Portfolio Optimization

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www.aapryl.com

Learning Goals

- Understand the basics of Aapryl's portfolio optimizer
- Understand unique aspects of Aapryl's optimization module
- Understand the charts and tables provided in Aapryl's optimization module

Overview

- Aapryl's optimization module goes beyond the industry standard Mean-Variance Optimization programs that use risk and return to create an efficient frontier of portfolios
- Aapryl's Portfolio Optimization builds portfolios that are optimized based on a user specified target to maximize and a target to minimize
- Aapryl allows users to optimize on various other metrics including Expected Alpha, which is a forward looking statistic based on Aapryl's proprietary skill analysis
- This allows users to create portfolios that maximize the level of manager skill within given constraint parameters

Review of Key Terms

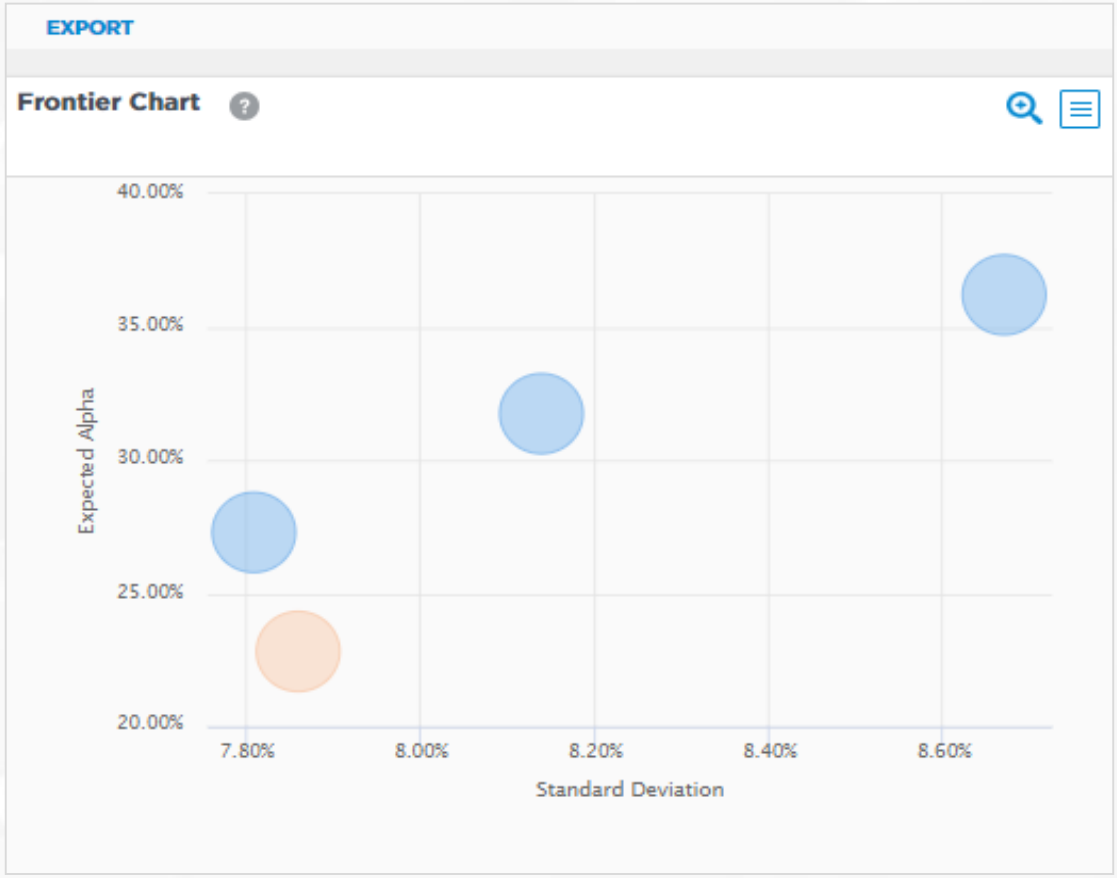
- **Expected Alpha:** Aapryl's proprietary measure of forward looking manager skill that can be used as a target to maximize in the module
- **Total Return:** Forward looking total return of a portfolio that can be used as target to maximize in the module
- **Standard Deviation:** A commonly used risk measure that is a measure of the variance of data points relative to the mean
- **Tracking Error:** Sometimes called active risk; it is the standard deviation difference between a portfolio's returns and its benchmark's returns. It can be used as a target to minimize in the optimization module
- **Standard Downside Deviation:** A metric similar to standard deviation but it looks only at negative variances from the mean. It can be used as a target to minimize in the optimization module
- **Downside Tracking Error:** Similar to tracking error, but focuses on portfolio returns below the benchmark. It can be used as a target to minimize in the optimization module
- **Min Weight & Max Weight:** Portfolio constraints that can be used to set ceilings and floors to the potential allocation weights of a given asset in the optimization

Overview of Methodology

- Aapryl uses industry standard methodology to calculate optimized portfolios
- Aapryl allows users to select the group of assets to be optimized, set constraints on their weights and choose the criteria that will be both maximized and minimized through the optimization
- A unique feature of Aapryl's optimization module is that it allows users to maximize on Aapryl's proprietary projected manager skill measure as well as total return
- Aapryl also allows users to minimize on Standard Deviation, Tracking Error, Standard Downside Deviation, and Downside Tracking Error

Efficient Frontier

- The chart shows efficient portfolios created in the portfolio optimization module
- The Y axis shows the Expected Alpha which was the target to maximize
- The x axis shows the standard deviation which was the target to minimize
- Users can highlight a portfolio (the pink circle represents the highlighted portfolio) to see the composition of the portfolio in other tables



Portfolio Optimization Tables

- The table on top shows the optimized portfolios created and various portfolio statistics
- The bottom chart shows the composition of the highlighted portfolio in the top chart on the top chart
- The bottom chart shows each manager's portfolio weight, return and contribution return

PORTFOLIO	EXPECTED ALPHA	HISTORICAL RETURN	STANDARD DEVIATION	DOWNSIDE STANDARD DEVIATION	DOWNSIDE TRACKING ERROR	TURNOVER
Portfolio 1	22.82%	16.1%	7.9%	2.9%	3.5%	0.95%
Portfolio 2	27.29%	17.3%	7.8%	2.4%	4.1%	0.95%
Portfolio 3	31.75%	18.2%	8.1%	2.7%	5.4%	0.95%
Portfolio 4	36.21%	18.2%	8.7%	3.0%	6.7%	0.95%

Total Portfolios: 4

PRODUCT	OPTIMIZED WEIGHT	ALLOCATION AMOUNT	HISTORICAL RETURN	EXPECTED ALPHA	MARGINAL CONTRIBUTION TO ALPHA	MARGINAL CONTRIBUTION TO RISK
BlackRock Funds: BlackRock Health Sciences Opportunities Portfolio; Institutional Shares	1%		0.28%	0.31%	0.67%	0.076%
NewfoundRiskManagedIncomeIdx	25%		2.92%	0.67%	3.49%	0.352%
Fidelity Advisor Series I: Fidelity Advisor Series Small Cap Fund	24%		4.51%	0.11%	8.25%	2.187%
T Rowe Price New Horizons Fund, Inc	25%		4.40%	0.34%	7.68%	3.137%
Russell Investment Company: Russell Investments US Defensive Equity Fund; Class S Shares	25%		4.68%	0.14%	2.74%	1.505%

Total Managers: 5

Cyclical Manager Positioning

- The chart breaks the economic cycle into 4 stages and shows in which stage a manager can be expected to perform the best
- The manager's making up the optimized portfolio are shown in the chart
- Users can see the coverage of the optimized portfolio by economic cycle stage to identify if there are areas in which they do not have coverage

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