AQR Style Premia Strategy

IC MANAGER FUNDING RECOMMENDATION MEMORANDUM

May 2015

PROTECTED MATERIALS

BACKGROUND INFORMATION	
Manager Name:	AQR Capital Management, LLC
Fund Name:	AQR Style Premia Strategy
Arden Strategy/ Sub-Strategy:	Systematic Macro
Coverage:	
Senior:	Ian McDonald
Primary:	Liang Simon Lai
Secondary:	Emily Letterio
Operational Due Diligence:	Chris Omueti
Date Submitted to IC:	*5/8/15*
Date Approved by IC:	*5/8/15*

FUND SNAPSHOT	
Inception Date:	September 1st, 2012
Portfolio Manager (s):	Ronen Israel
AUM ($):	
Fund:	Custom fund of one
Strategy:	$5.7bn
Firm:	$113.3bn

TERMS/OTHER	
Fees:	
Management Fee:	1.25%
Incentive Fee:	Zero
Liquidity Terms:	Daily/Bi-monthly
Gate (yes, no, %, type):	No
Side Pocket (yes, no, max %):	No
Side Letter (yes, no):	No
Regulatory Registration:	
SEC:	Yes
FSA:	Yes
Other (specify):	
HedgeMark Approved (yes, no, other):	Yes

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INVESTMENT REVIEW

SUMMARY OF INVESTMENT RANKINGS

Category	**Score***
Overall outlook score	1.5
Return profile (right tail, left tail, core)	Core
Investment thesis: pros/cons/conclusion	1.5
Firm stability and background	1.0
Strength and quality of track record	1.5
Strength and quality of references	1.0
Transparency/HedgeMark	2.0

**Key: 1 (best) – 4 (worst)*

EXECUTIVE SUMMARY/RECOMMENDATION

The Style Premia Strategy is a multi-strategy risk premia program launched by AQR in September 2012. The Strategy is inspired by the book *Expected Returns* (Wiley, 2011) written by Antti Ilmanen, who joined AQR as a Principal in the Portfolio Solutions team in early 2012 from Brevan Howard, where he was a senior portfolio manager. The strategy is a systematic market neutral strategy that takes long/short exposures across equities, fixed income, FX and commodities based on risk premia (which AQR refers to as "style premia") factors. The strategy has a target volatility of 12%.

AQR is regarded in the industry as one of the pioneers of alternative beta factor/style premia investing. The strategy has attracted many investors who seek uncorrelated hedge fund-like returns with lower fees and better liquidity. Since inception, the AUM in the strategy has quickly reached $5.7bn (as of April 2015). The strategy is available in a Cayman vehicle as well as a '40 Act mutual fund, and it can be offered as a fund-of-one for larger institutional investors.

The AQR Style Premia Strategy offers a 1.25% management fee and does not charge an incentive fee. These are the same terms that PRIM has for the CCP Macro (Cantab) managed account. While on the high-end relative to other peers, these terms can be viewed as deeply discounted relative to traditional hedge fund fees while providing return streams with comparable diversifying characteristics. The AQR Style Premia Strategy has grown rapidly since launch with significant demand and now has over $5.7 billion in assets.

The strategy is recommended for investment via a fund-of-one.

INVESTMENT THESIS

INVESTMENT MERITS:

- AQR has solid infrastructure in place and is highly experienced at managing style-based portfolios in hedge fund and long-only contexts
- Highly experienced and well resourced team manages the portfolio management and research effort, which leverages off of the full research capabilities of the firm
- A diversified risk premia strategy that trades across most liquid instruments, and is uncorrelated to traditional asset classes and hedge funds
- Differentiated from other peers, the strategy has higher risk allocation in equity risk premia strategies, and this is due to their belief that there is far more data available for equities research and they seek to balance maximum diversification with breadth, liquidity and leverage considerations
- Strong performance since inception (September 2012) while exhibiting a low correlation with other multi-strategy risk premia peers
- Backtest data series generated based on conservative approach to applying transaction cost estimates and heavy discount to backtest performance to reflect uncertainty in historical costs and opportunities. This shows a more conservative and cautious mentality while developing the strategy, which reflects the team's integrity for building a more robust strategy.

KEY CONCERNS:

- The live track record of the strategy is relatively short, although similar types of risk premia have been employed in their other multi-strategy program dating back to 2008
- The management fee for the strategy is among the highest relative to peers. Since the strategy has grown rapidly since launch and has now over $5.7bn (as of April 2015) in assets, AQR is less willing to negotiate more favorable terms for large clients.

CONCLUSION

AQR is widely considered a pioneer in risk premia investing and has one of the most experienced and well-resourced teams managing the strategy. The Style Premia Strategy offers a diversified portfolio of risk premia that aims to deliver uncorrelated returns. It combines the firm's thorough understanding of economic justification for underlying style premia, from which the team has developed the security selection criteria employed in each style, and follows a rigorous portfolio construction and rebalancing methodology.

Although the live track record of the strategy is relatively short (launched in September, 2012), the team has extensive experience in managing similar risk premia strategies. Since inception, the strategy has delivered strong returns that are uncorrelated to equity market beta as well as to other hedge fund strategies. The Style Premia Strategy is recommended for investment.

MANAGER/STRATEGY REVIEW & ANALYSIS

FIRM OVERVIEW/BACKGROUND

AQR was founded by Cliff Asness, John Liew and David Kabiller in 1998. The firm has experienced significant growth, managing over $130 billion across various products: hedge funds, mutual funds, managed accounts, and UCITS funds. AQR runs over 250 trading vehicles. The firm has 24 principals and 521 employees. The firm's headquarters are in Greenwich, Connecticut, with additional offices in Chicago, Los Angeles, London, Sydney and Bermuda.

The Style Premia strategy is managed by AQR's Global Alternative Premia (GAP) team, which is led by Ronen Israel, a Principal of the firm. Israel directly oversees the GAP team in their responsibilities for both research and portfolio implementation of AQR's alternative risk premia multi-strategies (DELTA, Style Premia, and Credit). In a research capacity, GAP is responsible for improving and developing the investment processes from identifying factors to enhancing measurements of existing factors.

The research team includes a number of world-renowned researchers in the field of style premia, including Antti Ilmanen, Tobias Moskowitz, Andrea Frazzini, and Scott Richardson. The GAP team is also responsible for portfolio implementation, which includes the daily process of running the models to establish implementable portfolios and positions.

The GAP team leverages the full research capabilities of AQR, and is directly supported by 68 Global Asset Allocation (responsible for all of AQR's macro-oriented strategies) and 49 Global Stock Selection (responsible for all bottom-up stock selection strategies) team members. Below is an organizational chart for the GAP team.

Portfolio Management and Research

	Ronen Israel Principal		
Andrea Frazzini, Ph.D. Principal	**Antti Ilmanen, Ph.D.** Principal	**Michael Katz, Ph.D.** Principal	**Tobias Moskowitz, Ph.D.** Principal
Scott Metchick Managing Director	**Scott Richardson, Ph.D.** Managing Director	**Arthur Fischer-Zernin, CFA** Vice President	**Georgi Georgiev, Ph.D.** Vice President
Sarah Jiang Vice President	**Johnny Kang, Ph.D.** Vice President	**Laura Serban, Ph.D.** Vice President	**Peter Diep** Associate
Brandon Lee, Ph.D. Associate	**Vinay Sridharan** Analyst	**David Zhang** Analyst	

Asset Allocation Research

John Liew, Ph.D. Founding Principal	**Lasse Pedersen, Ph.D.** Principal
Michael Katz, Ph.D. Principal	**Lars Nielsen** Principal

Total Global Asset Allocation Team: 68

Equity Research

Andrea Frazzini, Ph.D. Principal	**Ronen Israel** Principal
Jacques Friedman Principal	**Lars Nielsen** Principal

Total Global Stock Selection Team: 49

Risk Management (Total Team: 7)		Trading (Total Team: 36)	Systems Development & IT (Total Team: 86)
Aaron Brown Managing Director	**Lauralyn Pestritto** Vice President	**Hitesh Mittal** Managing Director	**Neal Pawar** Managing Director

Source: AQR

INVESTMENT STRATEGY

The AQR Style Premia Strategy seeks to deliver efficient, well-diversified and uncorrelated returns to traditional assets exposure by using four long/short styles across five asset groups. The objectives are to achieve a long-term net Sharpe ratio of at least 0.7 over a full market cycle with target volatility at 12%. Since all strategies are long/short and designed to be market neutral, it has targeted low correlation to traditional asset classes.

The Style Premia Strategy combines market neutral long/short strategies consisting of four distinct investment styles trading across four asset classes (equities, bonds/rates, currencies and commodities).

The strategy trades all liquid instruments including DM equities, country indices, bonds/rates futures, FX swap, forwards, and commodity futures. They omit illiquidity premia and less-liquid assets.

The strategy trades within four styles, which are defined as follows:

- Value – The tendency for relatively cheap assets to outperform relatively expensive ones. Buy relatively cheap assets, short expensive ones. Typical measures include P/E and P/B ratios for equities, yield minus inflation forecasts for bonds.

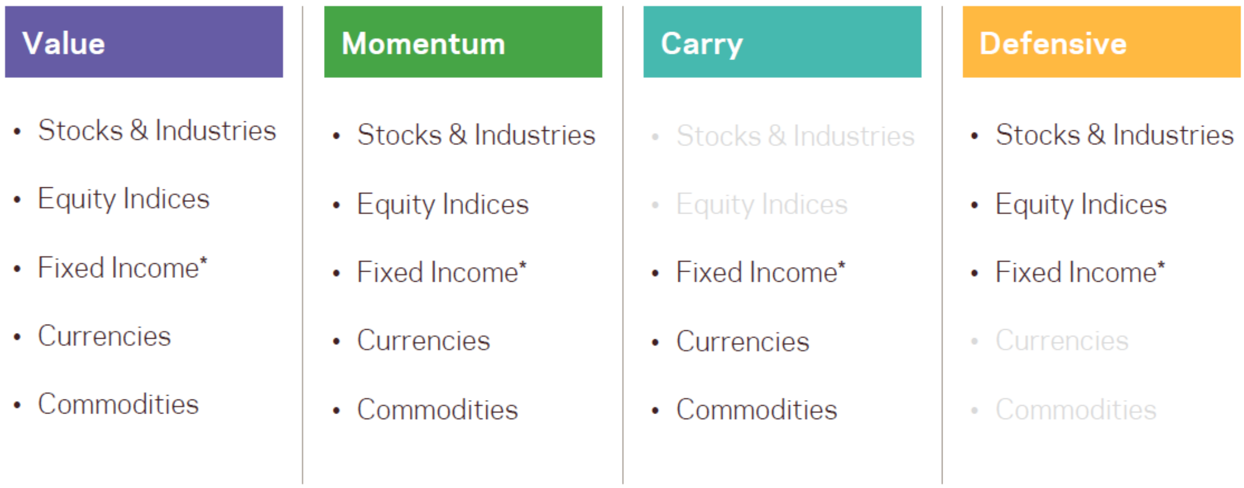
- Momentum – The tendency for an asset's recent relative performance to continue in the near future. Betting on recent relatively strong/weak performance to continue. Focus on relative performance over the past year.

- Carry – The tendency for higher-yielding assets to provide higher returns than lower-yielding assets. Buy higher-yielding assets, short lower-yielding ones.

- Defensive – The tendency for lower-risk and higher-quality assets to generate higher risk-adjusted returns. Buy lower risk and higher-quality assets, short higher risk and lower-quality ones. Typical defensive measures include using beta to select equities.

INVESTMENT PROCESS

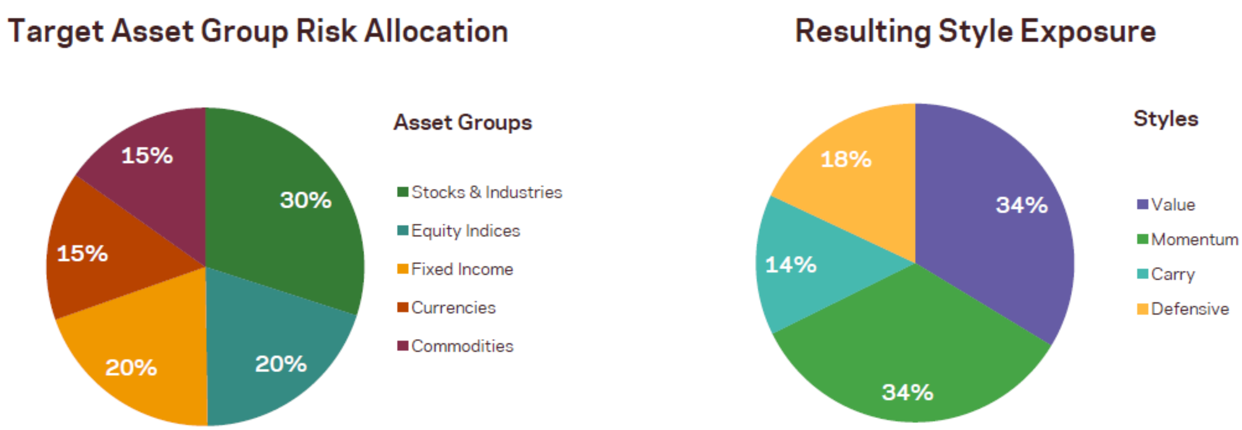
Below is the list of asset groups included in each style. Not every style can be traded in all asset groups.



Source: AQR

Risk Allocation:

Risk is first allocated to asset groups to take advantage of natural netting and style interaction. On the asset group level: a strategic 50/50 risk allocation between equity and other asset groups.



Source: AQR

The team believes that there is far more data available for equities research and they seek to balance maximum diversification with breadth (thousands of names and less idiosyncratic risk), liquidity and leverage considerations. Within its 50% risk allocation, roughly 30% risk weight to individual stocks, 10% to industry baskets and 10% to equity indices.

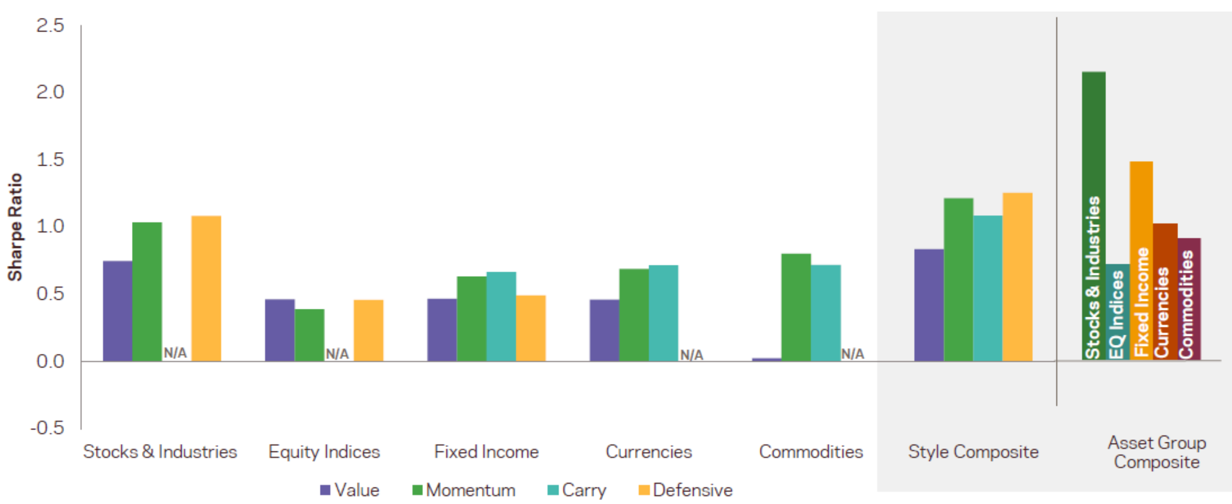
Because not all asset groups are traded in each style, the resulting style exposure is around 34% in Value, 34% in Momentum, 18% in Defensive, 14% in Carry (Defensive and Carry trade in fewer markets hence the lower weights).

The strategy aims to maintain high liquidity by only trading liquid instruments (see universe of instruments by asset groups below).

Stocks & Industries	Approximately 2,000 names across: Europe, Japan, U.K., U.S.
Country Equities	Australia, Canada, European Union, Hong Kong, Japan, Sweden, Switzerland, U.K., U.S. Italy, France, Germany, Netherlands, Spain Brazil, China, India, Russia, South Africa, South Korea, Taiwan
Fixed Income	Australia, Canada, Germany, Japan, U.K., U.S.
Currencies	Australia, Canada, Euro, Japan, New Zealand, Norway, Sweden, Switzerland, U.K., U.S. Brazil, Hungary, India, Israel, Mexico, Poland, Russia, Singapore, South Africa, South Korea, Taiwan, Turkey
Commodities	Silver, copper, gold, crude, Brent oil, natural gas, corn, soybeans

Source: AQR

Diversification is the core principle of the portfolio construction process—AQR focuses on achieving diversification across instrument type, asset group and style. The hypothetical Sharpe ratio of each style component across asset classes is illustrated below. The chart shows that despite each style component within each individual asset group producing reasonably high risk-adjusted performance over the long term, when combined together the aggregate result is even stronger due to the diversification benefit.



Source: AQR

Below are details of how each style is implemented within each asset group.

<u>Value:</u>

Equities:

Five value signals are used; 1) book-to-price, 2) earnings-to-price, 3) forecasted earnings-to-price, 4) cash flow-to-price and 5) sales-to-enterprise value. Each signal has an equal weight. The stock universe covers over 2,000 mid-large cap stocks in developed markets. This is filtered by removing ADR's, REITS, financials, closed-end funds, foreign shares, stocks with share prices less than $1 at the beginning of each month, and names with fewer than 12 months of past return history or missing book values from at least six months prior. The remaining universe of stocks is also limited in each market to a very liquid set of securities that can be traded at low cost and in reasonable trading volume size. Stocks are ranked in descending order on a rolling three-month average measure of market capitalization and liquidity, defined as the past 90-day median dollar volume traded in the stock. The resulting universe includes approximately 1,100 stocks in the US, 150 in the UK, 600 in continental Europe and 400 in Japan. The strategy holds around 1,500 names with individual weightings determined by the strength of the signals. The strategy is beta neutral.

The same universe of stocks is also used to form industry portfolios within each of the four regions using industry designations from BARRA. There are approximately 55 industries for the US, 16 for the UK, and 22 each for continental Europe and Japan. Stocks are aggregated within industries using market capitalization weights.

The same signals are also applied to country index futures across nine DM and seven EM countries. The strategy is rebalanced every three weeks.

Fixed Income:

Two value signals; 1) yields minus inflation forecasts and 2) forward rates minus inflation forecasts. The strategy trades both short-term interest rates as well as 10Y notes across Australia, Canada, Germany, Japan, the UK and US, which are combined into two sub-portfolios: cross country value and intra market value (duration neutral). Rebalanced weekly.

FX:

Two value signals: 1) purchasing power parity (PPP) inflation-adjusted and 2) reversal in real exchange rates. The strategy trades G10 and 12 EM currencies. Rebalanced weekly.

Commodities:

Within the commodities asset class, the value model is based on historical evidence that if a commodity becomes too expensive over the long term, its price tends to revert. The model uses a three- to five-year time horizon and will be long markets that underperformed during these time periods and short the ones that outperformed. The strategy trades only eight markets: silver, copper, gold, crude oil (WTI), crude oil (Brent), natural gas, corn and soybeans. Rebalanced weekly.

Momentum:

Equities:

Two momentum signals are used; 1) price-based and 2) fundamental-based measures. For the price-based measure, the model looks at the past 12 months returns, removing the last month due to the short-term price reversion effect in stocks. It will go long the stocks with highest positive momentum and short the ones with lowest momentum. For the fundamental-based measure, the model looks at the rate of change in analyst revisions. The same models are also used on industry baskets and country index futures. The signals are rebalanced monthly in order to limit transaction costs.

Fixed Income:

Uses both price-based and yield-based measures to rank 10Y notes and short-term interest rates. Momentum is defined as the rate of change over the past 12 months without skipping the last month, since the micro-structure issue is less relevant outside of individual stocks. The rankings follow a linear decay to size positions. The strategy is duration neutral. Rebalanced daily.

FX:

Two momentum signals are used; 1) price-based and 2) fundamental-based measures. For price-based measure, momentum is measured over the past 12m periods. DM and EM currencies are treated as two separate groups of assets. Each currency is standardized to have the equal level of volatility. For fundamental-based measure, the model looks at the changes in terms of trade (import/export volumes). The signals are rebalanced daily.

Commodities:

Only uses price-based measures. The momentum is measured over the past 12m periods. Each commodity is standardized to have the equal level of volatility. The signals are rebalanced weekly.

Carry:

Equities: N/A

Fixed Income:

Uses measures of yield curve slope and roll-down yield. The model goes long the higher-yielding bonds while shorting the lower-yielding ones. It will also trade long/short positions based on the yield curves term structure.

FX:

Traditional FX carry model: go long high-yielding currencies and short low-yielding currencies. Yields are defined by the 3-month onshore cash rate or local interest rate. DM and EM currencies are grouped in separate baskets. Volatility is not considered in the signals.

Commodities:

Signal is based on the slope of the futures curve. The model takes long positions in markets that are in backwardation and shorts the ones in contango (or less backwardated). Seasonal effect in certain markets is adjusted.

<u>Defensive:</u>

Equities:

Uses 1) beta, 2) leverage and 3) earnings variability as signals. The model takes long positions in stocks with lower beta and shorts the ones with higher beta. Beta is measured against the relevant country indices. Since beta is also a measure of volatility, the model does not consider r-square but purely focuses on low risk vs high risk. The model also uses quality measures such as earnings and leverage on balance sheet as signals, going long stocks with lower leverage and higher earrings while shorting stocks with higher leverage and lower earrings. The same signals are also used on industry baskets and country index futures.

Fixed Income:

Uses beta to international index and duration as measures. Long lower duration, short longer duration (duration neutral). Long low beta and short high beta bonds. Beta is measured against a basket of bond indices weighted by GDP. This strategy does not apply to interest rate futures.

FX: N/A

Commodities: N/A

Portfolio Construction

Portfolio construction is a bottom-up systematic process. Once measures are defined for each style, the system follows a set of transformations that is consistent across asset classes and styles to convert the raw measures into portfolios. The universe of securities is first ranked by the raw measure of a given style. The ranks are then standardized by subtracting the mean rank from each rank and dividing each rank by the standard deviation of ranks (i.e. z-scores) to convert them into a set of standardized weights. This step creates a set of positive weights and a set of negative weights that add up to zero, which will form the basis of the long/short portfolios. They then volatility-adjust each of the long and short sides such that the volatility of the long (positive weight) portfolio is equal to the volatility of the short (negative weight) portfolio. The resulting long and short positions are then scaled such that the resulting long/short portfolio is at its target ex-ante volatility level.

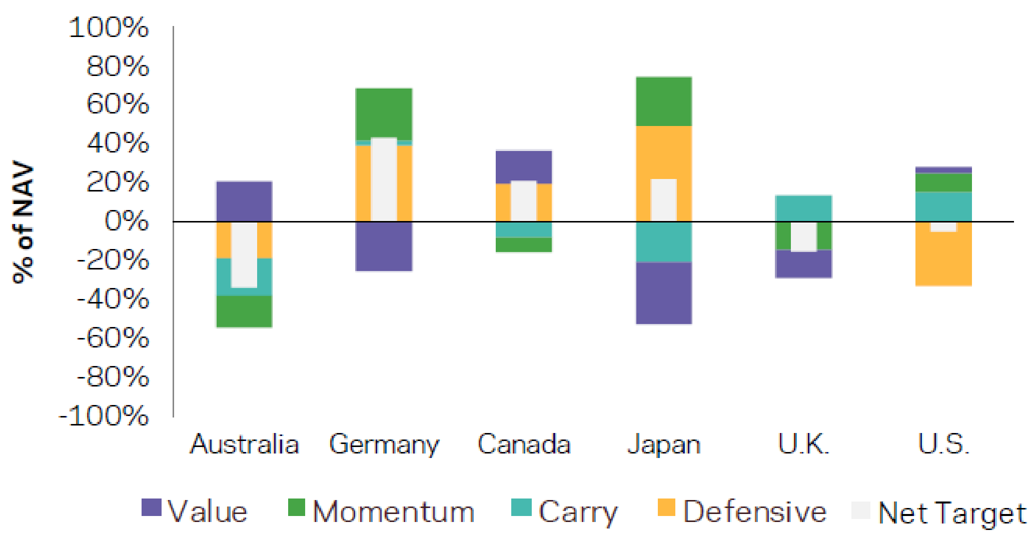
Once they have a constant-volatility style portfolio for each applicable style in each asset class, they combine the style portfolios into a composite for each asset class, based on equally risk weighting the styles that are present in each asset class. Then a final rescaling is applied at the combined portfolio level to target a constant 12% volatility.

A simplified hypothetical example applied across styles within the fixed income asset group is shown below. In this example, the portfolio construction targets a market neutral portfolio by giving the largest long exposure to the top combined ranked market and the largest short exposure to the bottom combined ranked market. Largest hypothetical long is Germany due to momentum and defensive signals; largest hypothetical short is Australia due to momentum, carry and defensive signals.

Hypothetical Signals (Rankings)

Style	Example Definition	Australia	Germany	Canada	Japan	U.K.	U.S.
Value	Real 10Y Yield	1.3% (1)	0.0% (5)	0.9% (2)	-1.1% (6)	0.2% (4)	0.8% (3)
Momentum	12M Return	-2.1% (6)	0.9% (2)	-1.7% (4)	1.1% (1)	-2.1% (5)	-1.1% (3)
Carry	Slope 10Y-3M	1.3% (5)	1.7% (3)	1.6% (4)	0.6% (6)	2.2% (2)	2.6% (1)
Defensive	Negative FI Beta	-1.2 (5)	-0.9 (2)	-0.9 (3)	-0.2 (1)	-1.0 (4)	-1.3 (6)

Hypothetical Portfolio Weights



Source: AQR

The frequency of re-ranking and rebalancing of the portfolio is expected to vary depending on the asset group and the PM's evaluation of certain factors including changes in market conditions.

The strategy has scheduled rebalancing ranging from daily and weekly for macro strategies to monthly for equity strategies. The team will also initiate rebalancing on an ad hoc basis if the live portfolio deviates from the target portfolio by more than a certain threshold, or if the risk of the live portfolio deviates by more than a certain threshold. A systematic rebalancing occurs if the portfolio deviates (either correlation or risk) from the target by more than a certain threshold. However, because the stock selection strategies are more sensitive to transactions costs, interim rebalancing between the monthly scheduled ones are more discretionary.

The strategy is built as a market neutral portfolio, hence AQR aims to control the equity market beta exposure at the overall portfolio level, while at times allowing some minor systematic risk at the individual strategy level. Exposures are monitored daily and rebalancing occurs if the live portfolio deviates by more than a certain threshold. All of the component strategies are designed and constructed ex-ante to be market neutral on average, but if the portfolio takes on conditional correlations to equity markets, equity exposure above an aggregate threshold will be hedged using equity index futures.

The strategy's expected annual turnover (two-sided, i.e. buys + sells) is approximately 4x median gross notional.

The leverage limit for the strategy is 14x gross leverage. AQR defines leverage as the total notional economic exposure in the strategy relative to the invested capital. The strategy invests in a diversified portfolio of market-neutral long-short strategies, and so leverage is required to achieve the strategy's volatility target. In general, the amount of leverage they take depends on the volatility of the asset traded. Leverage will vary based on the current market environment but is expected to be approximately 8x – 10x gross notional exposure for the 12% volatility target.

As of March 31, 2015, the strategy was approximately 8.3x levered. The historical leverage level of the strategy since inception averages at 10.1x and ranges between 8x and 12x.

The strategy does not have a formal stop-loss protocol in place, but two risk management measures serve a related function. First, the manager closely monitors the targeted level of risk for the overall portfolio on a daily basis. When there are large deviations from the target, exposures are likely to be adjusted down in order to maintain the target level of risk. Second, the strategy employs a drawdown control process that is designed to reduce the target risk level under sufficiently adverse circumstances. The manager believes that when a portfolio's performance is meaningfully negative and market risks are high, it is prudent to gradually reduce portfolio risk targets, but such decisions are best made through a pre-defined process that is designed and tested before stressful market events, rather than in the heat of the moment. In addition to these two policies, the manager also reserves the right to override their investment process for risk control purposes. The portfolio team will use their judgment and discretion to reduce risk simply as a function of their belief that volatility going forward will substantially exceed that forecasted by their model. However, such cases are rare and only exist as a backstop to their daily management of the strategy. An recent example of their discretionary risk override process can be seen in their decision to remove Russian equities indices and currencies from the emerging cross sections due to a combination of political risk, margin risk (risk of losing margins), and liquidity.

INVESTMENT THESIS SUPPORT/PERFORMANCE ANALYSIS/OTHER ANALYTICS

Performance since inception (net of 1.5% management fees)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
2011													
2012									-3.19%	1.24%	-0.08%	0.38%	-1.69%
2013	4.15%	3.02%	2.04%	6.81%	-1.48%	3.51%	0.02%	-4.45%	1.38%	5.24%	5.45%	-0.22%	27.95%
2014	-3.63%	-0.24%	2.84%	0.66%	1.99%	-1.03%	2.35%	-0.81%	0.53%	3.41%	4.66%	0.66%	11.69%
2015	-2.10%	-5.00%	2.50%										-4.67%

Source: AQR, Arden Research

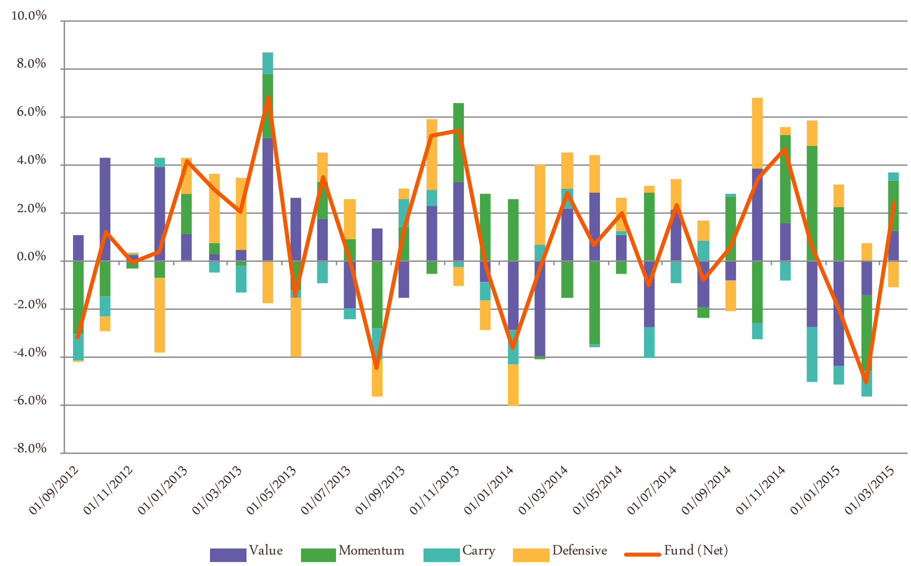
Return Statistics	
Return Last 1 month	2.50%
Return Last 3 months	-4.67%
Return Last 6 months	3.86%
Return Last 1 year	7.69%
Annualized Return	11.97%
Annualized Return Last 3 years	
Annualized Return Last 5 years	
Annualized Outperformance vs S&P 500 Tot	-6.60%
Annualized Outperformance vs Arden Hedge	3.87%
Risk Statistics	
Annualized Volatility	10.09%
Skewness	-0.16
Excess Kurtosis	-0.30
Correlation to S&P 500 Total Return	0.20
Bull Correlation to S&P 500 Total Return	-0.13
Bear Correlation to S&P 500 Total Return	0.77
Beta to S&P 500 Total Return	0.22
Bull Beta to S&P 500 Total Return	-0.25
Bear Beta to S&P 500 Total Return	2.15
Annual Sharpe Ratio (Rf= 0.25%)	1.16

Source: AQR, Arden Research

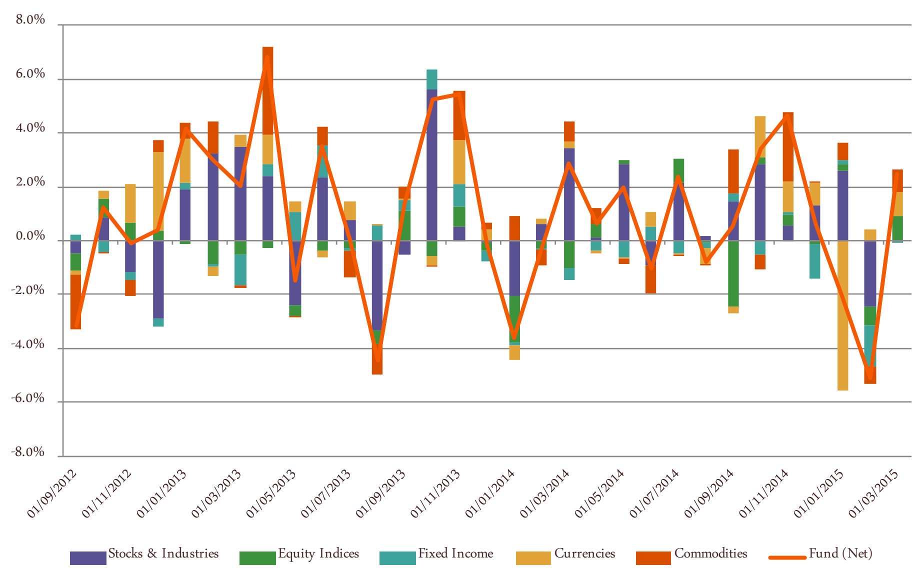
Since inception, the strategy has performed well and achieved an annual Sharpe ratio of 1.16 while the volatility is close to target and maintained low correlation (0.2) to S&P 500.

The return attribution charts below highlights the variation of contribution from each style and asset class. The style attribution demonstrates the diversified sources of return in the portfolio and no consistent winners or losers. From the asset class attribution chart, it is clear that equity premia have been the largest driver of returns, which is in-line with our expectations due to a higher risk allocation to the asset class.

Live Attribution by Style

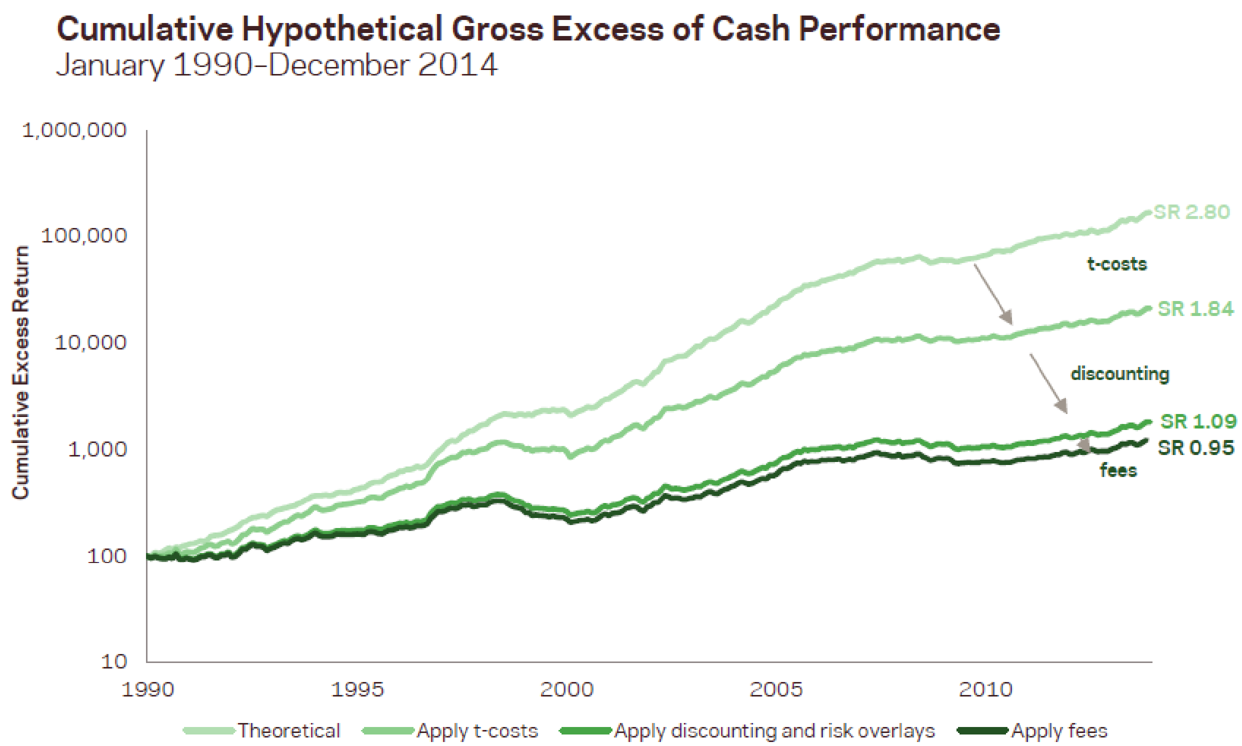


Live Attribution by Asset Class



Source: AQR, Arden Research

Like many of its peers, due to a relatively short live track record, AQR also provided performance backtest for the strategy. It is worth noting that its hypothetical performance backtest is heavily discounted with up to 50% discount rate (especially prior 2008), exponentially weighted to apply less discount in more recent data. As demonstrated below, apart from applying a discount rate, they have also have applied conservative transaction cost estimates.



Source: AQR

Hypothetical correlation among each style and their correlation to traditional markets are low.

January 1990-December 2014

	Value	Momentum	Carry	Defensive
Value	1.00			
Momentum	-0.66	1.00		
Carry	-0.10	0.15	1.00	
Defensive	-0.05	0.10	0.06	1.00

	Global 60/40*	Equities*	Bonds*	Commodities*
Value	0.00	0.00	-0.02	-0.18
Momentum	-0.01	-0.01	0.05	0.13
Carry	0.28	0.28	0.12	0.23
Defensive	0.04	0.01	0.24	0.05
Style Premia Strategy	**0.04**	**0.02**	**0.10**	**0.05**

Average Pairwise Correlation Across Asset Groups

Value	Momentum	Carry	Defensive
0.09	0.15	0.06	-0.03

Source: AQR

Peer Group Analysis:

The chart below shows the strategy's correlation to other risk premia peers since inception in September 2012. Despite a moderately high correlation with JPM's strategy, it shows that AQR has been uncorrelated to other peers, suggesting it will act as a good diversifier in a portfolio of risk premia strategies.

	AQR Style Premia Fund	AlphaParity Global Premia Fund (Vol10)	CCP Core Macro Fund	CFM ISD	Fulcrum Alternative Beta Plus Fund	GSAM Diversifying Alternative Risk Premia	Janus Global Diversified Alternatives Fu...	JPM Systematic Alpha Fund	Kepos Exotic Beta Fund	PanAgora Diversified Factor Premia
AQR Style Premia Fund	1.00	0.44	0.18	0.29	0.20	0.24	0.09	0.61	0.13	0.11
AlphaParity Global Premia Fund (Vol10)	0.44	1.00	0.09	0.40	0.20	0.12	-0.11	0.50	0.02	-0.14
CCP Core Macro Fund	0.18	0.09	1.00	0.60	0.70	0.40	0.61	0.29	0.45	0.50
CFM ISD	0.29	0.40	0.60	1.00	0.61	0.04	0.30	0.24	0.15	-0.14
Fulcrum Alternative Beta Plus Fund	0.20	0.20	0.70	0.61	1.00	0.03	0.73	0.33	0.43	0.27
GSAM Diversifying Alternative Risk Premia	0.24	0.12	0.40	0.04	0.03	1.00	0.04	0.24	0.30	0.25
Janus Global Diversified Alternatives Fund	0.09	-0.11	0.61	0.30	0.73	0.04	1.00	0.30	0.36	0.46
JPM Systematic Alpha Fund	0.61	0.50	0.29	0.24	0.33	0.24	0.30	1.00	0.31	0.33
Kepos Exotic Beta Fund	0.13	0.02	0.45	0.15	0.43	0.30	0.36	0.31	1.00	0.40
PanAgora Diversified Factor Premia	0.11	-0.14	0.50	-0.14	0.27	0.25	0.46	0.33	0.40	1.00

Source: Managers, Arden Research

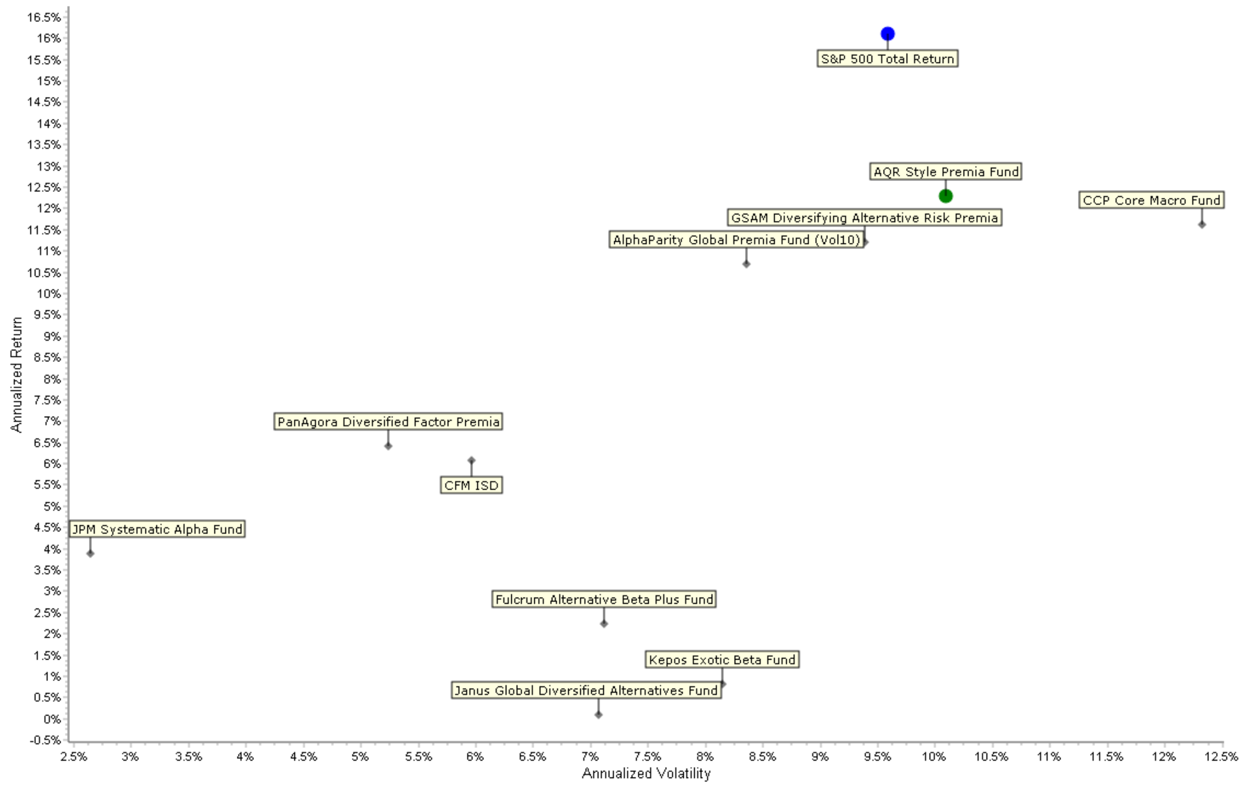
Over a longer period—since January 2008 (including backtests)—AQR is generally uncorrelated to other peers.

	AQR Style Premia Fund	AlphaParity Global Premia Fund (Vol10)	CCP Core Macro Fund	CFM ISD	Fulcrum Alternative Beta Plus Fund	GSAM Diversifying Alternative Risk Premia	Janus Global Diversified Alternatives Fu...	JPM Systematic Alpha Fund	Kepos Exotic Beta Fund	PanAgora Diversified Factor Premia
AQR Style Premia Fund	1.00	0.24	0.16	0.33	0.21	0.14	-0.03	0.39	0.02	0.05
AlphaParity Global Premia Fund (Vol10)	0.24	1.00	0.14	0.26	0.19	0.18	0.20	0.20	0.14	-0.03
CCP Core Macro Fund	0.16	0.14	1.00	0.51	0.66	0.54	0.54	0.22	0.29	0.33
CFM ISD	0.33	0.26	0.51	1.00	0.50	0.25	0.29	0.36	0.23	0.20
Fulcrum Alternative Beta Plus Fund	0.21	0.19	0.66	0.50	1.00	0.28	0.57	0.31	0.45	0.24
GSAM Diversifying Alternative Risk Premia	0.14	0.18	0.54	0.25	0.28	1.00	0.29	0.13	0.34	0.35
Janus Global Diversified Alternatives Fund	-0.03	0.20	0.54	0.29	0.57	0.29	1.00	0.06	0.51	0.19
JPM Systematic Alpha Fund	0.39	0.20	0.22	0.36	0.31	0.13	0.06	1.00	0.13	0.05
Kepos Exotic Beta Fund	0.02	0.14	0.29	0.23	0.45	0.34	0.51	0.13	1.00	0.29
PanAgora Diversified Factor Premia	0.05	-0.03	0.33	0.20	0.24	0.35	0.19	0.05	0.29	1.00

Source: Managers, Arden Research

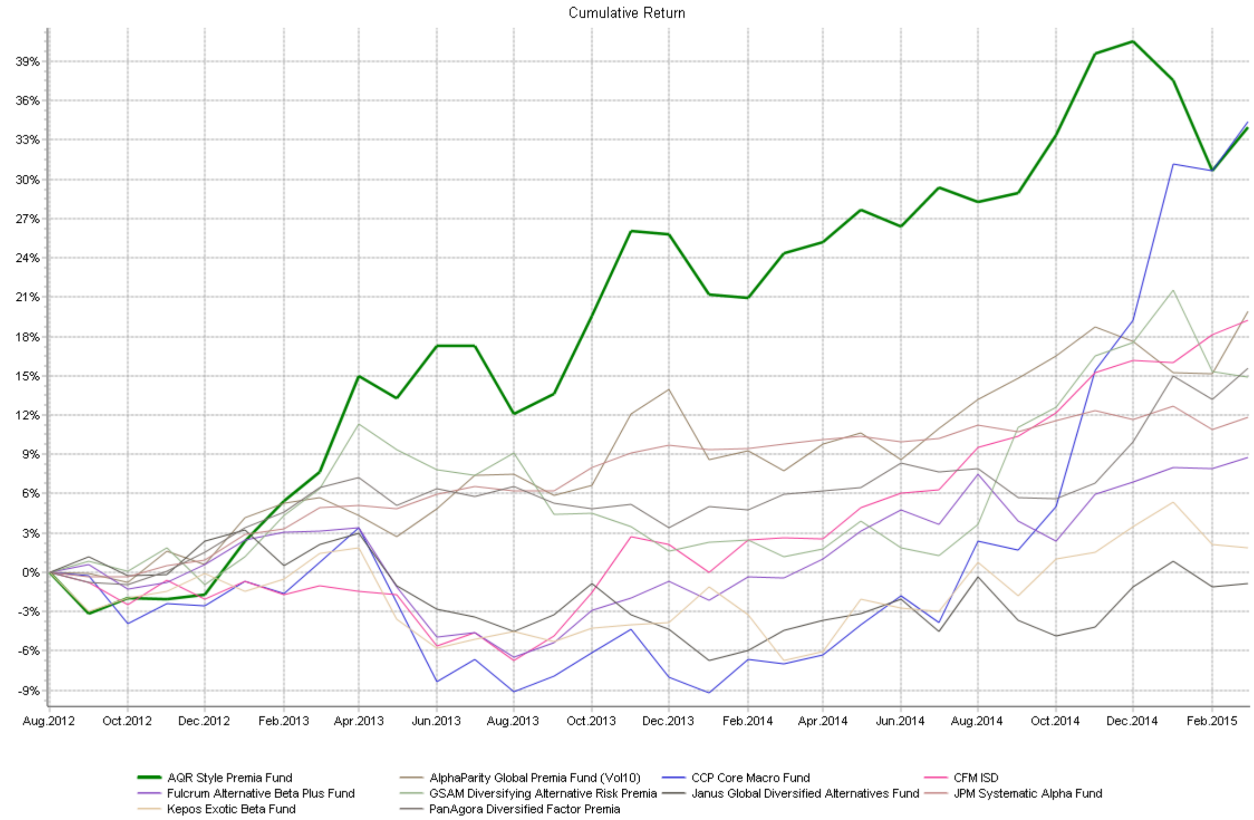
Including backtests, over the last 3 years, AQR shows an expected profile of Sharpe ratio around 1.2.

Peer Group Scatter Chart (Last 3Y)



Source: Managers, Arden Research

Since inception (Sep-12), AQR has outperformed all other peers (as shown below).



Source: Managers, Arden Research

PARTNER PROFILE/REFERENCES

__**Ronen Israel, Principal, AQR, Head of Global Alternative Premia Group, 1999-present**__
EMPLOYMENT HISTORY
Quantitative Financial Strategies Inc., senior analyst
EDUCATION
Columbia University, M.A. in mathematics, specializing in mathematical finance
University of Pennsylvania, School of Engineering and Applied Science, B.A.S. in biomedical science
University of Pennsylvania, Wharton School of Business, B.S. in economics

__**Antti Ilmanen, Ph.D., Principal, AQR, Portfolio Solutions Group, 2012-present**__
EMPLOYMENT HISTORY
Brevan Howard, senior portfolio manager
Salomon Brothers/Citigroup, a variety of roles
Finnish Central Bank, portfolio manager
EDUCATION
University of Chicago, Ph.D. in finance
University of Helsinki, M.Sc. in economics

__**Andrea Frazzini, Ph.D., Principal, AQR, Global Stock Selection Team, 2008-present**__
EMPLOYMENT HISTORY
University of Chicago's Graduate School of Business, associate professor
National Bureau of Economic Research, research associate
DKR Capital Partners, consultant
JPMorgan Securities, consultant
EDUCATION
Yale University, Ph.D. in economics
London School of Economics, M.S. in economics
University of Rome III, B.S. in economics

RECOMMENDED FOR INVESTMENT:

☒ YES ☐ NO ______ Other Recommendation (explain)

Other items:
☒ Reference checks ☒ HedgeMark

RISK MANAGEMENT/QUANT REVIEW

SUMMARY OF RISK RANKINGS

Category	Score*
Risk overall	1.0
Risk environment	1.0
Portfolio risk	1.5
Liquidity/complexity	1.5
Portfolio concentration	1.0

**Key: 1 (best) – 4 (worst)*

EXECUTIVE SUMMARY AND CONCLUSION

AQR Style Premia Strategy is a systematic multi-strategy product investing predominantly in equities, equity index futures, bond and rate futures, FX forwards and commodity futures. As a systematic strategy, investment risk management is embedded within the strategy/portfolio construction process. Risk management is at the heart of its process with dedicated risk teams monitoring and managing pre- and post-trade risks. There is active risk management in the portfolio design, at the asset level, asset group level, and portfolio-level. There are also drawdown control and exposure control at the portfolio level. The risk management infrastructure and the portfolio construction process in place allow the investment team to monitor the risk across the portfolio and manage it accordingly.

RISK ENVIRONMENT

At the firm, risk management is built into the construction of all strategies. Strategies are backtested and stress-tested to analyze potential risks including market, liquidity, leverage and other risks. Each strategy has a target level of volatility which the firm attempts to maintain. In normal market conditions, AQR believes that risk should be run at a constant level. Realized volatility and performance vary over time, which means it is not optimal to react to every short-term change. For example, excessive trading can generate high transaction costs that eclipse the upside return generated from trading and rebalancing. All strategies have been backtested with constant volatility and AQR believes that this approach works best.

AQR has a completely independent process to manage risk, based on actual positions and actual P&L. The independent risk manager computes risk metrics including value-at-risk and stress test losses and is empowered to order risk reductions (pro rata cuts of positions) and trade hedges for exposures.

They believe front-line risk management, which is built into the portfolio, is the most important. If a portfolio is constructed without regard to risk, no amount of subsequent oversight or hedging can make it prudent. However, even the best constructed portfolio benefits from independent oversight.

The firm's risk management function is comprised of the Risk Management and Counterparty risk teams, as well as AQR's Risk Committee. The Risk Committee is comprised of the founding principles of the firm, senior portfolio managers representing all investment departments, and other members as determined by the Committee.

The Committee is responsible for managing the market, credit, liquidity, model and funding risk exposures of all firm-managed investments. This includes hedge design and management, and fund and strategy risk levels. It is charged with determining the risk appetite of the firm and their clients and working to ensure that the firm takes only those risks within that appetite. The Committee discusses recent market events, as well as fund and strategy performances. It considers potential future events that might be significant for positions. It approves new funds and strategies and model changes.

The Risk Committee formally meets on a weekly basis, but can convene (either in person or virtually) and approve risk decisions on an ad-hoc basis outside of formal meetings. Risk reviews are conducted as frequently as needed; detailed daily risk reports are reviewed by the firm's independent risk managers, as well as by portfolio managers and Compliance personnel.

The 11 members of the Committee are:

1. Aaron Brown, Managing Director
2. Brian Hurst, Principal
3. Cliff Asness, Managing and Founding Principal
4. John Howard, Principal
5. John Liew, Founding Principal
6. Lars Nielsen, Principal
7. Michael Katz, Principal
8. Michael Mendelson, Principal
9. Ronen Israel, Principal
10. H.J. Willcox, Managing Director
11. Lauralyn Pestritto, Vice President

Aaron Brown is AQR's Chief Risk Officer, and he reports directly to Cliff Asness, AQR's Managing and Founding Principal. The Risk team includes four other members:

- Madhu Huggahalli (deputy risk manager)
- Yoshimasa Ito (risk reporting)
- Guanghua Cao (risk methodology)
- Vikas Aggarwal (risk methodology & risk systems)

There are six IT developers dedicated full-time to risk who also work under the direction of the CRO. This is in addition to general IT support for risk.

The risk team operates independently from the firm's portfolio managers. Their drawdown control and exposure control processes, which are both shared philosophies designed by the portfolio management and risk teams, are run independently by the risk management team.

Brown assesses fund-level and firm-wide risk using independent systems and metrics. He does not have investment management responsibilities, so he does not have input to individual portfolio positions or any views on stock, countries, or currencies. However, he does monitor risk of the firm's long-only strategies with respect to strategy variance and its realized tracking error relative to mandate guidelines. If anomalous activity occurs, he will alert the portfolio managers in order to bring realization back in line with guidelines. Beyond this, he can escalate matters to the Risk committee, which has the ability to overrule the PMs on their funds.

Guidelines are incorporated directly and coded into the portfolio optimization process to prevent guideline violations. In addition, members of the portfolio management team review trades prior to signing off to ensure there are no readily apparent guideline violations. A senior member of the portfolio management team signs off on trades. Automated, proprietary risk management systems produce daily reports to ensure post-trade and ongoing guideline compliance. Since the trading operation is highly automated through the use of trading algorithms, traders have limited ability to act outside of their latitude.

On a daily basis, the Risk team monitors the following:

- Value-at-Risk (historical simulation and Bayesian, at 95% and 99% levels, over one-day and ten-day periods, plus stress VaR and Monte Carlo VaR);
- Overall risk levels;
- Portfolio positions;
- Portfolio returns;
- Drawdowns;
- Liquidity, both market and portfolio;
- Counterparty exposure;
- Position and strategy correlations;
- Realized volatilities of strategies, portfolios, and underlying market assets and benchmarks

The Counterparty Risk team works in conjunction with the AQR Counterparty Committee to review, approve, and monitor the creditworthiness of trading counterparties, prime brokers, and futures commission merchants on behalf of the AQR commingled funds and managed accounts. It also serves as the point of contact for AQR's counterparties to maintain strong relations between firms.

On a monthly basis, risk reports displaying fund volatility, cash position, leverage, and strategy volatility are distributed to clients and counterparties. At the beginning of each month, AQR sends an estimated return report for the previous month's performance to all investors. That is followed up shortly by an official NAV report from the administrator around the 15th business day each month. On a quarterly basis they send investors a detailed report that includes performance attribution and fund positioning as well as an assessment of the market in general.

As a separate proposal for a fund-of-one investment, a list of weekly attribution and weekly holdings will be provided.

PORTFOLIO RISK

Risk is a part of the investment process. The Style Premia strategy employs three primary risk management measures:

1. Portfolio design and construction
   Risk Management begins in the portfolio design, at the asset level, asset group level, and portfolio-level. The goal at every level is the same: to adjust to volatility, correlation and liquidity changes in the market. At the asset level, assets and instruments are monitored from a liquidity standpoint. Their tradable universe of assets is re-evaluated to account for changes in liquidity on an ongoing basis. When asset volatility increases, exposures are dynamically reduced during the portfolio construction process. At the asset group level, when volatility changes (either due to changes in asset volatility or correlations between assets), leverage is again adjusted to maintain the targeted level of volatility. Another core component of risk control built into portfolio construction is diversification. The portfolio benefits from low to negative correlations across styles and across asset groups, minimizing the chances that losses in different parts of the portfolio occur simultaneously. Lastly, there are also controls in the portfolio construction process to limit asset group, industry, country, and instrument exposure along with fund-level leverage caps.

2. Drawdown Control
   This process is designed to reduce the strategy's target risk level under sufficiently adverse circumstances. They believe that when a fund's performance is meaningfully negative, it is prudent to gradually reduce portfolio risk targets, but that such decisions are best made through a pre-defined process that is designed and tested before stressful market events, rather than in the heat of the moment.

3. Exposure Control
   The strategy is built as a market neutral long/short portfolio. All of the component strategies are designed and constructed ex-ante to be market neutral on average, but if strategies take on conditional correlations to equity markets, equity exposure above an aggregate threshold will be hedged. They specifically control for traditional equity market beta because they do not feel that investors want this type of risk premium (not because it is not valuable, but because it is already present in their portfolios and is available elsewhere at a much lower price). Therefore, they control for equity market beta

exposure at the overall portfolio level, while at times allowing some minor systematic risk at the individual strategy level.

The internal independent risk management unit sets limits on metrics including leverage, cash levels, value at risk, drawdown, market exposures, counterparty exposure and others (not all limits apply to all funds, limits may change from time to time). These limits are monitored in Risk data systems, which rely on data only from books and records of the firm or third party sources. No portfolio managers, researchers or traders have write access to risk databases. Monitoring is done primarily on end-of-day positions. If a fund gets close to limit, the portfolio manager is notified and Risk has a discussion about whether it is appropriate to take action. If a fund gets over limit, the Risk Committee decides whether to order the breach cured immediately, to allow it to cure over a longer period of time, or to change the limit. All limit breaches and actions are documented.

Cash management:

Maintaining sufficient cash and ensuring the underlying positions are sufficiently liquid are crucial components of managing leverage in the portfolio. The strategy has high levels of cash (between 50% - 65%) that can be used to support positions and losses without having to initially trade. Since the strategy invests only in highly liquid instruments and markets, with liquid securities, both financing is more stable (counterparties are more nervous about financing illiquid rather than liquid securities) and it is easier to raise cash if needed.

Cash management is overseen by CRO, Aaron Brown, as they regard it primarily as a source of risk rather than an opportunity for return. Cash is allocated to US Treasury money market funds, US Treasury Bills, and a commingled fund (Current Asset Fund). They hold an amount of cash they feel is prudent excess of extreme daily moves in at least two places to minimize the chance of missing a margin call due to liquidity disruptions in the financial markets or other events. They perform extensive due diligence on their money market fund advisors and the Current Asset Fund manager, and monitor the portfolios carefully.

Current Asset Fund is a commingled floating-net asset value cash vehicle managed by BlackRock and overseen by an independent board of directors. AQR established this vehicle in early 2013 to alleviate some of the concerns with traditional third-party money market funds, while utilizing the skill, expertise and scale of BlackRock's cash management team. The Fund is managed in a conservative fashion, being largely invested in US Treasuries, with some indirect exposure to US agency obligations via tri-party repos. It can also hold up to 5% of its NAV in overnight time deposits issued by high quality global banks as a liquidity cushion.

The Style Premia Fund (-of-one) will be the sole owner of its assets; the Prime Broker would not have lien on free cash held away from its books and records.

LIQUIDITY/COMPLEXITY

The AQR Style Premia strategy invests only in highly liquid instruments (individual equities, futures, forward and non-deliverable forward contracts, swaps, other derivative instruments and cash) and those for which there is substantial market data history. In general, they seek to trade in the most liquid markets. Each of the asset group respective asset group universes used in the Style Premia strategy are detailed below:

Stocks & Industries	Approximately 2,000 names across: Europe, Japan, U.K., U.S.
Country Equities	Australia, Canada, European Union, Hong Kong, Japan, Sweden, Switzerland, U.K., U.S. Italy, France, Germany, Netherlands, Spain Brazil, China, India, Russia, South Africa, South Korea, Taiwan
Fixed Income	Australia, Canada, Germany, Japan, U.K., U.S.
Currencies	Australia, Canada, Euro, Japan, New Zealand, Norway, Sweden, Switzerland, U.K., U.S. Brazil, Hungary, India, Israel, Mexico, Poland, Russia, Singapore, South Africa, South Korea, Taiwan, Turkey
Commodities	Silver, copper, gold, crude, Brent oil, natural gas, corn, soybeans

Source: AQR

The portfolio could be converted into cash as illustrated in the table below, using their normal trading limits designed to minimize market impact. This figure is conservative in the sense that they could certainly liquidate the portfolio faster in normal markets, perhaps at the cost of some market impact. In severely abnormal markets, particularly in a liquidity crisis, they cannot estimate how long it would take to liquidate positions.

Account	<= 1 Day	<= 7 Days	<=30Days
AQR Style Premia Fund Master	51.0%	91.4%	99.9%

Source: AQR

Due to the liquid nature of the securities the strategy trades, the portfolio management team feels that the ultimate capacity is quite large, and significantly greater than its current asset levels. When and if they reach a size where the marginal cost of additional trading is no longer comfortably borne by the strategies, they would only accept new money to replace redemptions.

This is a multi-asset class product, and therefore the first consideration for assessing the total capacity of the product is dictated by the number of instruments employed, and the capacity of each. They estimate capacity for the strategy to be approximately $10 billion at 12% volatility. Their current capacity estimate will be subject to revision over time, based on future changes to: market liquidity, market microstructure, and further refinements to their trade execution methodology.

PORTFOLIO CONCENTRATION

In terms of the concentration limits, they employ the following constraints within the Style Premia strategy:

- Geographic:
    - Within the stock selection sub-strategies, they are designed to be country/region neutral by constraining exposures to countries and regions to within +/- 2% on NAV.
- Sector/Industry:
    - Within the stock selection sub-strategies, they are designed to be sector/industry neutral by constraining exposures to sectors and industries to be within +/- 4% on NAV. These constraints may be loosened when a model wants to take a larger view on a particular industry.
- Issuer:
    - Trading volume constraint: For stock and industry selection strategies, notional positions are limited by a fraction of average daily trading volume. For other strategies, notional positions are also limited by trading volume, but at the firm-wide level rather than at the portfolio-level.
    - Market capitalization constraint: For stock and industry strategies, notional positions are limited by a fraction of the stock's market capitalization. For other strategies, notional positions are also limited by open interest, but at the firm-wide level rather than at the portfolio-level.

Ultimately, the size of positions in each strategy will be determined by the risk weight assigned to that strategy and the volatility of the assets being traded. The strategy uses proprietary risk models to size positions appropriately so that it can achieve its volatility target over time.

Risk is allocated to each style and asset class based on the strategy's overall risk target as well as the correlations and targeted risk breakdown among styles and asset classes. The size and positioning of the portfolio is determined by the specific risk models and optimization system, which respond dynamically to changing volatility and correlations among asset classes. Therefore, the risk level of the individual asset classes, and the strategy as a whole, is permitted to vary depending on the degree of agreement across styles.

RECOMMENDED FOR INVESTMENT:

☒ YES ☐ NO ______ Other Recommendation (explain)

OPERATIONAL DUE DILIGENCE ("ODD") REVIEW

SUMMARY OF ODD RANKINGS

Category	Score*
Overall score	1.0
Pricing/valuation	1.0
Organizational viability	1.0
Tradeflow/back office/IT	1.0
Ownership structure/management investment	1.0
Service providers	1.0
Current investor base	1.0

**Key: 1 (best) – 4 (worst)*

OPERATIONAL SCORE

We assign an operational score of 1.0 (Green).

RECOMMENDATIONS

There were no material operational flags noted that prevents an investment at this time.

OVERVIEW

AQR was founded by Cliff Asness, John Liew and David Kabiller in 1998. The firm has since grown significantly, managing over $130 billion across various products: hedge funds, mutual funds, managed accounts, and UCITS funds. They run over 250 trading vehicles. AQR maintains an institutional back office infrastructure with a large operations team and extensive IT platform. With a staff of over 520 people, the firm operates very much like a big bank. Mass PRIM is considering a fund-of-one structure under AQR's Style Risk Premia Strategy.

INFRASTRUCTURE OVERVIEW

Prime Brokers/Custodians: DB, GS, MS, JPM, CS, Citi, BOA (custodians: SSB, JPM, Citi)
Fund Administrator (s): IFS, JPM, SSB
Auditor: PWC
Legal: Schulte Roth; Maples & Calder
Systems: Proprietary & vendor

ODD MEETING SUMMARY

• **Ownership Structure:** The management company is majority-owned by the founding principals and partners of AQR. AMG, Inc (Affiliated Managers Group) owns a minority interest.

That agreement was renewed this year. AMG owns a passive interest and is not involved in any aspect of management of the firm. There are 24 partners, three of which were added in 2015. The partners hold ownership interest individually and through affiliated entities.

• **Fund Structure:** AQR manages 250 trading vehicles. They have approximately 40 private commingled hedge funds, 30 mutual funds, 10 UCITs funds, and the balance in managed accounts. The Style Premia fund, which Mass PRIM is seeking to mimic through a fund-of-one, is a Cayman master fund established in October 2014. The master fund (#1162361) and offshore feeder (#1162335) are registered in the Cayman Islands while the onshore fund is a Delaware LP. The fund-of-one is currently in the process of negotiation between AQR and Mass PRIM. The investment management agreement is substantially complete. AQR estimates that it would take 3-4 weeks to onboard the fund-of-one structure.

• **Affiliated broker-dealer/entities:** AQR does not operate an affiliated broker-dealer. They do however have internal entities that are wholly owned subsidiaries of the firm. CNH Partners LLC (CNH) is a separate sub-advisory relationship which AQR sources for certain aspects of portfolio management. CNH specializes in global merger arbitrage, global convertible arbitrage and other event driven strategies. They mainly serve as a sub-adviser to certain strategies of the Multi-Strategy Alternative Fund. AQR provides operational support to CNH, who is also subject to their compliance policies and procedures.

• **Staffing:** AQR has a staff of 521 people across offices in Greenwich, London, Sydney, Chicago, and Los Angeles. Of that there are 158 in portfolio management. Bradley Asness is Cliff Asness' brother. Bradly is a Principal and Chief Legal Officer. However, to avoid potential conflicts of interest he is not the General Counsel. His main responsibility is to the management company. All of the smaller satellite offices serve as marketing distribution centers for the mutual fund products. All of the investment management and operations is performed from the Greenwich office. There are less than 100 staff members in total outside of the Greenwich office. AQR continues to expand, and they recently took an option on additional space at 1 Greenwich Plaza, the building across from them in CT. Perhaps the biggest staffing update occurred about a year ago when the head of HR, CCO, and Head of IT left the firm. According to AQR this was a planned change as the firm was growing rapidly and becoming more complex. The firm felt they needed stronger and more experienced people in those roles. Staff is compensated on the usual base and bonus methodology. Portfolio management is not compensated on individual P&L based on a formulaic approach. Staff does not have to defer any compensation to internal funds.

• **AUM:** As of 3/31/15 the firm-wide AUM was $131.5 billion. This is broken down as follows:

  - Long Only: $56.1 billion
  - Alternatives: $57.1 billion
  - Mutual Funds: $18.3 billion

From a purely operational perspective, the back office team feels they can double assets and be able to keep up with the infrastructure demands in the current state. The Risk Parity bucket, falling under the Alternatives category, is managing assets of $31.4 billion.

• **Investor Base:** The firm investor breakdown is as follows, as of 3/31/15:

- Pensions/public: 21%
- Mutual Funds/UCITs/CIT: 16.7%
- Sub-advised funds: 15.9%
- Pensions/corporate: 13.5%
- Sovereign wealth funds: 12.8%
- Other institutions: 7.5%
- Unions/multi-employer: 4.3%
- Endowments/foundations: 4.1%
- Superannuation: 3.2%
- FOF: 0.8%
- HNWI: 0.2%

• **Service Providers:** As a large and complex firm, AQR uses a large number of different service providers across almost every aspect of the business. Prime brokers include: Deutsche Bank, Goldman Sachs, JP Morgan, Credit Suisse, Citi, BOA. FCMs include Barclays, Goldman Sachs, JP Morgan and three fund administrators are used: IFS-State Street, JP Morgan, and SSB. Third party custodians include SSB, JP Morgan, and Citi. AQR uses several IT vendor solutions and operational matching platforms. The firm has a dedicated team that sources service providers and then performs periodic due diligence.

• **Counterparty Agreements:** As with other service providers, each fund product has a variety of counterparty agreements in place. The counterparty risk management team works with the Counterparty Committee to review, approve, and monitor the creditworthiness of counterparties selected by AQR or CNH on behalf of the AQR and CNH commingled funds and managed accounts. Counterparties include prime brokers, OTC trading counterparties, FCMs, custodians, clearing firms, repo and securities lending counterparties, and executing brokers. Agreements are negotiated by the legal team and outside counsel as needed.

• **Cash Management:** All aspects of cash management (from the operational perspective) are integrated with the reconciliation and portfolio accounting applications. The team is part of the broader operations group, which is separate from the investment management team. AQR uses a proprietary application called the Wire Management System, which facilitates cash and collateral. The system has numerous control features, including segregated approval, mandatory support documentation, unique user entitlements, audit trails, and alert functions. All wires executed by the administrator are required to have dual signatures, one of which should be a senior officer of the administrator. An authorized signatory list is maintained within the operations team and generally two signatures are required.

• **Leverage Facilities:** The Risk Premia strategy achieves leverage through prime brokerage margin and OTC derivatives. The fund is generally “moderately” levered; taking advantage of AQR’s negotiating power and many strong relationships with prime brokers.

• **Daily Ops & Controls:** AQR has a very impressive operational infrastructure with strong, experienced management, efficient processes and controls, and robust IT systems. The team is managed by Steve Mellas, a Principal of the firm with 10 year tenure. AQR is a complex firm with many products and fund entities, high trade volume, and many portfolio management teams to deal with. The firm has a SOC 1/SSAE 16 report from PWC that attests to operational controls (latest report is from June 2014). AQR has an Operational Risk Committee, just one of many committees dedicated to ensuring strong controls. The workflow process and associated operational processes such as collateral management, corporate actions, reconciliation, portfolio valuation, are all exceptional. One rather unique feature is the existence of a portfolio middle office team that is a liaison team that works closely with the portfolio managers and other AQR functions. This allows the PMs to focus on investment management. The trade allocation process, important to the fund-of-one structure, was evaluated in detail. The process is systematic, documented, and properly controlled.

• **Pricing & Valuations:** The pricing function sits within the operations group and is held away from the portfolio management function in order to avoid conflicts of interest. Each AQR fund has its own valuation policy but they all roll up into a master Valuation Policy and Procedures document. The administrator maintains its own pricing procedures and if it deviates from the guidelines they must obtain authorization from AQR. The pricing policy (provided to Arden) dictates how each instrument type is priced. The Style Premia strategy trades in liquid equities, currencies, commodities, and bonds. There are no illiquid securities currently in the commingled portfolio. Securities are priced using Bloomberg, IDC, MarkIt and other vendor sources. The AC 820 levels for the fund as of 1/31/15: Level 1 68.72%, Level 2 31.28% and Level 3 0%. The firm maintains other best practices such as a valuation committee and independent pricing by the fund administrator.

• **Fund Accounting/Tax/Audit:** The accounting functions are split between the Finance team and the Fund Accounting, Operations & Client Administration team. The Finance team is responsible for the NAV, P&L, audit, tax and reporting. This team reports to John Howard (Principal/CFO/COO). The Operations team under Steve Mellas is responsible for cash management, valuations, and reconciliations. Given the complexity of the firm, this is a good approach to separation of duties. Finance is responsible for the completion and review of the books and records of the management company of AQR, the firm's commingled funds, mutual funds, UCITs and other products. Advent Geneva is the fund accounting system. Performance is GIPS compliant. The fund auditor for the Style Premia fund is PWC, who also conduct the annual SSAE 16 report. The fund audit has been clean with no qualifications or issues. The fund NAV has never been restated.

• **Regulatory Compliance/Legal Issues:** HJ Wilcox is the firm's CCO. He joined just over a year ago in replacement of the prior CCO. According to the team the CCO, Head of IT and Head of HR left (were replaced) as the firm was seeing major changes and complexity. AQR is registered with the U.S. SEC (#801-55543), UK FCA, and the Australian regulators for the Sydney office. The compliance team has 16 people on staff. Brad Asness is the Chief Legal Officer responsible mainly for management company and some other investment management issues. The staff is comprised of 20 legal professionals. It was disclosed that AQR was fined by regulators in the Netherlands for failure to make certain filings. The fines were de minimus with the errors due to a system error which has since been remediated. AQR also created a dedicated regulatory reporting team made up of 3 people.

• **IT/BCP:** The technology team is headed by Neal Pawar and has a total staff of 76 people with 37 in infrastructure and 39 in development. AQR depends on a mix of third-party and in-house developed applications. Application development and maintenance are performed by Firm-Wide Development. The group develops, and supports, systems used by Portfolio Management, Research and Trading, Middle and Back Office, and all changes to system software and IT infrastructure. The firm uses vendor systems such as Advent Geneva, Charles River, Portware, and Tethys. AQR has an extensive, well documented DR/BCP plan. This includes an online training site for employees. The AQR data centers, which house AQR servers and network routers, switches and other infrastructure, are located at the Greenwich headquarters. The data centers are protected by security and environmental controls. AQR also has a number of controls intended to enhance the firm's cyber security. They have a detailed policy in place which provides for multiple layers of preventative measures against intrusion.

ASSESSMENT/FLAGS NOTED

AQR is an exceptional firm that is highly institutional and functions very much like a big bank. They have multiple layers of controls and best practices. However, they readily admit the firm's complexity can lead to operational risks. The Head of Operations discussed his 4 key areas of concerns/operational risk. It was refreshing to hear his candor and to appreciate his knowledge and expertise. These risks include:

- Cyber-security
- Staffing/expansion/firm culture
- Regulatory reporting
- Counterparty risk & vendor management

While there are no major issues or concerns to follow up on at this time, AQR is a firm that requires periodic review in order to understand the implications of its growth and complexity.

RECOMMENDED FOR INVESTMENT:

☒ YES ☐ NO ______ Other Recommendation (explain)

Other Items:
☒ Service provider verification ☒ Background Checks ☒ Manager Documents
☐ Other

Explain:

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