– It's in the Numbers –

How Proper Analysis of Returns can be a Crystal Ball

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Background

Mangan & McColl Partners, a hedge fund manager based in Charlotte, NC announced at the end of June 2006 that its fund would be closed within a month. According to Hedge Fund Research (HFR), the fund's stated strategy focus was on merger and special-situations arbitrage. In Figure A we show the growth of assets of the firm's M&M Arbitrage Offshore fund. Note the speed of redemptions in 2005. According to press reports, in 2005 the fund was hit by significant redemptions, which followed highly volatile performance results and a negative report by an institutional consultant. Additionally, one of the partners was allegedly involved in inappropriate trading, an allegation that was settled with the NASD in December 2005.

Based upon these reports, Markov Processes International (MPI) performed an analysis of the fund looking for tell-tale warning signs that investors might have been able to see with proper analysis techniques. The following is the findings from that investigation.

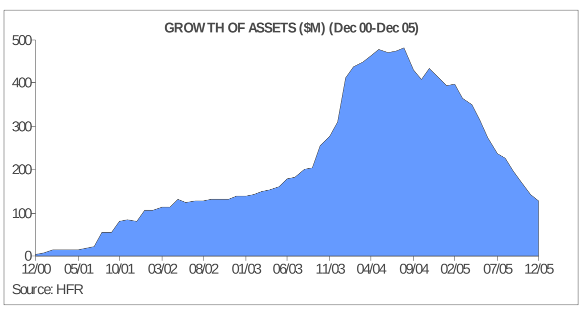

Figure A

Fund Description

M&M Arbitrage's strategy description in HFR:

The Fund's investment objective is to produce capital appreciation on a consistent basis by employing hedged investment strategies through a diversified portfolio of investments. The Fund's strategy focuses on arbitrage positions concentrated in two event driven sectors: merger arbitrage and special situations arbitrage (defined as bankruptcies, corporate restructurings, corporate spin-offs, recapitalizations, high yield situations, and general value opportunities. The Fund invests announced and definitive merger transactions and broadly diversifies the portfolio over 40-60 positions. The strategy produces returns with a low volatility and a low correlation to the broader market.

Analysis

Using MPI's proprietary Dynamic Style Analysis (DSA) methodology and the fund's performance data we endeavored to determine the sequence of events that led to its downfall in 2005-2006. For our analysis we are using M&M Arbitrage performance data from HFR available through December 2005.

A simple visual comparison of the growth pattern of M&M Arbitrage vs. the HFR Merger Arbitrage Index, as shown in Figure B, reveals that in early 2003 the fund began to deviate noticeably from the strategy index. The performance lines diverge and the fund's performance became increasingly volatile. Prior to this period, its tracking of the index was very close.

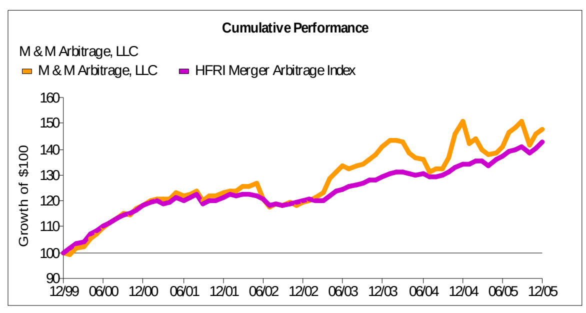

Figure B

Next, we ran a regression of the fund against its stated strategies – Merger Arbitrage and Event Driven Indexes from HFR, as well as Cash (to detect leverage). The results are shown in the exposure dynamics chart in Figure C below. In the chart, the exposures to each index (as determined by the regression model) at every point in time are represented by a color. The area above the zero line represents long positions while the area below the zero line represents short positions. If one draws a vertical line at any time point, it will be divided by color bands proportionally to the amounts allocated to each index in the portfolio. Note that starting in 2003 the fund behaved as if it had leveraged its strategy 2:1, as depicted in the chart by the growing "negative cash" position. Also notice the increasing influence of the event-driven strategy (in green). The growing "negative cash" may also indicate uncovered bets or imperfect hedges rather than actual leverage.

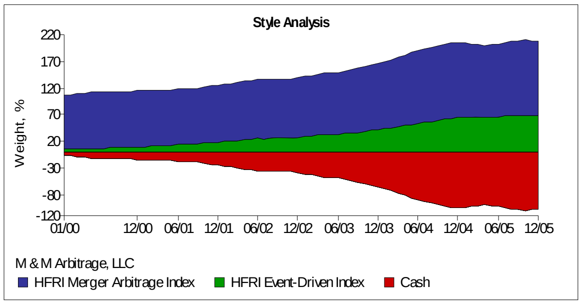

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Figure C

Based on our initial analysis, the stated objective of "hedged investment strategies," "low volatility" and "low correlation" seem questionable and require further investigation to determine what could have gone wrong with the fund.

The next analysis is over the period 2003-2005, when a dramatic change in return behavior occurred. We used MPI Stylus Pro's DSA model to derive a dynamic portfolio of market indices that could have produced similar performance over the past several years. For the analysis we used Russell US Equity style indices, MSCI EAFE and the Lehman Aggregate to detect U.S. equity, international equity and fixed income exposure. The resulting exposure chart is presented below in Figure D. It presents a clear indication of a directional strategy. Specifically, in 2005 the return behavior indicates that the strategy was 100% net long and had very specific uncovered style bets. Also note that the analysis indicates an increased exposure to international equities (possibly ADRs).

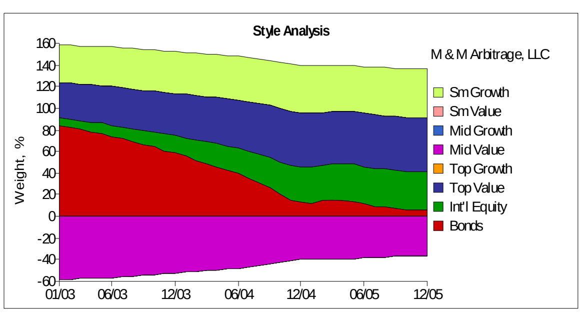

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Figure D

Figure E conveys how a relatively stable portfolio of equity index exposures tracks the fund performance very well. The blue line ("Style") in Figure E represents performance of the tracking portfolio consisting of generic style and asset indices with weights estimated using DSA and shown in Figure D.

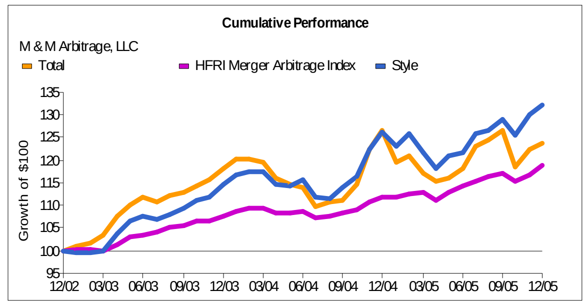

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Figure E

As Figure F displays, the results appear to provide good explanatory power and reliability. The Style R-Squared shows the percent of the fund's returns' variability captured by the style portfolio above, while Predicted R-Squared, MPI's proprietary cross-validation statistic, provides an indication of the level of R-squared if such benchmark is to be used out-of-sample.

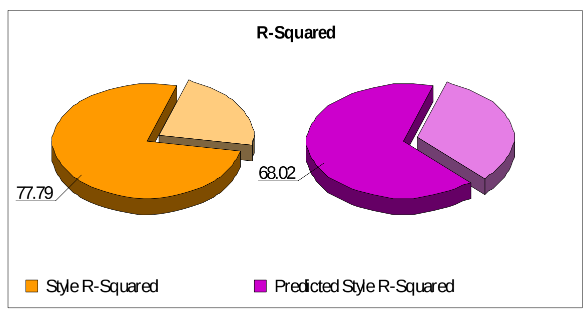

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Figure F

Therefore, there were signals of the fund's unusual behavior and exposure prior to the end of 2005.

RESEARCH SUMMARY

With proper analysis techniques, MPI's DSA analysis uncovered a deviation from the fund's stated strategy as early as 2003-2004 and identified significant systematic exposures and risk factors.

Investors cannot underestimate the need for ***extensive and ongoing*** due diligence for their fund investments. With better insight into these indicators, investors could have withdrawn from the fund early enough to prevent loss or could have avoided the fund altogether.

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