REVOLUTION
Capital Management

# ALPHA FAQ

## General

**What are some reasonable definitions of an "optimal" portfolio – in terms of Alpha's construction process?**
One of the most widely used optimizations is to maximize the risk-adjusted return of a portfolio (typically measured with the Sharpe, Sortino, and/or Calmar ratios). While this is a valid first-order goal, a single metric cannot possibly encapsulate the myriad other properties exhibited by a portfolio's return stream. Other optimality constraints, such as skewness and kurtosis, and even the time scale over which to measure these properties, are equally important. For example, daily return properties may be less important for an investment vehicle with monthly liquidity than for one where investors can re-balance on a daily basis. In addition, consistency of returns over longer time scales (such as 12-24 months) may be relevant; this depends critically on the aggregate time horizon of the investors in the portfolio. Finally, another real-world constraint is the correlation of the portfolio to relevant benchmarks. In some instances, one may wish to *maximize* the correlation; conversely, one's goal may be to provide a complementary product that *minimizes* the correlation to a benchmark. In Alpha's case, Revolution Capital Management has chosen to construct a system with the following goals: maximize Sharpe and Sortino ratios while maintaining a monthly-based skew that is non-negative, and use trend-biased models (but not trend-following *per se*) to achieve a correlation to the Barclay CTA index of 0.5 over time. By adhering to these constraints, we strive to offer a product that i) provides an attractive risk-adjusted return on a stand-alone basis while ii) offering a further benefit of potentially improving a typical customer's overall, risk-adjusted portfolio return (with the implicit assumption that most futures-based portfolios use trend-following as the core return driver). After several years of rigorous research and development, we are augmenting the Alpha program with intra-day strategies; the unique benefits conferred by this model ensemble are its ability to both add consistency to the portfolio returns as well as improved drawdown/skewness control while still maintaining the 0.5 correlation target.

## RCM

**How many professionals are associated with RCM?**
There are six professionals directly associated with Revolution Capital Management (RCM's Mosaic program is deployed in a strategic partnership with Dunn Capital Management and hence there are roughly 20 Dunn personnel indirectly involved with that program).

**What background do the developers have and how has it influenced and facilitated the program-development efforts?**
Of the six, five have either Master's or Ph.D. degrees in computer science or engineering. Our marketing expert is our sole non-technical professional; he has 30 years of hands-on experience in the futures markets. Our predominantly-technical backgrounds have strongly shaped our approach to system development. The markets are viewed as statistical entities that exhibit nearly (but not complete) random behavior. These subtle, non-random price variations can be characterized and subsequently exploited. Ironically, profitable exploitation is possible even when the source of such "patternistic" behavior is not well understood. Trend following is a prime example. Academic theorists have devised the efficient market hypothesis (EMH) and claim that trends cannot exist due to "rationality" among market participants; however, in the laboratory of real markets, numerous firms have shown that trending prices can both be quantified and exploited for long-term profit (even though they can't necessarily explain why trends exist and persist). Revolution's view is that other non-random effects, though subtle, can be identified, quantified, and exploited to achieve similar long-term profits.

## Alpha

**What style(s) of trading does Alpha utilize?**
Alpha utilizes what we call "trend-reversion". To explain by analogy, trend-following is fundamentally a simple strategy where increasing (decreasing) prices over one's chosen time scale generate a long (short) position, respectively. Trend-reversion, on the other hand, makes trading decisions by looking at multiple time scales simultaneously (typically a "long" time scale on the order of months and a "short" time scale on the order of days to a few weeks). Such multi-variate conditions can also indicate profitable counter-trend opportunities, but Alpha restricts itself to trading in the direction of the long-term trend. This is because such opportunities tend to be statistically stronger and they also have inherently-advantageous risk properties. The recently-developed intra-day models exploit trend-reversion as well but do so on shorter time scales.

**What is the average holding period?**
The strength of a trade can vary on a daily basis, but the average holding period for a trading bias (long or short) is about 8 days. With the introduction of intra-day strategies, we expect this value will decrease moderately.

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**What markets does it trade?**
Alpha trades 34 markets across all major sectors in its end-of-day component. The full list can be found both on our one-page monthly summary and also our disclosure document. The addition of intra-day strategies will bring the total number of traded markets to 40.

**What is the potential benefit of RCM's current R&D initiative to complement the end-of-day Alpha models with a moderate allocation to intra-day models?**
Our multi-year research effort has confirmed that risk and opportunity are tightly linked. We have found that trend-following has proven itself to be a viable long-term strategy largely because of its inherently risk-averse nature. This may at first sound oxymoronic. But in a world where long-term price movements are demonstrably "trendy", the adage of "cutting losses and letting winners run" is statistically sound. This simple rule in fact produces the positive skew and limited drawdowns seen in actual track records of long-lived trend followers. With respect to Alpha, deviating from trend-following means that we have to take well-timed and calculated risks that oppose a prevailing price bias (typically the trend on a fairly-short time scale). This greatly reduces our upside/downside risk ratio relative to trend followers. But the use of intra-day models can restore this ratio to a large extent while still maintaining the target correlation between Alpha and trend-following.

**What is Alpha's estimated capacity?**
Based both on competitive analysis and also estimates based on trading-frequency comparisons to large trend followers, we conservatively estimate Alpha's capacity to be over $1 billion (assuming a target annualized volatility of 12%).

**What market conditions are ideal for Alpha?**
Because Alpha exploits trend-reversion, Alpha requires trends as the profitable source for signals. However, the relatively-short holding periods for Alpha allow it to successfully exploit opportunities even when trend-following is only marginally profitable. In 2008, trends were strong and Alpha performed well. In 2009 and 2011, trends were non-existent, trend-followers were unprofitable, and so was Alpha. However, in 2010 and 2012 YTD (January through mid-August), trends have been fairly weak, but trend-followers are slightly-positive in the aggregate and Alpha has done well. Thus, Alpha requires some directional biases but it has the unique potential to profitably amplify isolated "trendy" behavior.

**What conditions are worst for Alpha?**
Alpha is not expected to do well (and empirical observations support this) when market behavior is definitively non-trendy.

**What is the largest drawdown? Is it within expectations?**
The largest peak-to-valley drawdown was -13.8% on a monthly basis and occurred between January 2009 and January 2010. This is well within expectations based on Monte Carlo simulations.

**What is the longest drawdown? Is it within expectations?**
The longest drawdown and subsequent recovery has been 16 months and occurred between January 2011 and May 2012. This is well within expectations based on Monte Carlo simulations.

**What niche does Alpha target?**
The goal of the Alpha program is not to replace trend-followers. We recognize that there are numerous firms that offer well-researched, well-vetted trend-following programs with solid track records. Alpha's value proposition is to offer sufficient de-correlation to trend following such that the portfolio manager can realize a measurable improvement in both risk-adjusted return and return consistency by adding Alpha to the portfolio.

**Who are Alpha's competitors?**
Somewhat surprisingly, we don't see any competitors offering substantially-similar products. Typically, we see the following: trend-followers; short-term traders offering pure de-correlation (e.g. Mosaic); currency, agricultural, and other sector programs; and non-systematic (i.e. fundamental and/or discretionary) systems. Many of these still employ trend-following to a large degree and achieve their advertised de-correlation (if any) simply by trading a limited subset of markets. We do believe that large firms such as Transtrend employ trend reversion to a limited extent in order to enhance their overall portfolios; however, we can only infer this based on historical performance and statistical analysis of monthly returns. Their use of trend reversion is presumably limited due to their very large AUM.

**How has Alpha performed relative to competitors or to industry averages?**
The Alpha program has been trading since late May 2007. During this 5-year period, the program has generated a Sharpe ratio of 1.11, an average annual return of 12.0% with an annualized volatility of 10.8%, and a maximum monthly-based drawdown of 13.8%. Barclay did a recent study that ranks Alpha as number 13 out of 493 total diversified programs during the June 2007 – March 2012 period (rankings were done based on risk-adjusted returns using monthly values).