



## CTA Performance: Small vs. Large

“Does the ability of a large CTA to continually adapt through new research give it a natural advantage over smaller funds?” This is the title of a panel debate at the CTA World Congress Europe, which I am supposed to moderate in London later this month. Reason enough to challenge the thesis implied by the question.

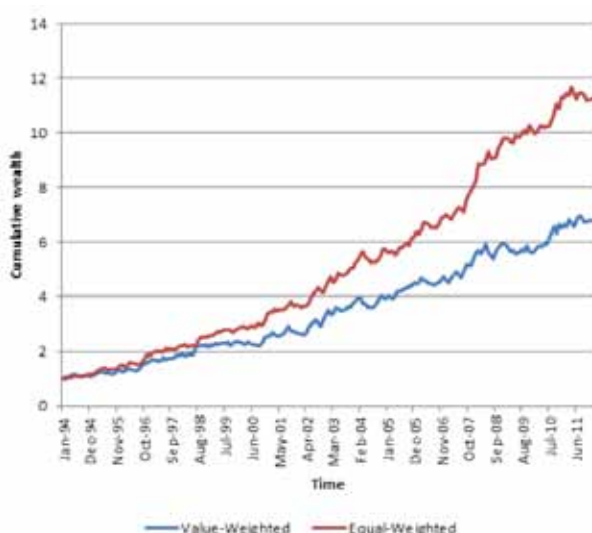
Prof. Dr. Bernd Scherer, CIO FTC Capital, Affiliate Professor of Finance, EDHEC Business School

The question posed above implies that large CTAs indeed do exhibit superior performance. However, the empirical evidence for this is mixed at best. GREGORIOU (2006) asks: “Does CTA size erode performance?” While the data are plagued by survivorship bias, he finds a significant negative correlation between size and performance. This result is indicative but not conclusive as no attempt has been made to control for other factors and his results

exhibit some instability across time periods. HEDGES (2004) controls for survivorship bias and finds no evidence that larger CTAs (more precisely he looks at global macro funds) outperform their smaller peers. Portfolios sorted according to start of year Assets under Management (AUM) show no performance differentials.

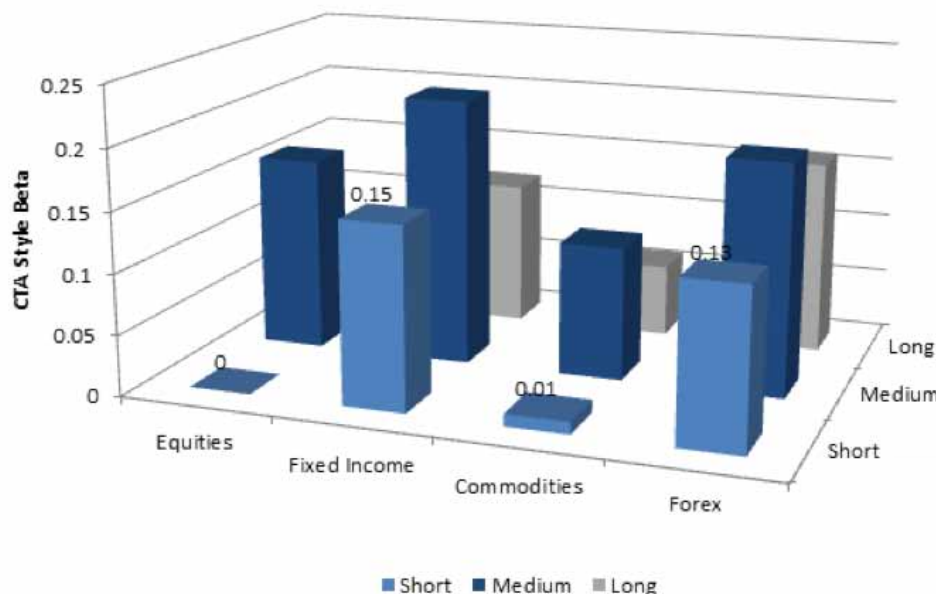
### Equal-Weighted beats Value-Weighted

An alternative to the above studies is to calculate the cumulative wealth from investing into either an equal weighted or a value weighted portfolio of CTAs. We use the BARCLAY CTA database starting from January 1994 to January 2012 using monthly data. The results are presented in Exhibit 1. At the end of each month we divide the AUM of a given fund by the total industry AUM to arrive at its industry weight (value-weighted returns). Alternatively we divide one by the number of funds alive at a given month (equal-weighted returns). These weights are then multiplied with next month returns to arrive at two return series for value and equal weighting. Given that equal weighting effectively puts larger weights on small CTAs relative to value weighting, we would expect a value weighted portfolio to outperform, if the above hypothesis was true. However, the reverse is true<sup>1</sup>. The Sharpe ratio of a value weighted universe is 1.01 compared to 1.43 for the equal weighted universe. Using bootstrapping techniques to accommodate for non-normality and serial correlation, we find this difference to be statistically significant at the 99.9% level.



**Exhibit 1: Value weighted versus equal weighted portfolio of CTAs.** The calculations are based on monthly data for the BARCLAYS CTA database from January 1994 to January 2012. Source: FTC Vienna, Barclays

<sup>1</sup> No attempt has been made to adjust for survivorship bias. This might bias the results in our direction as only the succeeding new arrivals (small CTAs) are included. On the other hands will well performing funds experience large inflows and grow large, while mediocre funds will remain small.



**Exhibit 2: NEWEDGE Style Betas.** We show the regression beta for varying asset class and momentum speed. Exposures are calculated from a multivariate regression of Newedge CTA Trend Sub-Index on the back-tested “poor mans” CTA factors. We use daily data since 3<sup>rd</sup> of January 2000. Source: FTC, Vienna

While there is plenty of room for more research, our conjecture for this result is, that larger CTA might suffer from:

- 1.) Increased slippage for larger funds (market impact)
- 2.) The inability to include strategies with high Sharpe Ratios but limited capacity (proprietary trading style)
- 3.) The inability to diversify across a large universe of futures markets due to limited liquidity in selected markets
- 4.) The reduced ability to use limit orders.

One way to show the inability of large CTAs to properly diversify can be shown from a multivariate regression of naive trend following strategies (return sign for 240, 120 and 20 day horizons) across equities, fixed income, com-

modities and currencies against the Newedge CTA Trend Sub-Index comprising the biggest CTAs in the industry. The results are summarized in Exhibit 2.

We see that the Newedge index exhibits large beta (sensitivity) to high capacity asset classes like fixed income and foreign exchange, but only modest exposure to commodities<sup>2</sup>. Large CTAs might be forced to diversify less optimally given their liquidity needs.

We have shown that the thesis that large CTAs outperform small CTAs is questionable at best. If anything, size brings many disadvantages and higher research budgets might be the consequence of dealing with problems smaller CTAs don't have. In other words: More research is needed.

<sup>2</sup> Given the multi-collinearity between speeds within a given asset class, the sum of asset class betas is more informative than the allocation to speeds.

**Literature:**

GREGORIOU G.N. (2006), Does CTA Size Erode Performance, *Journal of Wealth Management*.

HEDGES. R. (2004), Size versus Performance in the Hedge Fund Industry, *Journal of Financial Transformation*.