Source: JEF cap intro 5/19/2014, Richard Ryan and Chris Hurd from JEF, TR

Intro Call: 6/16/2014, Umran Zia, TR

Research Call: 8/14/2014, Stefan Behling, Umran Zia, TR

**Summary:** The Centurion Short Term Trading program has potential to offer further diversification within the HAMF managed futures strategy or serve as an upgrade option for Dominion given 1) the strong pedigree of the PM who was previously the head of trading at Crabel, 2) a solid 24 month track record with a 1.4 sharpe ratio, and 3) less business risk than Dominion with success in raising assets and current AUM of $150mm. Centurion’s systematic program focuses on the same two types of models as Dominion (momentum and mean reversion strategies), but Centurion’s models have a shorter holding period (few hours to 2 days vs. Dominions 1-5 days). Centurion’s CIO has worked with short term trading strategies since 1997, and is supported by five traders and two research analysts, three of which are also former Crabel employees. Given the low target volatility (6%) and low realized volatility of the 1x version, a 2x version of the program may be preferable for the HAMF portfolio.

Agreed to ROE with the expectation of a November board recommendation. Centurion is in discussions with Old Mutual for a $50mm allocation in late 4Q14 or 1Q15 which will be structured in a QIF, and they plan to make an additional $50mm available in this structure to other European investors. They expect that this project will require all of their attention and will not take on any managed accounts during this time. Given their success in raising capital it is unlikely that they will accept a non-incentive fee paying arrangement in 2015. Recommend moving forward for further due diligence and an initial onsite.

**Firm**: Centurion Investment Management was founded in 2012 and is based in Brookfield, WI with a branch office New York, NY. Centurion has 13 employees, research and trading is run out of Wisconsin while the operations and IR are run out of NY. The firm has one strategy, Centurion Short Term Trading, and has $150mm in AUM as of 7/31/2014. Centurion is led by CIO Stefan Behling, who was formerly a Sr. portfolio manager and head of trading with Crabel Capital Management in Milwaukee WI. As head of trading he managed a team of 28 traders and 8 support staff, and was also a member of the firm’s executive, operating and research committees. Stefan was one of Crabel’s four original employees when he joined the in 1997, and during his tenure AUM increased from less than $50mm to $3.5B with over 100 employees when he left in 2009. At Centurion, Stefan has a team of 5 traders and 2 research analysts. 3 of the traders are also former Crabel employees. Traders are responsible for providing feedback on existing models and coming up with ideas for new models which the research analysts validate. Umran Zia is the firm’s CEO and is based in NY with three other employees, two software developers and one back office associate. All systems are cloud based allowing Stefan and the traders to work from NY (or anywhere else) if necessary. The cloud based systems also simplify disaster recovery. Trading and research systems were all created in house.

Stefan worked on short term (holding period less than 3 days) strategies at Crabel for 12 years and believes the case for such strategies to create uncorrelated, positive risk adjusted returns has continued to strengthen over that time. He believes that short term strategies benefitted from the change from open outcry trading to electronic trading and then further benefitted from the change in liquidity as prop desks went away after 2008. Further, prop desks were dominating the markets prior to 2008 and moved markets for days and weeks at a time, creating trends. Now the liquidity has shifted to high frequency traders and market moves happen is significantly shorter time periods.

Stefan decided to leave Crabel where he had spent his entire career because he had a desire to run his own firm, had philosophical differences with some of the processes at Crabel (one was a lack of a systematic way to delever during drawdowns), and had no interest in moving to Los Angeles where the firm had opened an office.

**Strategy**: The Centurion Short Term Trading program is 100% systematic and uses two main types of models, momentum and mean reversion, with holding periods from a few hours to 2 days and averaging 6 hours. The program began trading in August, 2012. At 1x the program has a target vol of 6%, and a 2x version is available. The program trades 24 hours a day in 52 futures markets across all major market sectors; currencies, commodities, interest rates and equity indices. At 1x margin to equity averages 2.5% and is capped at 9%. In total, there are 78 models and risk is allocation 2/3 to momentum and 1/3 to mean reversion. All models trade across all markets. Allocations to models are systematically determined by their 2 year sharpe ratio; 0 to 1 receives full allocation, > 1 receives above normal allocation, 0 to -0.5 receives below normal allocation, and < -0.5 are temporarily removed. Typically less than 10 models are removed from the program. All trades have a price target, time exit, and stop loss limit. 62% of trades are timed out, 20% reach profit target, while 18% are stopped out. 58% of trades have been profitable during live trading. The high turnover strategy seeks to make money from a large number of small trades, and looks for “base hits rather than home runs”. The program is expected to perform best when short term volatility is increasing or decreasing. The program should perform worst when volatility is low and stays low, as false breakouts become more likely. Following July 2013, the program’s worst month at -3.65% in the 1x version, the team implemented an overlay to delever the program when 10 day volatility shrinks on a basket of the most traded futures contracts. Depending on the level of short term volatility the program can be delevered from 5% to 25%. There are also systematic daily risk limits at the market, sector and portfolio level; market risk is limited to 37 bps per day, sector risk is limited to 100 bps per day, and portfolio risk is limited to 270 bps per day at which point no new trades are put on. The team also creates a daily commentary which includes a discussion on model performance. In addition to providing human oversight of automated trading systems, Centurion’s traders are responsible for continually providing feedback on existing models and coming up with ideas for new models which the research analysts attempt to validate using the firm’s proprietary software. A validated model will not be added if its correlation to the portfolio is > 0.35. New models are introduced at lower allocations until live results confirm testing. Given the short term nature of the strategy, trading cost and slippage are of high importance. Annual trading costs are limited to 2% per year.

Stefan estimates that capacity in the strategy is $750mm and expects to soft close well ahead of that at $300mm and $500mm.

Stefan went through four trade examples and seemed comfortable providing such transparency. Example 1: Mean reversion trade in the Euro, after three consecutive days of upward movement and expanding volatility, the Euro gapped higher on the fourth day and the short trade was initiated, the position was held until its predetermined time limit (the next day’s open) and exited at a profit. Example 2: Momentum trade in the S&P 500, volatility in the S&P 500 had contracted over several days and after a breakout (move outside of a threshold range), in this case to the upside, a long position was initiated and held until it reached its predetermined price target the next day. The signal in example 2 works symmetrically so if the S&P 500 would have broken out to the downside a short position would have been initiated. Example 3: Momentum trade in Soybeans, after gapping higher off the open and continuing to move higher in the first hour of trading, a long position was initiated, the position was held until the predetermined time limit, that day’s close, and sold at a profit. Example 4: Unsuccessful trade, Momentum trade in Crude Oil, volatility spiked and the price reached a new high during the look back period, but reversed in a V shaped pattern and the long position was stopped out intraday. Example 5: Unsuccessful trade, Momentum trade in the S&P 500, failed pivot trade, long position was exited intraday.

Over the 24 month period (through July 2014) that the program has engaged in live trading (at 1x), it has produced a cumulative return of 12.5%, and annualized return of 6.1%, with annualized standard deviation of 4.4%. The program produced positive returns in the partial year 2012 (+4.1%), full year 2013 (+5.3%) and YTD 2014 through July (+2.7%). The program’s largest drawdown was 3.7%, which occurred in a single month, July 2013. It should be noted that team implemented the risk management technique to delever the program when short term volatility persists at low level following July 2013’s performance. Given the low target volatility (6%) and low realized volatility of the 1x version, a 2x version of the program may be preferable for the HAMF portfolio.

**Follow Up:**

What exactly was Stefan’s role at Crabel? How involved was he in research vs. just execution trading?

What are the sub categories of the momentum and mean reversion models (other than intraday and multi day)?