

Portfolio Analyst



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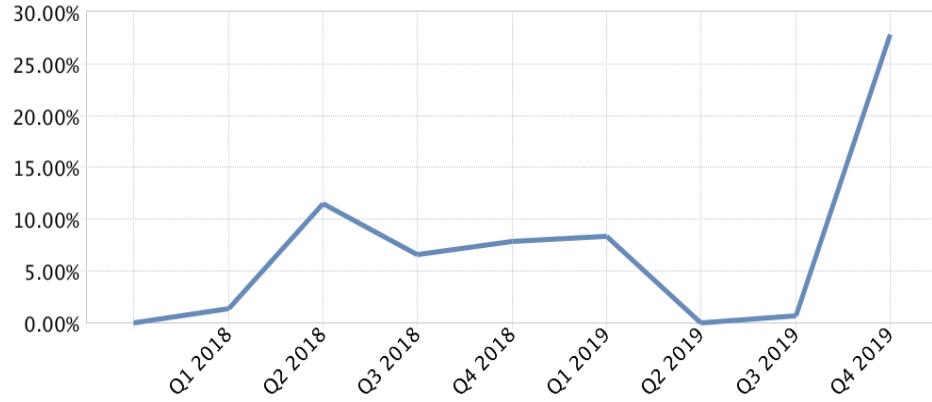
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Introduction

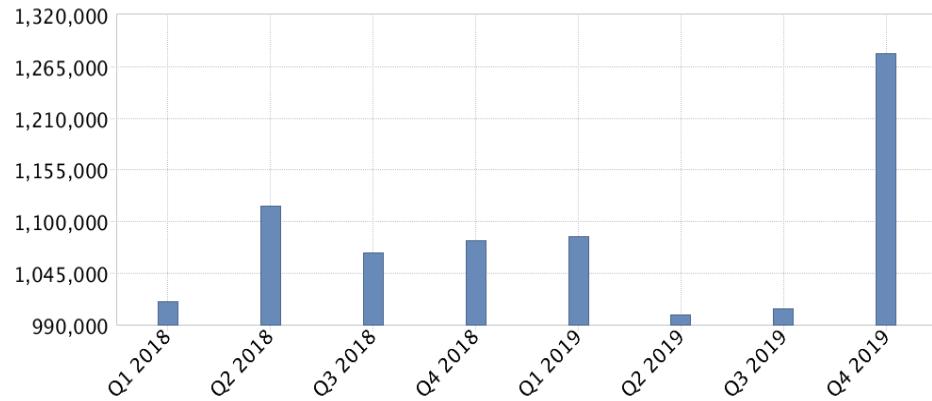
Name: Havergal Asset Management LP
Account: U2239316
Alias: Havergal Asset
Base Currency: USD
Account Type: Separate Trading Limit
Analysis Period: January 1, 2018 to December 31, 2019 (Quarterly)
Performance Measure: TWR

Account Overview

Cumulative Return



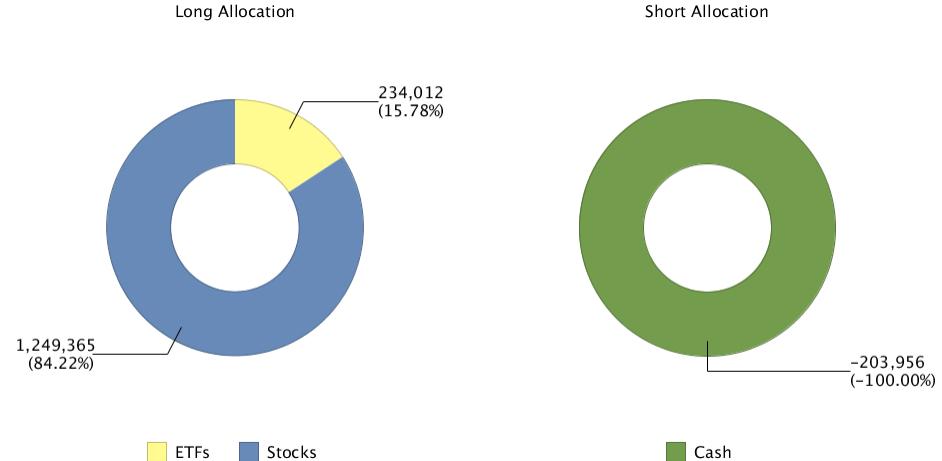
Net Asset Value



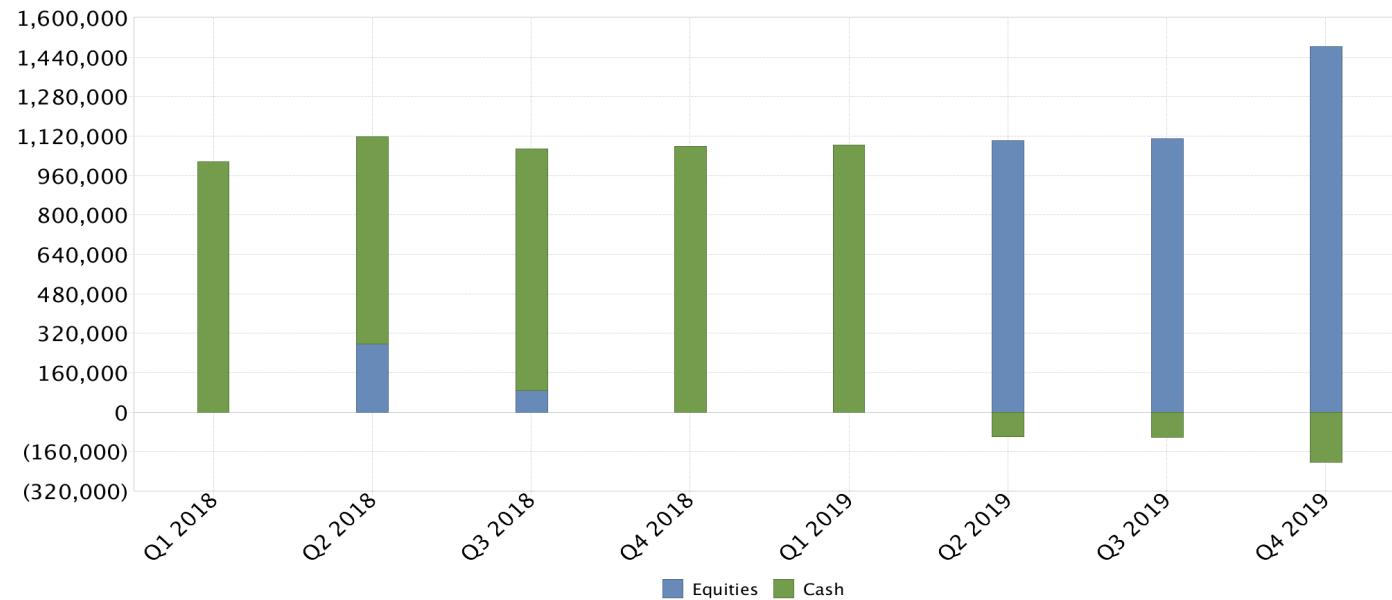
Key Statistics

Beginning NAV:	1,000,791.59
Ending NAV:	1,279,420.85
Cumulative Return:	27.84%
1 Quarter Return:	27.01% (Q4 2019)
2 Quarter Return:	27.80% (Q3 2019 - Q4 2019)
Best Return:	27.01% (Q4 2019)
Worst Return:	-7.69% (Q2 2019)
Deposits/Withdrawals:	0.00

Financial Instrument Allocation

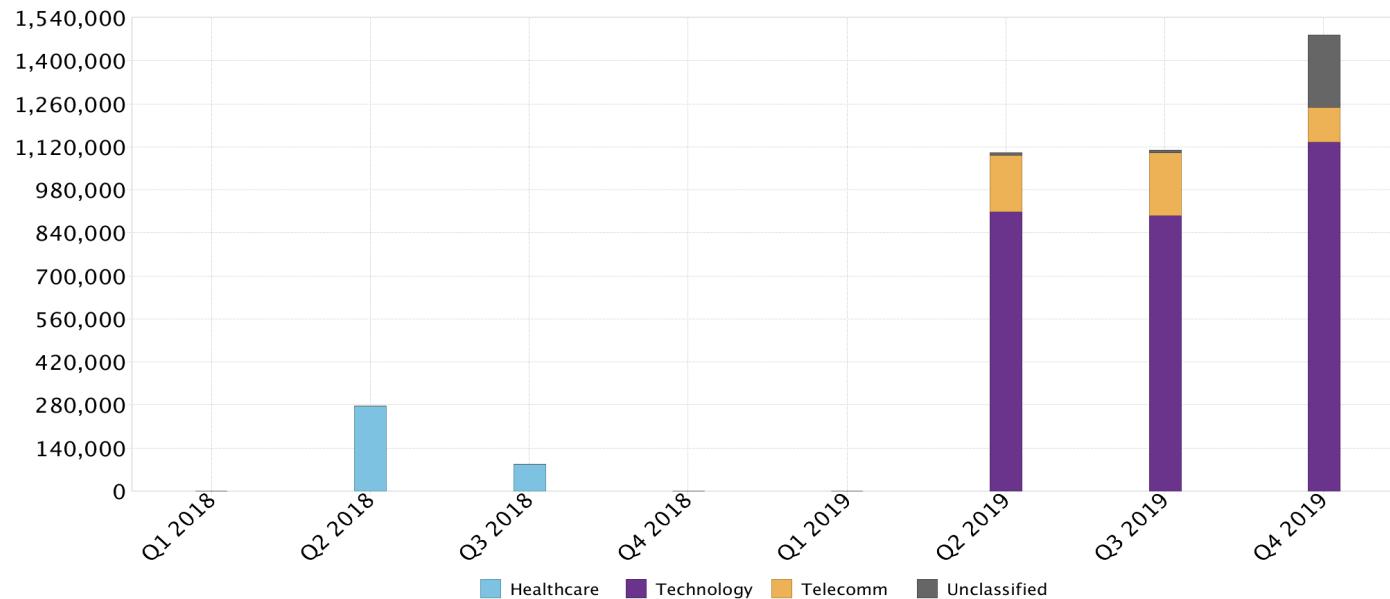


Allocation by Asset Class

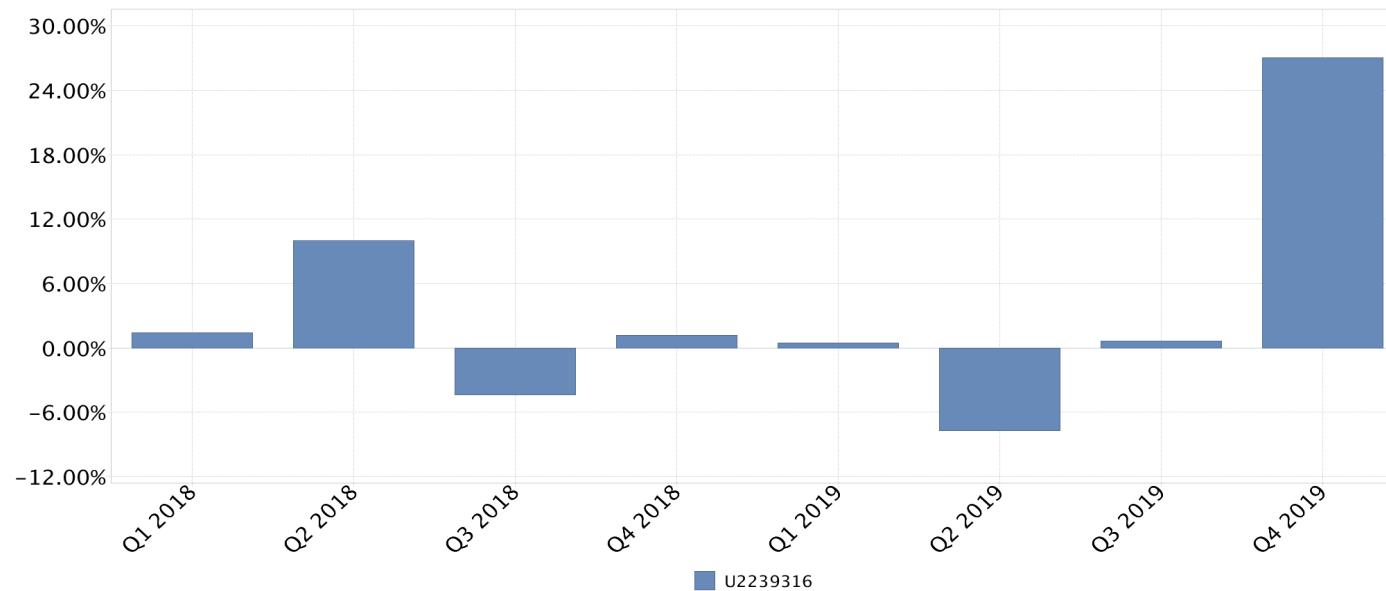


Date	Equities	Cash	NAV
Q1 2018	0.00	1,015,037.97	1,015,037.97
Q2 2018	277,200.00	839,087.46	1,116,287.46
Q3 2018	87,300.00	979,843.04	1,067,143.04
Q4 2018	0.00	1,079,528.60	1,079,528.60
Q1 2019	0.00	1,084,504.71	1,084,504.71
Q2 2019	1,101,356.73	-100,211.31	1,001,145.42
Q3 2019	1,108,491.84	-101,177.29	1,007,314.55
Q4 2019	1,483,377.00	-203,956.15	1,279,420.85

Allocation by Sector



Time Period Performance Statistics

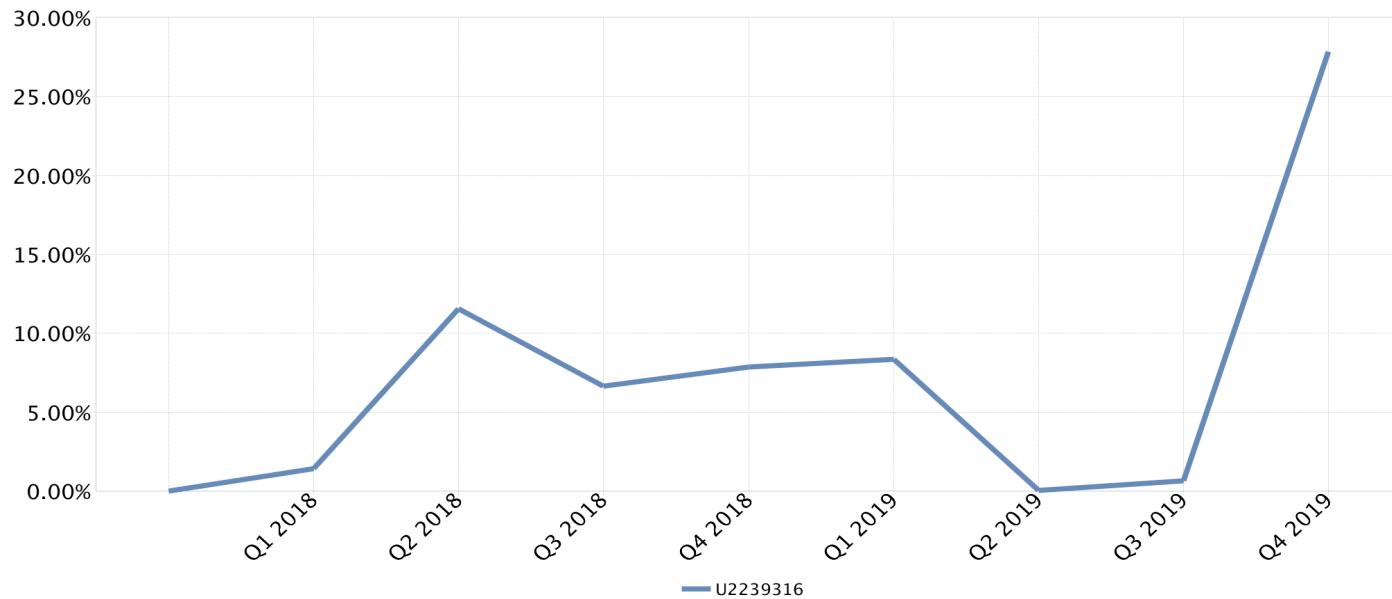


Date	U2239316
Q1 2018	1.42%
Q2 2018	9.97%
Q3 2018	-4.40%
Q4 2018	1.16%
Q1 2019	0.46%
Q2 2019	-7.69%
Q3 2019	0.62%
Q4 2019	27.01%
Average	3.57%

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Cumulative Performance Statistics

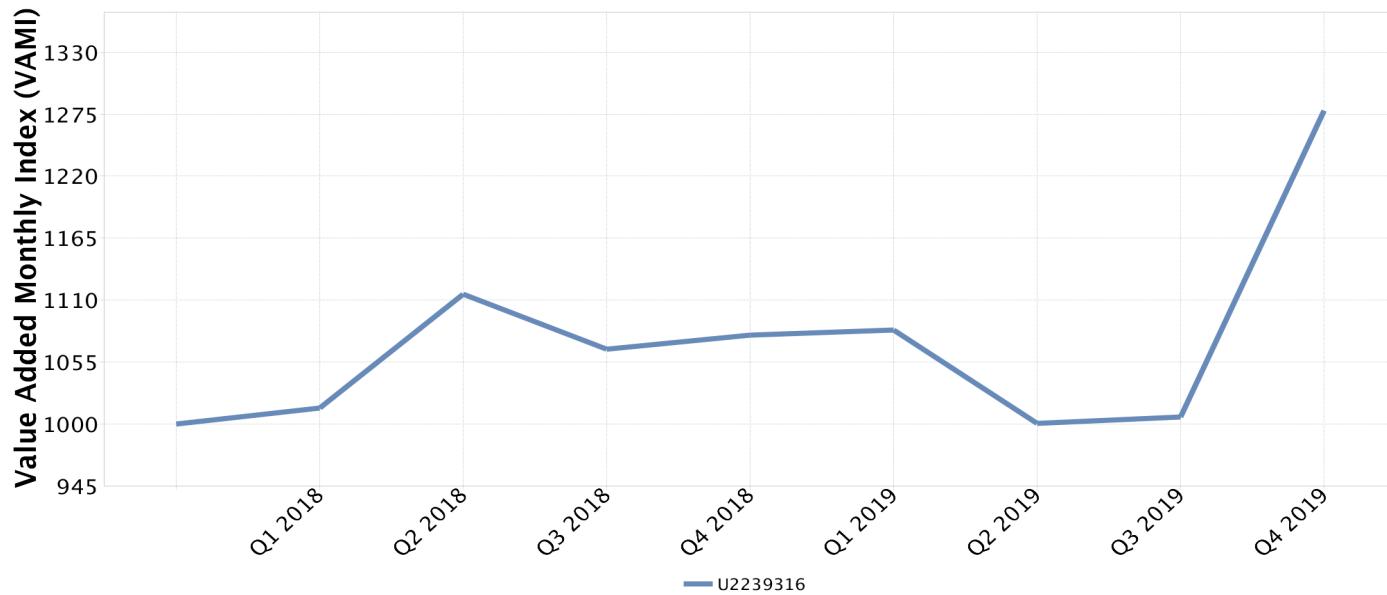


Date	U2239316
Q1 2018	1.42%
Q2 2018	11.54%
Q3 2018	6.63%
Q4 2018	7.87%
Q1 2019	8.36%
Q2 2019	0.04%
Q3 2019	0.65%
Q4 2019	27.84%
Q1 2018 to Q4 2019	27.84%

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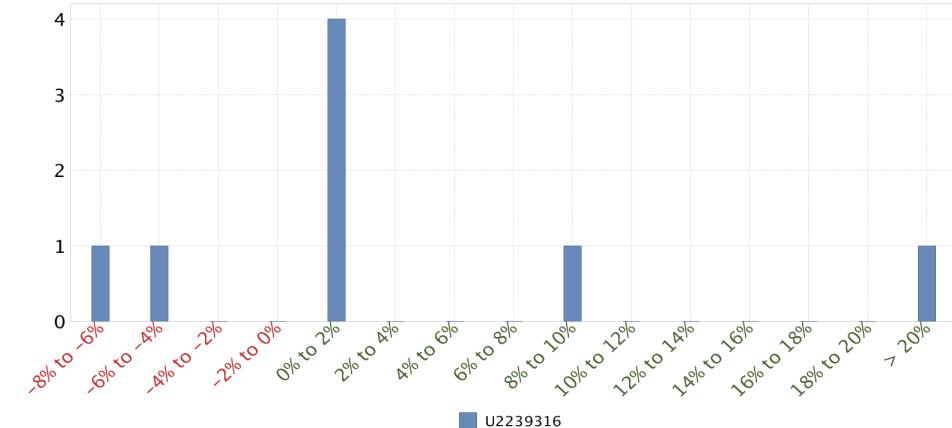
Risk Measures



Risk Analysis

Ending VAMI:	U2239316	1,278.41
Max Drawdown:		10.31%
Peak-To-Valley:		Q2 2018 - Q2 2019
Recovery:		2 Quarters
Sharpe Ratio:		0.63
Sortino Ratio:		1.93
Standard Deviation:		10.06%
Downside Deviation:		3.31%
Turnover:		1,049.50%
Mean Return:		3.57%
Positive Periods:		6 (75.00%)
Negative Periods:		2 (25.00%)

Distribution of Returns



Notes

1. The Net Asset Value (NAV) consists of all positions by financial instrument (stock, securities options, warrants, bonds, cash, etc.). All non-base currency amounts are converted to the base currency at the close of period rate.
2. The deposit/withdrawal amount displayed in the Account Overview report includes internal transfers along with cash and position transfers.
3. The gain or loss for future contracts settle into cash each night. The notional value is used when computing the contribution to return.
4. Dividend accruals, interest accruals and insured deposits are included in cash amounts throughout the report.
5. Price valuations are obtained from outside parties. Interactive Brokers shall have no responsibility for the accuracy or timeliness of any such price valuation.
6. The Allocation by Sector report includes only the following financial instruments; stocks (except ETFs) and options. All other financial instruments are included in Unclassified sector.
7. Amounts are formatted to two decimal places. If amounts are greater than two decimal places, Interactive Brokers uses "half-even" rounding. This means that Interactive Brokers rounds such amounts up to the nearest even number.
8. As of October 31, 2019 the US 3 Month Treasury Bill was 1.51%. This was the risk free rate used to calculate Alpha (α), the Sharpe ratio, the Sortino ratio, and the downside deviation.
9. The mean return is the average TWR for the period.
10. Historical S&P 500 dividend data in the Performance Attribution report may be modeled from sector compositions that are subject to change.
11. Frongello is the method used for mathematical smoothing in the Performance Attribution report. It has been developed by Andrew Scott Bay Frongello.
12. The Performance Attribution vs. S&P 500 report is available from 2019 on.
13. For accounts opened and funded before 2009, reports with a time period of Since Inception will include data going back to January 1, 2009. This includes some default reports and both Historical Performance reports.
14. The Modified Dietz method is used to calculate MWR. This method only values the portfolio at the start and end of the period and weights the cash flows. When large flows occur, its accuracy can diminish.
15. The Estimated Annual Dividend in the Dividends report and Estimated Annual Income in the Projected Income report assume dividend and bond payments remain constant throughout the year. These positions and interest rates are based on the previous business day.
16. We use Thomson Reuters Business Classifications for our sector data.

Glossary

Allocation Effect

The percent effectiveness of an account's financial instrument allocation to various sectors. The allocation effect determines whether the overweighting or underweighting of sectors relative to a benchmark contributes negatively or positively to an account's overall return.

Alpha (α)

A ratio that represents risk-adjusted excess returns of the portfolio in comparison to a benchmark.

Attribution Effect

The percent effectiveness of financial instrument allocation and selection of securities on the portfolio's performance when compared to the performance of a benchmark over a specified time period.

Benchmark

A standard against which the performance of your portfolio can be measured.

Beta (β)

A ratio that represents volatility or systematic risk of the portfolio in comparison to a benchmark.

Calmar Ratio

A ratio used to determine return versus drawdown risk.

Contribution To Return

The percent contribution of certain portfolio constituents (symbols, sectors) to the account's overall return.

Correlation

A statistical figure that measures the interdependence between the range of returns for a specified benchmark(s) and your portfolio. A positive correlation exemplifies a strong relationship whereas a negative correlation exemplifies a weak relationship.

Cumulative Return

Geometric linking of single period returns. Cumulative return is presented as a percentage.

Downside Deviation

The standard deviation for all negative returns in your portfolio in the specific time period.

Financial Instrument

A category of investment products in your portfolio. Cash, stocks, options, futures, etc. are examples.

Information Ratio

The risk-adjusted returns of a portfolio relative to a benchmark.

Max Drawdown

The largest cumulative percentage decline in the Net Asset Value of your portfolio from the highest or peak value to the lowest or trough value after the peak.

Mean Return

The average time weighted return of your portfolio for a specified time period.

Money Weighted Return (MWR)

Money Weighted Return (MWR) is used to measure performance during the specified report period. MWR is influenced by the time of decisions to contribute or to withdraw funds, as well as the decisions made by the portfolio manager of the fund.

Negative Periods

The number of occurrences of negative performance returns. For example, if you select a monthly report with 12 months, each month with a negative return would be a negative occurrence.

Net Asset Value (NAV)

The total value of your account.

Peak-To-Valley

The time period during which the Max Drawdown (largest cumulative percentage decline in the NAV) occurred.

Period Return

A performance measure that calculates the return you have received over a period of time.

Positive Periods

The number of occurrences of positive performance returns. For example, if you select a monthly report with 12 months, each month with a positive return would be a positive occurrence.

Glossary (Cont.)

Recovery

The time it took for the NAV of your account to recover from the valley (lowest NAV) back to the peak (highest NAV).

Sector

A firm's general area of business. Financials, Communications and Energy are all examples of sectors.

Selection Effect

A percentage that measures the ability to select securities within a sector relative to a benchmark.

Sharpe Ratio

A ratio that measures the excess return per unit of risk. The ratio is used to characterize how well the return compensates the account holder for the risk taken.

Sortino Ratio

The ratio measures the risk adjusted return of the account. The ratio penalizes only those returns that fall below the required rate of return.

Standard Deviation

Standard deviation is a statistical measurement of variability. It shows how much variation or dispersion there is from the average.

Time Period Return

The return your portfolio has gained or lost for the specific time period. Time period performance is presented as a percentage.

Time-Weighted Return (TWR)

TWR measures the percent return produced over time independent of contributions or withdrawals. TWR eliminates the impact of the timing of inflows and outflows and isolates the portion of a portfolio's return that is attributable solely to the account's actions.

Tracking Error

A percentage that represents the deviations of the difference between returns of the portfolio and returns of the benchmark.

Turnover

A percentage that represents the churn of the portfolio or the percentage of the portfolio holdings that have changed over the analysis period.

Value-Added Monthly Index (VAMI)

A statistical figure that tracks the daily/monthly/quarterly performance of a hypothetical \$1000 investment.

Disclosure

IMPORTANT NOTE:

This portfolio analysis was generated using Interactive Brokers' PortfolioAnalyst tool, which allows Interactive Brokers clients to generate analyses of their accounts using market data provided by third parties along with trade and account data contained in Interactive Brokers' systems. This analysis is for information purposes only and is provided AS IS. Interactive Brokers makes no warranty of any kind, express or implied, as to this report analysis and its contents. The data provided for use in this Portfolio Analysis is believed to be accurate but completeness and accuracy of the information is not guaranteed, and Interactive Brokers has no liability with respect thereto. The data regarding accounts held outside of Interactive Brokers is obtained from the financial institutions holding those accounts through a third-party service provider and Interactive Brokers has not reviewed its accuracy.

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