



Advanced Trend Program

Exclusively for Employees' Retirement System of Rhode Island

Long-Term Trend Following

Structurally Diversified

Adaptive Mathematics

Thoughtful Algo Execution

High-Quality/Low-Cost

Constantly Researched

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Crabel Capital Management, LLC • Company Introduction

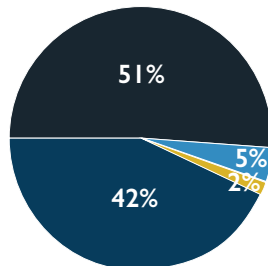
Overview

Crabel Capital Management is a global alternative investment firm specializing in short-term futures and foreign currency trading. The firm has delivered uncorrelated returns for more than 2 decades, and manages approximately 2 billion USD for an institutional client base. Crabel is headquartered in Los Angeles, CA and has 98 employees with more than half dedicated to research and technology. The firm has developed an industry leading low latency execution infrastructure with global co-location facilities and proprietary algorithms to efficiently trade in approximately 200 futures and foreign exchange markets.

“Quick Hits”

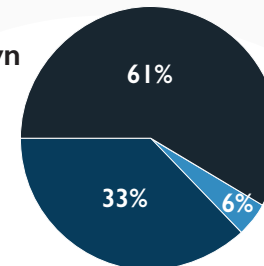
<p>Founded in</p> <p>Staff Count</p> <p>Firm-wide AUM</p> <p>Regulatory Licenses</p> <p>Locations</p>	<p>February 1987</p> <p>98 individuals</p> <p>2,283.3m USD (as of April 1, 2017)</p> <p>Registered as an Investment Adviser with the SEC and as a CPO & CTA with the CFTC as well as a member of the National Futures Association (NFA)</p> <table border="0"> <tr> <td style="vertical-align: top;"> <p>Los Angeles, CA Global Headquarters 10250 Constellation Blvd. Suite 2650 Los Angeles, CA 90067</p> </td> <td style="vertical-align: top; padding-left: 20px;"> <p>Milwaukee, WI Operational Headquarters 312 E. Buffalo St. Unit 20 Milwaukee, WI 53202</p> </td> </tr> </table>	<p>Los Angeles, CA Global Headquarters 10250 Constellation Blvd. Suite 2650 Los Angeles, CA 90067</p>	<p>Milwaukee, WI Operational Headquarters 312 E. Buffalo St. Unit 20 Milwaukee, WI 53202</p>
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AUM Breakdown by Client Type*



51% Fund of Funds
42% Institutions
5% Employees
2% High Net Worth

AUM Breakdown by Geography*



61% Europe
33% North America
6% Asia

*As of February 28, 2017

Brief “Managed Futures” & the Momentum Factor Introduction

A long history of capturing large market moves in a directionally “unbiased” way (the potential to be equally long or short an instrument). Over time, this factor has evolved, improved and is now widely recognized as a “momentum factor” useful as an uncorrelated return stream.

Benchmark? The “Soc Gen CTA Index” is a Common Tool. What is it?

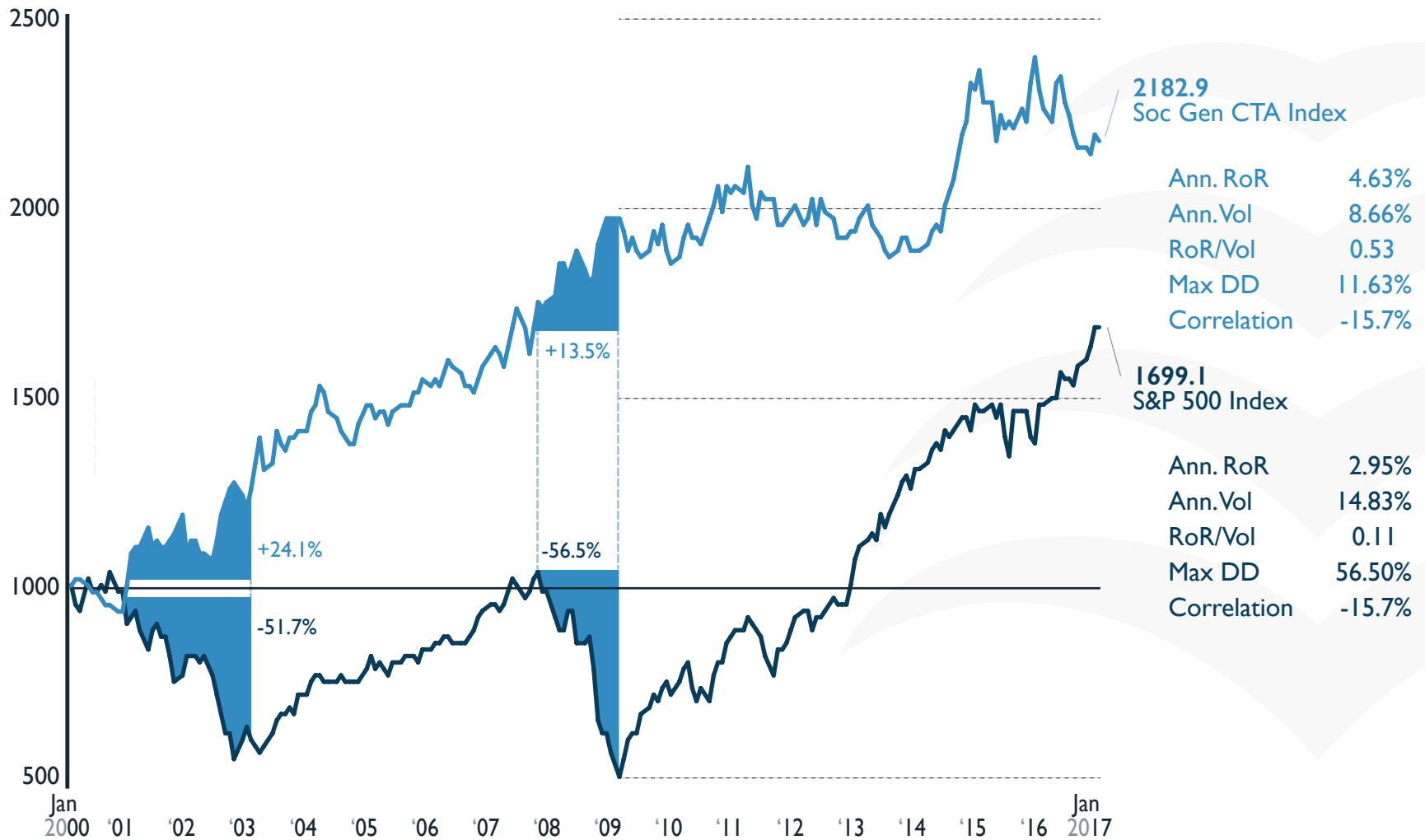
20 Largest CTA Managers that are still open to new investments.

Equally weighted; rebalanced and “fixed” annually

What are Managed Futures Attributes?

Transparent	Easy to price even second-by-second.
Liquid	Get your money out without delay at the transparent price.
Uncorrelated	Just different. Not negatively correlated, just different.
Cash Efficient	Because the Futures and FX markets have inherent leverage, cash can be used very efficiently.

Periods of Market Stress: S&P 500 Index versus Soc Gen CTA Index



Advanced Trend

Summary

Advanced Trend is designed to capture long-term classic managed futures trend following returns as efficiently as possible. While pursuing an exceptionally high correlation to long term trend following, this is not a “replication” vehicle. Leveraging low latency algorithmic execution and an on-going research initiative, the program seeks to constantly improve on producing best-thinking in trend capture in liquid markets.

Program Genesis

Development History

Advanced Trend leverages a decade+ of research and has traded institutional assets since December of 2012.

Our Edge

Best Thinking in Trend Capture

Thoughtful Design

Intuitive research into time-frame, sector exposure, volatility interpretation and trend quality identification is leveraged to maximize trend capture.

Aggressive Cost-of-Trading Reduction

The cost to execute a trend following strategy adds up far more quickly than is often realized. Slippage is reduced through low latency execution and aggressive mitigation of other costs (e.g. exchange, clearing).

Progressive

This is more than “trend replication” which we believe has a declining Sharpe. Once upon a time, 90-day breakout models had a 1.0+ Sharpe. Trend following has evolved as returns declined and the volatility of the strategy increased. Highly correlated Trend Following is our core focus and we are constantly looking to improve.

Strategy Details

Number of Strategies	Five. The strategy composition represents the best in on-going research for trend signal. Make no mistake, however, generally speaking trend following signals/strategies are all very similar and not necessarily a point of differentiation.
Strategy Types	100% Momentum. No moving average or breakout methodologies are included. Only pure momentum strategies are utilized.
Strategy Weighting	Opportunistic. The relative weighting between various strategies and markets will be a function of the quality of a trend and the underlying market dynamics. The methodology of weighting is a point of differentiation and the result of extensive testing into what differentiates trend followers relative to one another.
Limits & Procedures	Exacting. Every position has a stop. Every market has a size limit as does each sector.
Portfolio Themes	Value Maximization. We believe different volatility regimes should define how a trend follower trades, how often they trade and with what risk/reward anticipation.

Targets & Exposures

Average Holding Period	35-45 Days. Positions may persist for several months in some circumstances.
Markets Traded	Approximately 190 Markets. Markets are spread broadly by sector and geography.
Geographic Diversification	Broadly Diversified. Exposures balanced between North America, Europe, Australia/NZ and Asia with minor exposures in South America.
Asset Classes	Equally Weighted. Commodities, Equities, Interest Rates & Foreign Exchange.
Strategy Capacity	20 billion USD. Best thinking in long term trend capture is leveraged through a low latency algorithmic execution environment.

Our Observation

Explaining Some of the Differences in Trend Follower Performance

- ⌘ **Thesis.** Trend Following managers that have high correlation to one another (> 65%) are all going to be generally participating in the same successful long term trends.

- ⌘ **The Differences.** Three main variables explain different performance results between trend following managers:
 - ① How **quickly/slowly** a trend follower arrives to a successful trending market opportunity and how long the trade is held (duration)

 - ② How much portfolio exposure was put on to the successful opportunity (in a given market, in a given sector)

 - ③ **Transaction Costs** = Exchange/Clearing/Execution/Slippage/Fees

Reason 1

How quickly/slowly a trend follower arrives to the trend

The PROS of being “Quick”

In the trend earlier should mean more of the opportunity is captured

The CONS of being “Quick”

Over-trading = Increased transaction costs
 Stopped Out on Reversals = Could miss big sections of a move

Reason 2

How much exposure per opportunity

The PROS of equal risk/trade

Theoretically assures no missed opportunities

The CONS of equal risk/trade

Volatility Considerations = Not all moves are equal
 Trend Quality = Favoring better moves is rewarding (interest rates and equities over last four years)



Advanced Trend deliberately works to reduce the number of transactions (reduce over-trading and minimize transaction costs) and weight exposure for the opportunities that represent the highest quality

Reason 3

Reducing transaction costs

Q Do transaction costs, above and beyond management/incentive fees, matter for Trend followers?

Consider the cost breakdown an average investor is paying to access trend following

	Average Costs
Exchange	\$3.00/roundturn
Execution	\$2.00/roundturn
Clearing	\$2.00/roundturn
Slippage	\$2.00/roundturn
	\$27/roundturn

Savings Potential

-40% reduction
-100% reduction
-Significant reduction
-95% reduction
*-\$23/roundturn apr.

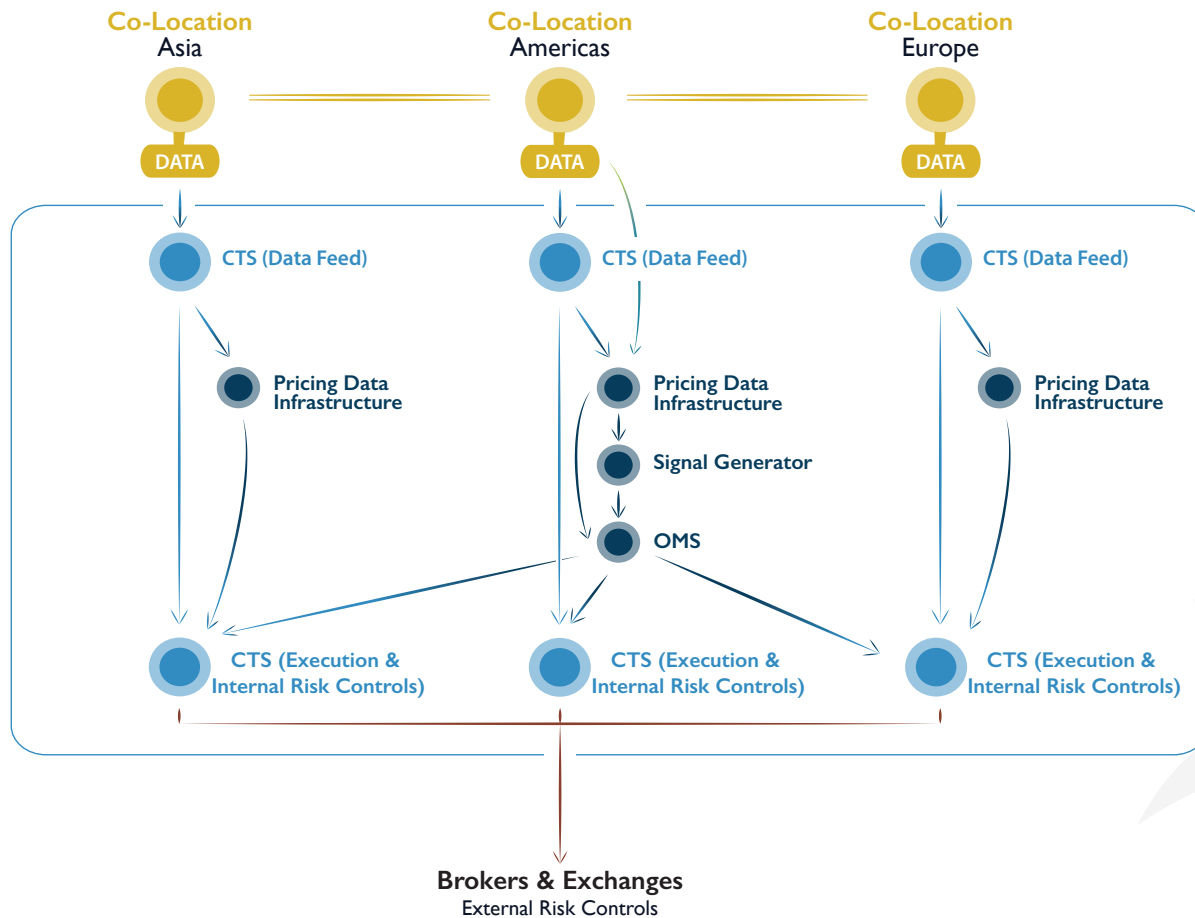
**This level of savings is extremely difficult to actualize without significant capital investment for full automation, co-location and algorithmic execution advancements*

A Assuming a Trend Follower has 1,000 roundturns/year:

The average trend follower who claims transaction costs are negligible, will see a -2.7% impact on performance over the course of the year.

We aim to have the transactional impact on Advanced Trend’s P&L to be closer to a -0.40% drag, perhaps lower. This means Advanced Trend, relative to the average, should start the year with a +2.3% advantage.

Crabel Capital Management, LLC • Trading Infrastructure



Notes

Co-location setups in level 4 data centers in the Americas, Europe and Asia

Redundant connectivity between the co-location facilities

Multiple data providers including, but not limited to Bloomberg, ACTIV Financial, CME Direct and over 30 FX venues

Each co-location is designed for non-disruptive redundant connectivity between sites

Databases are being replicated between multiple locations

The Crabel Trading System (CTS) is a robust, proprietary system designed to integrate numerous functions, such as data management, internal risk controls, and trade execution

Original systems can be used as back-up for execution in case CTS has a disruption

Multiple co-location sites provide redundancy for futures execution worldwide

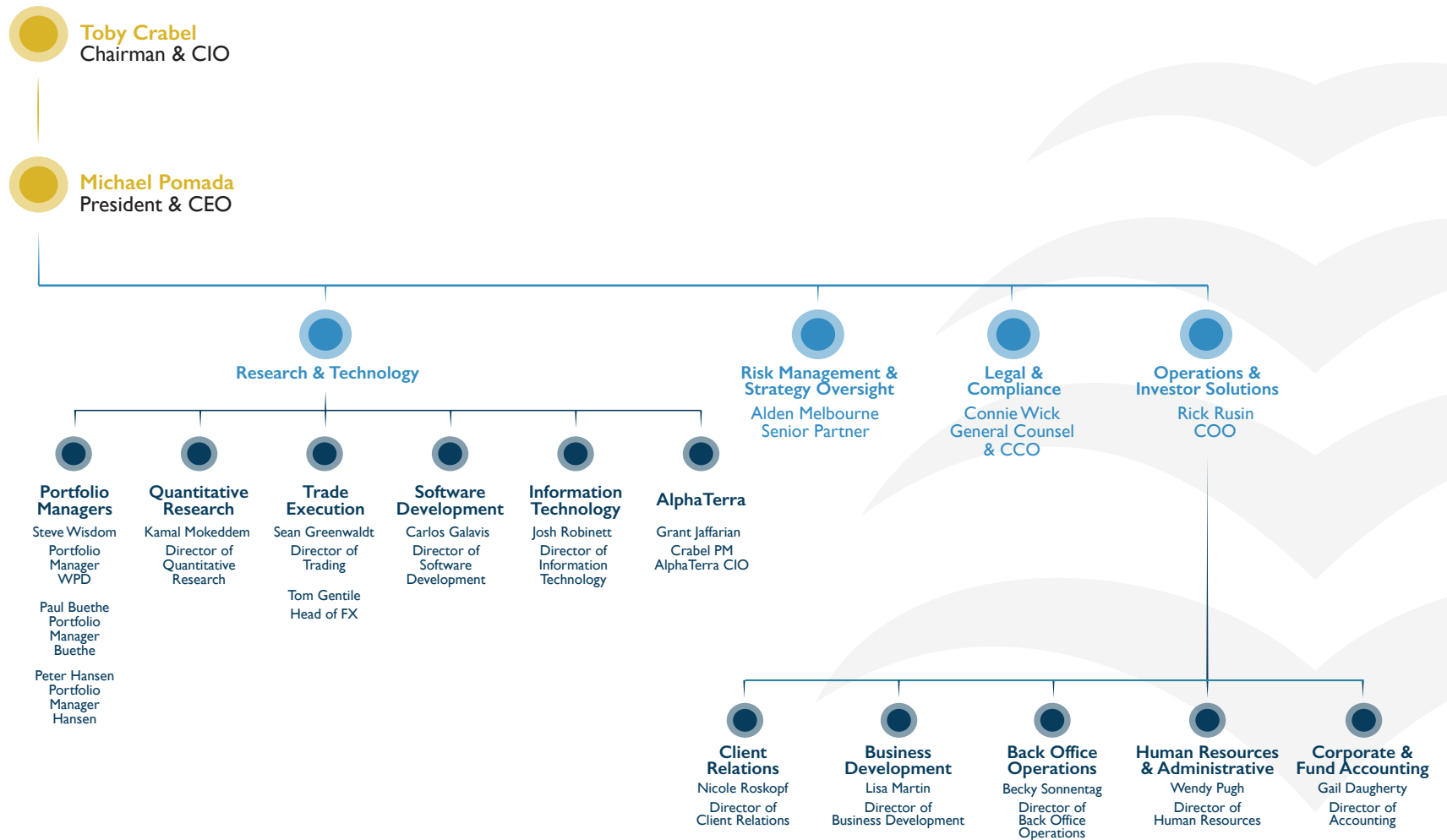
Multiple layer risk controls in place for execution:
(i) Internal e.g. position checks, cap on order size, throttling of orders, etc.

(ii) External (at the broker and exchange) e.g. maximum order size, order-to-trade ratio, etc.

Business continuity and disaster recovery plan available on request

Indicates Original Infrastructure

Crabel Capital Management, LLC • Organizational Structure



Biographies

Grant Jaffarian

Crabel Portfolio Manager
AlphaTerra
Chief Investment Officer

Grant Jaffarian, Portfolio Manager of the Advanced Trend Program and Chief Investment Officer of AlphaTerra LLC, graduated from Wheaton College, IL with a double major in Economics and English in 2001. In 2010 Mr. Jaffarian received an MBA from University of Chicago. Mr. Jaffarian began his career at Belgium based Analytic Investment Management, a high turnover futures manager acquired by Robeco Bank. Upon leaving Analytic Investment, Mr. Jaffarian founded Petra Intraday, a short term systematic emerging manager. In 2004, Mr. Jaffarian joined Efficient Capital Management, LLC where he served as Chief Investment Officer before departing in December 2012. Mr. Jaffarian founded AlphaTerra, LLC in April 2013 to work with the world's most promising quant systematic trading strategies. In March 2014 AlphaTerra was acquired by Crabel Capital Management and Mr. Jaffarian assumed the role of Portfolio Manager for the Advanced Trend Program while also continuing to carry the title of CIO for AlphaTerra. Mr. Jaffarian joined the Crabel Executive Committee in April 2016.

Rick Rusin

Crabel and AlphaTerra
Chief Operating
Officer

Rick Rusin, Chief Operating Officer of Crabel and AlphaTerra, LLC, received his Bachelor of Science degree in Mechanical Engineering from the State University of New York at Buffalo in 1995 and a Master of Science in Management Information Systems from Loyola University Chicago in 2001. From June 1995 to April 1997, Mr. Rusin was employed as an analyst at WTS, Inc., an environmental consulting firm located in Niagara Falls, New York, where his duties included classifying materials to determine their environmental impact. From April 1997 to December 2007, Mr. Rusin was employed by Rotella Capital Management, a commodity trading advisor and commodity pool operator, located in Kirkland, Washington. While at Rotella, Mr. Rusin served in various technology and senior management capacities including serving on its executive committee and board of directors. From April 2008 to August 2013, Mr. Rusin was employed by Chesapeake Capital Corporation, a commodity trading advisor and commodity pool operator, located in Richmond, Virginia. While at Chesapeake Capital Corporation, Mr. Rusin served as Chief Operating Officer which included serving on its executive committee. Mr. Rusin joined AlphaTerra in November 2013. Mr. Rusin became the Chief Operating Officer of Crabel in July of 2016 and also joined the Executive Committee in July 2016.

Crabel Capital Management

Advanced Trend is the product of two decades of research conducted by Crabel. All of Crabel's best thinking in trend capture is deployed in Advanced Trend. Further, on-going research that benefits the Advanced Trend Program will be included in the strategy as the program pursues progressive "trend-capture" best thinking. The Advanced Trend Program further leverages Crabel's considerable execution infrastructure to produce the lowest cost-to-trade environment possible.

General Disclaimers

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