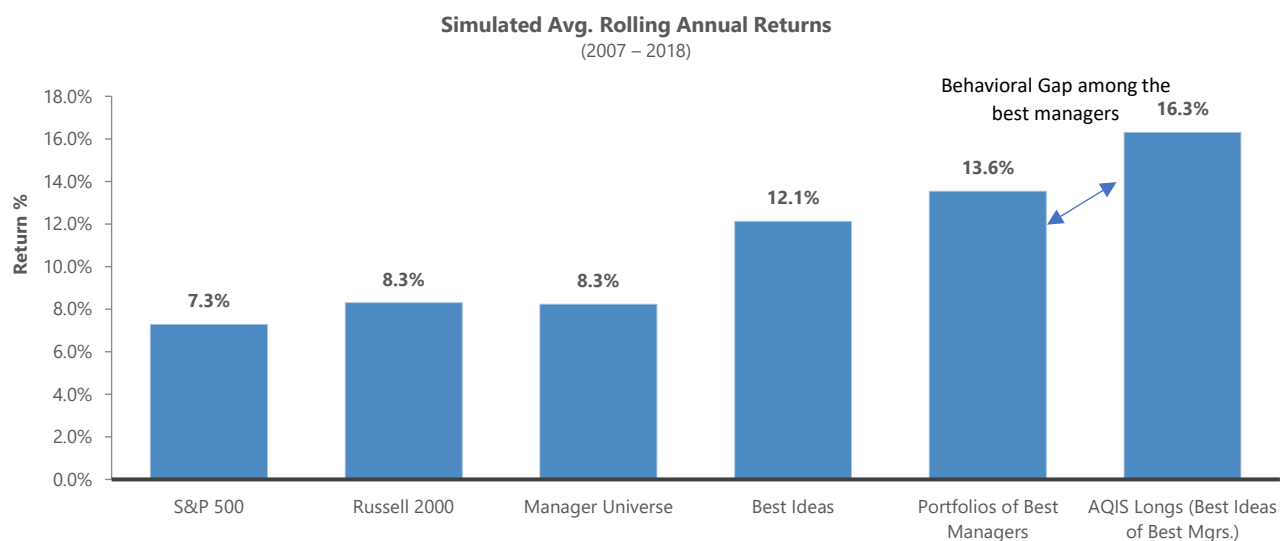
<sup>1</sup> Consider the goals of the hedge fund manager and the firm employee. They arguably both share goals of self-preservation and wealth maximization. What likely differentiates them is their behavior while pursuing these goals, which can be measured by their willingness to accept and take risk. The manager can often do quite well financially by producing a return just good enough to accumulate additional assets. We believe this incentivizes the manager to be more risk-averse than risk-seeking, in most situations. We also believe the accumulation of assets provides an asymmetric benefit to the manager relative to the firm employee. The firm employee’s goals of self-preservation and wealth maximization are often not optimally achieved through AUM growth. The firm employee is arguably motivated by a bonus payment tied to the returns of the investment ideas they introduce to the portfolio. As a result, we believe that in most situations, firm employees are biased to be more risk-seeking than risk-averse in comparison to the firm manager because modest returns to support AUM growth do not align with the firm employees’ incentive structure. Simply stated, our research suggests managers and firm employees share the same goals of self-preservation and wealth maximization, but in their pursuit of these goals, they exhibit bias tilt in opposite directions. We believe firm employees tend to be risk-seeking while managers tend to be risk-averse. Risk-averse and risk-seeking behavior ebbs and flows around an equilibrium and as hedge funds interact with other market participants, a record of the balancing act is generated in a trading pattern. AQIS has found that these patterns can be used to identify certain types



tools to measure the conviction a manager may have in a stock. AQIS then sorts managers using this proprietary conviction filter to identify favorable long and short positions for a portfolio.

Behavioral alpha is most easily observed on the long-side of the AQIS strategy by observing the gap in returns between the ideas AQIS considers to be the managers highest-conviction ideas, and the returns generated by the managers entire portfolio. This can be seen below in Figure 5.

Figure 5. Simulated and Live Rolling Average Annual Returns to AQIS Models vs. Benchmarks



AQIS believes this gap represents the biased behaviors exhibited by the average manager that tend to corrupt the investing process. This analysis suggests the average hedge fund manager is capable of delivering much higher returns to their investors than they do, but perhaps due to benchmark hugging, a desire to diversify (perhaps to reduce volatility), and potential issues like style-bias and seasonal effort, they end up delivering sub-optimal returns.

The AQIS edge is in understanding how hedge funds behave in dynamic market environments and how to harness and capture alpha from the predictable behavioral patterns these investors exhibit. Unlike the typical manager who is incentivized to pollute their portfolio by diversifying their holdings with sub-optimal ideas, AQIS systematically assembles portfolios consisting of hundreds of stocks, all of which have a statistical profile suggesting favorable risk/return asymmetry. The elegance of our approach is that the source of our alpha is a renewable resource because it consists of tendencies and decision-making patterns that have broad support from academic theory and have likely been features of human behavior since time immemorial.

The most notable research supporting the durability of our edge is work by Daniel Kahneman and Amos Tversky, specifically, their work developing Prospect Theory. Prospect Theory states that one of the basic phenomena of choice under both risk and uncertainty is that there is emotional asymmetry to gains and losses, such that losses

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of anomalous trading behavior; trading behavior we believe is reflective of an unusual tilt in bias. This tilt in bias is what we use to identify positions with favorable and unfavorable likely prospects.

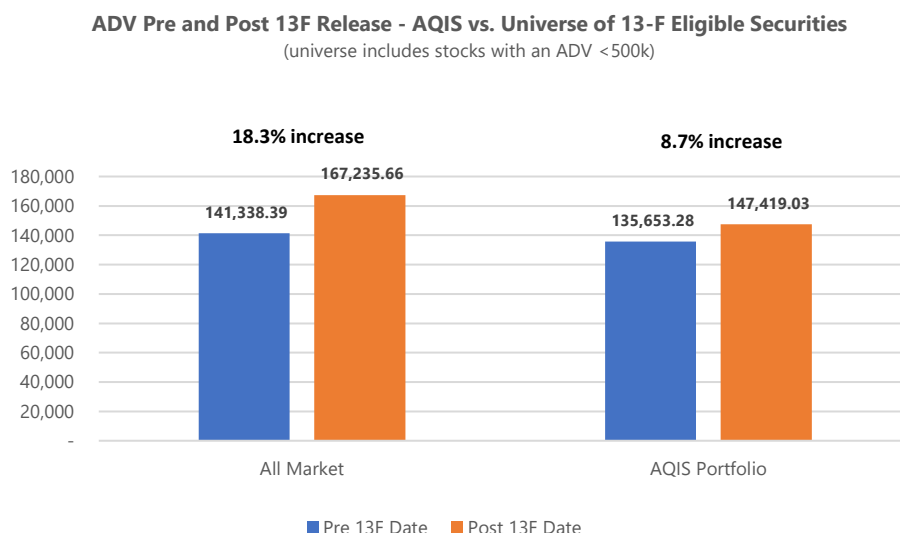
loom larger than gains. Unlike utility theory, which takes a prescriptive approach in explaining how decisions under uncertainty should be made, prospect theory takes a descriptive approach and teaches us how decisions under uncertainty are actually made. We find that 13-F data, when assembled and appropriately analyzed, is a data feed representing Prospect Theory in action, namely that investors are loss averse and behave according to individual biases and tendencies that can be measured over time to forecast behavior in the future. Our approach allows us to measure which investments in the portfolios of professional investors are likely to be high-conviction investments, and which aren't. We find that on average, our approach yields a portfolio with highly favorable risk/return asymmetry, suggesting stock-picking is indeed a skill, but the average manager exploits their talent sub-optimally.

### Q: Are other investors using 13-F data the same way AQIS is?

One way to measure whether other investment managers might be harvesting the insights of discretionary investors through 13-Fs in a similar manner to AQIS is to look for abnormal volume in the stocks AQIS trades after the release of 13-F's. If abnormal increases in volume were observed in the stocks our models recommend we include in our portfolio, that could indicate other investors are operating similar strategies to ours. We have analyzed volume in our target names before and after 13-F releases and we find that generally, volume does increase, but this occurs for all names. This suggests that investors do appear to incorporate 13-F data into their strategies. However, we find no evidence of *abnormal* volume spikes in the groups of stocks we trade each quarter. This suggests that if there are others running similar strategies, their current capital pool is not large enough to arbitrage away the alpha.

Figure 6 compares the average volumes for the ten days before and after the release of 13-Fs for the entire market of 13-F eligible securities with an average daily volume ("ADV") below 500,000 since August 2007 to present. Note that the volume of the average stock increases by an average of 18.3% the ten days after 13-F's are released whereas the average volume of stocks AQIS owns increase only 8.7% on average. This suggests that relative to the average stock traded in the market, the stocks AQIS targets tend to receive less attention from investors after the release of 13-Fs.

Figure 6. Comparison of Average Daily Volume ("ADV") Before and After 13-F Releases



### Q: What is the greatest risk to the strategy?

The historical average up and down-capture of the AQIS Fund I strategy is 70% up-capture and 10% down-capture<sup>2</sup>. This type of return profile is likely to persist in Fund II and it will tend to correlate with strategies that are long-volatility when the measurement period is a multi-quarter window or longer. This is because the strategy tends to protect capital during market drawdowns, but in rising markets, the strategy tends to capture less than 100% of the gains. Consequently, the strategy requires volatility to outperform the indices. In environments with low volatility and consistent market gains, like 2017, it is unlikely the strategy will outperform the broader market indices.

### Q: What is the capacity of the strategy?

On average, the strategy generates a portfolio with hundreds of long and short positions and it tends to be biased toward owning small and mid-capitalization companies. AQIS currently trades 16 times per year and currently trades out of 21% of the stocks in an average portfolio on a typical trading day. Figure 7 presents the percentage of the portfolio that could be exited over varying time periods at varying levels of AUM<sup>3</sup>. We find AQIS could exit 43% of the portfolio at \$5 billion in AUM, which compares favorably to the current demand to trade out of roughly 21% of the stocks in the portfolio on a typical trading day.

Figure 7. Evaluating the Capacity of the AQIS Strategy

#### % of Portfolio That Could be Liquidated Over Varying Periods

(Assumes maximum 25% of average daily volume)

<b>Gross Exposure (MM)</b>	<b>1 day</b>	<b>3 days</b>	<b>5 days</b>	<b>10 days</b>	<b>15 days</b>
<b>\$ 50</b>	84%	92%	95%	98%	99%
<b>\$ 250</b>	67%	78%	84%	89%	92%
<b>\$ 500</b>	59%	71%	77%	84%	87%
<b>\$ 1,500</b>	49%	59%	64%	72%	77%
<b>\$ 2,500</b>	46%	54%	59%	67%	71%
<b>\$ 5,000</b>	43%	48%	52%	59%	63%

The above table is a simple and digestible approach to considering capacity. AQIS has conducted a thorough investigation of this question using the Goldman Sachs Shortfall Model, data from RBC, and academic research, and that analysis is available as a separate investor deck. To receive a copy, please email your request to us at [Information@AQISinvest.com](mailto:Information@AQISinvest.com).

<sup>2</sup> Statistics on up/down capture include simulated results extending to August of 2007, prior to the Fund launch in April of 2017. See disclaimers.

<sup>3</sup> Liquidity measures assume average gross exposure of 185%.

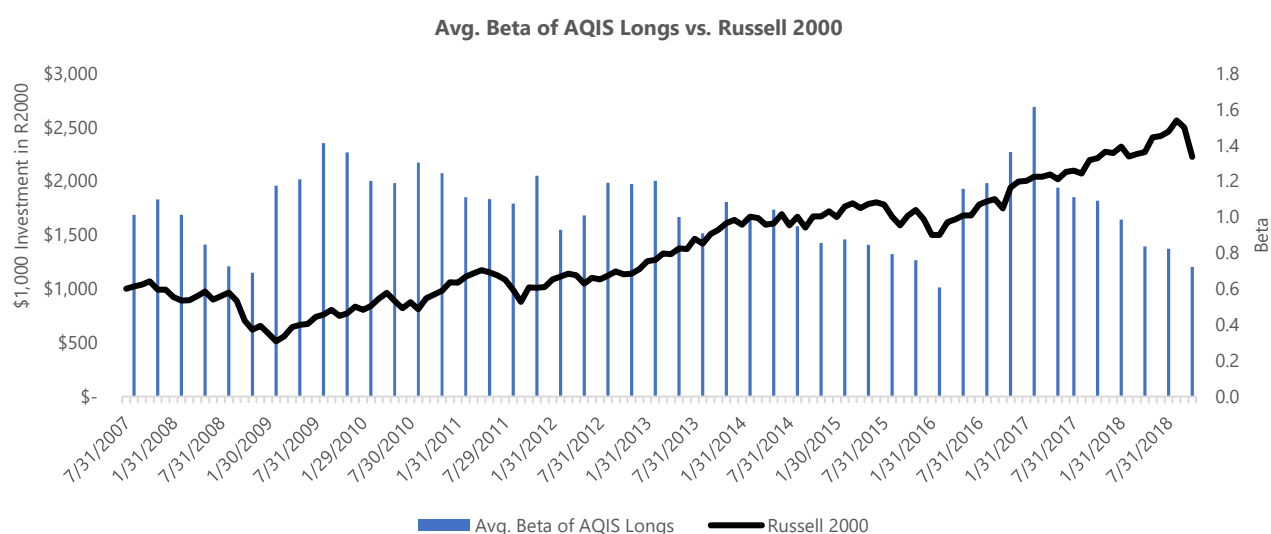


Q: The beta indicator is used to govern net and gross exposures. How confident are you the beta indicator has true predictive capacity?

Security selection is at the heart of the AQIS approach, but it is not the only contributor to alpha-capture. Exposure management is also a component of the AQIS strategy and managing net exposure has historically accounted for roughly 18.1% of the AQIS history of simulated and live returns<sup>4</sup> ending at year-end 2018.

A benefit of the AQIS strategy is that when portfolios of hundreds of high-conviction stock picks are assembled, AQIS is provided with insight into the likely direction of broader market flows. Upon each 13-F release, AQIS averages the beta tilt of the stocks the AQIS models recommend as new long positions and Figure 8 highlights how prescient these tilts in beta exposure have been going back to 2007.

Figure 8. Historical Average Beta Tilt of AQIS Long Portfolio (Simulated and Live) vs. the Russell 2000



AQIS utilizes this information to dynamically and systematically manage the net exposure of the portfolio, creating an additional lever to capture alpha and protect capital during drawdowns. As the beta tilt of the long-portfolio falls (rises), AQIS reduces (increases) net exposure. This process produces a dynamic net beta tilt for the overall portfolio that is derived from the collective wisdom of the specific crowd of investors AQIS harvests discretionary investing insights from. Figures 9 and 10 illustrate how the net beta tilt of the portfolio tends to be predictive of market performance, especially in the left tail.

<sup>4</sup> Our test defining the return contribution from net exposure management comes from the quantitative methods presented by Andrew Lo in his 2007 paper, "Where Do Alphas Come From? A New Measure of the Value of Active Management". For a detailed discussion of our analysis, please see the Appendix.

Figure 9. Historical Average Net Beta Tilt of the AQIS Portfolio vs. the Russell 2000

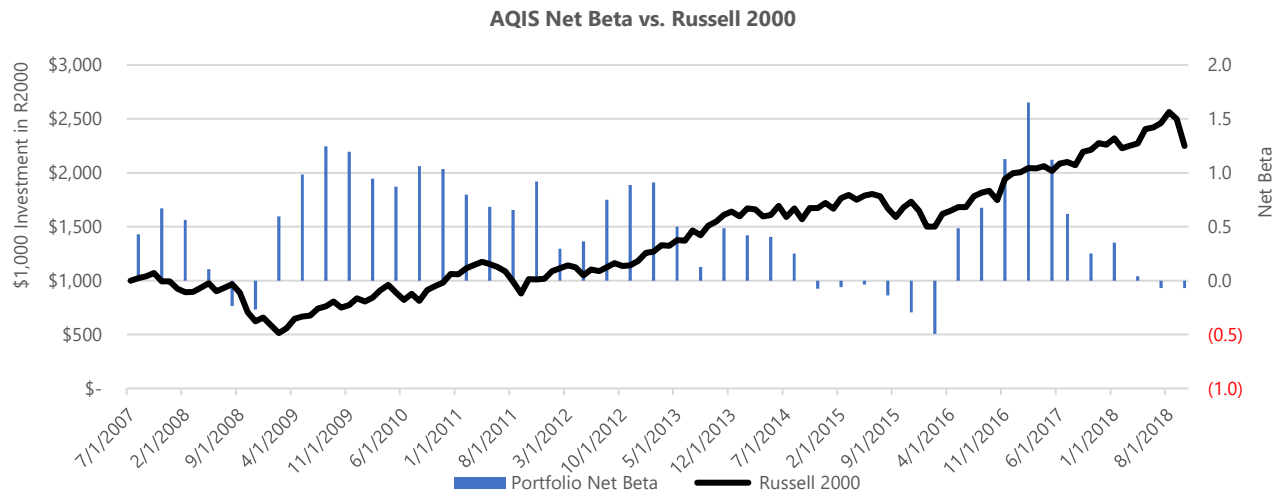
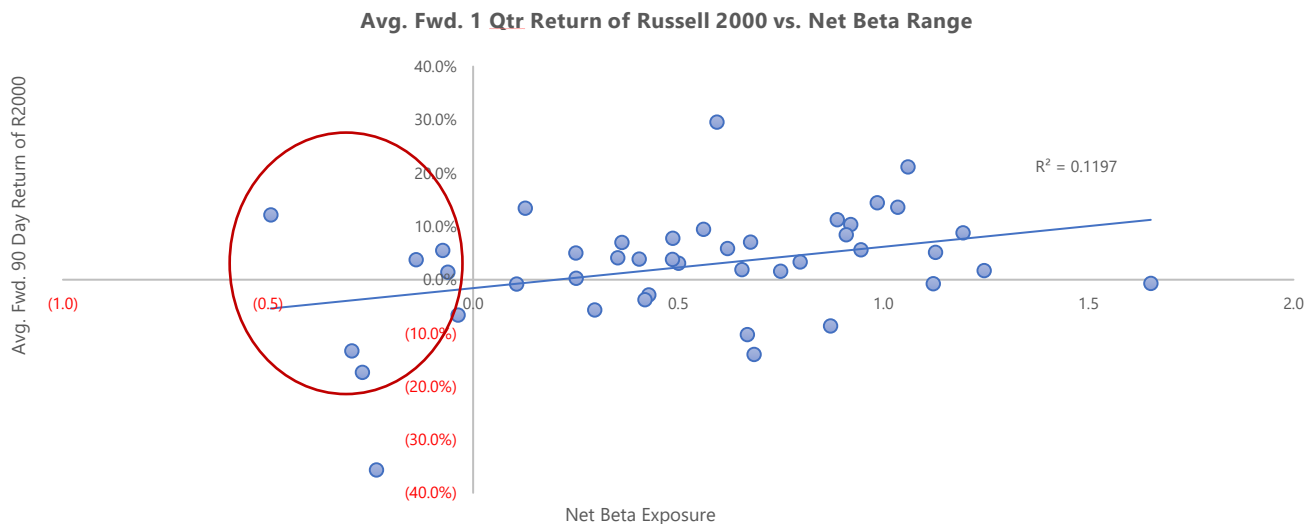


Figure 10. Historical Average Net Beta Tilt of the AQIS Portfolio vs. the Russell 2000



To evaluate the reliability of the perceived relationship between beta and forward market returns, and the merits of using the beta tilt of the long portfolio as a governor on net exposure, we conduct two tests. The results of both tests highlight the usefulness of using the indicator as a tool to manage net exposure.

First, to evaluate the metric for forecasting purposes we establish a null hypothesis that the results of using beta as a forecasting tool for near-term market performance (forward 90-day period) are not significantly better than chance. To institute a test, we define a beta tilt greater than (less than) one as a forecast for positive (negative) market returns. The sample consists of 45 periods of 90-day windows. If the beta indicator is not able to forecast forward 90-day performance better than chance, then the number of instances the market generates positive returns when the beta indicator is above one can be expected to be no greater than what we might find if we sampled randomly from the universe. The data are as follows:

**Russell 2000 Forward 90 Day Returns when Beta Tilt > 1**

August 2007 to January 2018

	<u>Periods</u>	<u>Market Up</u>	<u>% of time</u>	<u>Market Down</u>	<u>% of time</u>
Russell 2000	45	31	69%	14	31%
AQIS Long Beta > 1	29	23	79%	6	21%

**S&P 500 Forward 90 Day Returns when Beta Tilt > 1**

August 2007 to January 2018

	<u>Periods</u>	<u>Market Up</u>	<u>% of time</u>	<u>Market Down</u>	<u>% of time</u>
S&P 500	45	32	71%	13	29%
AQIS Long Beta > 1	29	24	83%	5	17%

The beta indicator selected 79% of Russell 2000 up-markets and 83% of S&P 500 up-markets, yielding 3 more periods of up-markets for the Russell 2000 and S&P 500 than we'd expect by chance. Is this significant? The relevant probability distribution to use here is the hypergeometric. Upon analysis, the odds of these results occurring by chance are 3.7% (or  $\sim 1/27$ ) when forecasting the performance of the Russell 2000 and 2.1% (or  $\sim 1/47$ ) when forecasting the performance of the S&P 500. We do not say the beta indicator does or does not have the ability to predict the direction of the market. No *ex post facto* test can resolve such a question, but the statistical results are highly suggestive (p-value of 0.02, below the commonly accepted threshold of 0.05 for statistical significance).

Our second test comes from a paper written by Andrew Lo in 2007, titled, "Where Do Alphas Come From? A New Measure of the Value of Active Investment Management". The paper introduces a quantitative method to calculate the percentage of a return that comes from active management, in our case, management of net exposure using our beta metric.

Mr. Lo breaks down a portfolio of long securities on a weighted basis. Consider a portfolio of  $n$  securities each with weight  $w$  and return  $R$ . The time averaged total return of the portfolio is the sum of all the products between  $w$  and  $R$  averaged over  $t$  time periods. That formula can be broken down into its passive and active components over  $t$  time periods.

$$\begin{aligned}
E[R_{pt}] &= \sum_{i=1}^n E[\omega_{it} R_{it}] \\
&= \sum_{i=1}^n (\text{Cov}[\omega_{it}, R_{it}] + E[\omega_{it}]E[R_{it}]) \\
&= \sum_{i=1}^n \text{Cov}[\omega_{it}, R_{it}] + \sum_{i=1}^n E[\omega_{it}]E[R_{it}] \\
&\equiv \delta_p + v_p,
\end{aligned}$$

The passive component is the average of the weights over  $t$  time periods multiplied by the returns of  $t$  time periods. The active component is the co-variance of weights vs. returns over the same  $t$  time periods. The more the weights move with the returns, the higher the active component and the better the manager is at weighting positions based on timing.

$$\begin{aligned}
\delta_p &\equiv \sum_{i=1}^n \text{Cov}[\omega_{it}, R_{it}] \quad (\text{Active Component}) \\
v_p &\equiv \sum_{i=1}^n E[\omega_{it}]E[R_{it}] \quad (\text{Passive Component}) \\
\theta_p &\equiv \frac{\delta_p}{\delta_p + v_p} \quad (\text{Active Ratio}).
\end{aligned}$$

The final ratio is essentially the percentage of total return comprised of active return. Any positive value indicates skill in active management and anything above 10% or so suggests a notable degree of skill.

For this example, we are interested not in individual security weights but in the management of net portfolio exposure for a long/short portfolio. That leaves us with the equivalent portfolio of  $n=2$ . Our long portfolio and short portfolio, which we actively weight each month based on our beta indicator. We have calculated the passive and active component of our returns for the history of our model and the results yield a value of 18.1%, meaning this is the percentage of our returns that can be explained by active exposure management.

The results of both tests are reassuring. Test one suggested it is highly unlikely the results of the beta indicator as a forecasting tool occurred merely by chance and the second test quantifies the actual impact on our historical returns that has come from using the beta indicator for actively managing our net exposure.

It is important to note these examinations are backward looking, but there is an intuitive and economic rationale for why these results might continue in the future. The beta indicator appears to harness a wisdom-of-crowds effect of a very particular crowd and includes very specific episodes of conviction trading. Professional investors are incentivized to compound capital and while evidence suggests their effort is often compromised by behavioral biases and sub-optimal, often myopic decision making, there is ample evidence that is highly suggestive stock-

picking skill exists. By aggregating instances of high conviction, we have historically distilled signal from noise and our beta indicator suggests our approach is a useful barometer for measuring the risk appetites of investors.

#### Q: Why invest in AQIS relative to peers, and why invest now?

A clear industry trend underway is the evolution in pursuing data-driven approaches to investing, even among traditional fundamental discretionary investors. Some of these firms are pursuing factor-oriented approaches, while others are constructing forecasting engines fueled by alternative data sets evaluated using big data analytic techniques. AQIS differentiates themselves from these approaches by leveraging decades of experience in the discretionary investing world to construct the tools and processes to optimize the alpha-capture available from a fundamental discretionary investing process. The engine of alpha-capture at AQIS is fueled by the insights of fundamental discretionary investors, and that fuel is accessed in a systematic, repeatable way. Our edge is in *small data* and understanding the durable behaviors of hedge funds. We don't compete in the big data arms race or attempt to construct slightly better factor investing models.

AQIS benefits from an edge provided by numerous sources, and these include the following:

1. Designed by investors, not data scientists: Our process has been designed by discretionary investors who are intimately familiar with how fundamental investors behave and think. It was not designed by data science professionals who have no experience picking stocks.
2. Built from the ground-up, no “pivoting” required: Stock-picking skill is being sub-optimally harvested by the average discretionary long/short hedge fund and a trend toward systematic investing is underway. These discretionary long/short investors are best equipped to systematize their processes, remove the behavioral drag polluting their returns, and generate more alpha, but there are barriers to adapting. First, by transitioning to a process that embraces the systematic application of their insights, these firms would likely need to undergo significant organizational change and restructuring of human resources. Second, pursuing such a transition contradicts the messaging these managers have delivered to investors, that the best way to access their stock-picking skill is through the subjective application of their insights in a traditional fundamental discretionary long/short vehicle. Even for forward-thinking firms interested in adopting systematic approaches, both history and systems dynamics teaches us that altering the processes inside a firm is incredibly difficult. Donella Meadows, a renowned former member of the MIT Systems Dynamics group and author of, “Thinking in Systems” explained in her influential book that the function of nearly every system is its own perpetuation<sup>5</sup>. Instituting organizational change, especially change that alters the type of personnel who will excel in a firm environment, is likely almost impossible without creating significant disruption that can compromise the effectiveness and long-term viability of a firm. AQIS benefits from designing a data-driven organization from day-one and we believe this is a structural advantage.
3. Designed to be nimble: AQIS benefits from ample capacity and the returns are driven primarily by companies with small and mid-sized market capitalizations. Capital can become a ball and chain on returns and it shrinks the universe of potential investment opportunities. The AQIS strategy benefits from operating highly diversified portfolios, allowing for a strategy that focuses on small and mid-capitalization companies, which we believe are areas of the market that are less competitive, where mispricing's are more prevalent, and alpha-capture is more durable.

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<sup>5</sup>Meadows, Donella H., Thinking in Systems: A Primer. White River Junction, VT: Chelsea Green Publishing, 2008. Print.

The second question is why invest in AQIS now. Renowned Physicist Richard Feynman is reported to have once remarked that progress in science occurs when experiments contradict theory. The theory that the optimal approach to monetizing stock-picking skill is investing in a fundamental discretionary long/short equity vehicle devoid of systematic, rules-based procedures has been tested. The results of the multi-decade experiment evaluating the current approach to long/short equity investing reveal it is sub-optimal, to say the least. Novel, market-tested systematic strategies like that of AQIS have demonstrated there is a better approach. We believe traditional long/short equity investing is destined to underperform peers who adapt and incorporate data-driven, systematic investing approaches and AQIS has an early mover advantage.

#### Q: What are the backgrounds of the managers?

Parag Pande graduated from Duke University in 1997 and joined Lehman Brothers as an investment banking and merchant banking analyst. He joined Ziff Brothers Investments in 2000 and made Sector Head six months later. His responsibilities grew over time, ultimately helping oversee the short selling effort at ZBI as well as the forensic accounting group. ZBI's success came in large part through a culture of observing the structural inefficiencies of the hedge fund industry and capitalizing on the opportunities they create. Parag joined The Blackstone Group in 2014 to launch a new multi-manager equity long/short platform. The experience catalyzed a fresh sense of urgency that the traditional equity long/short model needed to change in response to a radically changed market structure. Parag has reflected deeply on his own experience and that of others in his strong embrace of quantitative techniques in the discretionary stock picking process. An avid reader, voraciously curious, and determined to build an investment firm that challenges conventional wisdom, Parag is thrilled to be leading a fresh approach to investment management.

K.C. Hamann holds a B.A. in Economics from the University of California, Santa Barbara, where he graduated in 2008. While a student at UCSB, Mr. Hamann enrolled and passed the Level 1 CFA Exam and began to pursue a career in hedge funds. While at school, Mr. Hamann was employed part-time to construct financial models and generate research reports for Post Road Capital, a Connecticut based long/short equity hedge fund. Upon graduation, Mr. Hamann joined Post Road as a generalist responsible for research, idea generation, financial modelling, and trade structuring. In 2010 Mr. Hamann joined North Star Partners, a long/short equity hedge fund focused on small-capitalization value investing. At North Star, Mr. Hamann became one of three members of the investment team and maintained responsibility for roughly a third of invested assets at times, actively participating in all aspects of the fund, designing core research processes, sourcing and developing investment ideas, themes, hedges, trading strategies, communicating with current and prospective investors, and marketing the fund.

After spending a decade working at long/short equity hedge funds, Mr. Hamann became frustrated with the processes and behaviors he observed were detracting from alpha-capture across the hedge fund industry. Mr. Hamann observed that many hedge fund professionals are truly talented investors and can identify alpha opportunities, but their effectiveness as allocators is often compromised by their biases. He learned that on average, effort among professional investors working at hedge funds is seasonal (especially if a fund expects a performance fee at year-end), that position sizing is generally sub-optimal, and purposely so, (it's easier to market "popular" positions), and that even talented investors paid to be super-rational are just as biased as the average human being. He believes self-preservation and wealth-maximization align investor and manager interests at the start of the year, but that this alignment decays as the year progresses, when managers put their own interests



ahead of their investors. He believes hedge funds operate according to a system of incentives that create predictable behaviors that can be exploited. Mr. Hamann founded AQIS to monetize the behavioral problems that hedge funds don't admit exist, and that allocators have been challenged to overcome.

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