**The Beta of
Managed Futures**

**Timothy C. Lee
Marc H. Malek
Jeffrey T. Nash
Jeffrey M. Rose[1]**

The Beta of
Managed Futures

Despite the appearance of complexity and the emphasis of many managers on their "proprietary algorithms", what CTAs do is fundamentally very simple. They are trend followers. They seek to identify a price trend in a market (i.e., determine that a market has been going up or down and is likely to continue to do so), invest in that market so that if the trend continues they will profit, and exit the investment when the trend ends.

CTAs employ a wide variety of methods[2] to attempt to capture these trends and each CTA naturally, implicitly or explicitly, claims that it has found a superior method of engaging in trend following. But if what CTAs do is at heart so simple, what alpha is provided by a CTA?

CTAs: Alpha or Expensive Beta?

Returns can be broken down into alpha (excess returns due to skill), beta and the risk free rate. Beta is ubiquitous and easily replicable and therefore cheap, while alpha is rare, hard to replicate and therefore expensive. It makes sense to pay a premium for alpha, but there is no need to do so to access beta, as it is available from multiple, competing sources. CTAs purport to provide alpha and justify their fees on that basis. It is clear, however, that there is a good deal of beta in the returns of many alternative investments[3], which raises the possibility that alternative investments are providing beta but charging alpha prices for it. This is increasingly being recognized, with a number of multi-billion dollar hedge funds or their principals producing research on this phenomenon[4].

Returns of alternative investments may also be driven by "style beta"[5]. "Style beta" refers to the returns associated with particular investment styles such as value, growth, merger arbitrage or trend following. While accessing the return from a style beta requires some skill, it is not sufficiently rare as to warrant the high fees appropriate for alpha. This too is increasingly being recognized, with at least two funds seeking to capture the style beta of convertible arbitrage and one the style beta of merger arbitrage.

Finally, managers may generate negative alpha. Active managers *often underperform appropriate benchmark indices after fees.* To take the most notorious example, active U.S. equity managers generally underperform the S&P 500. According to John Bogle, former chairman of Vanguard, in 21 of the 35 years between 1963 and 1998, more than half of mutual funds failed to outperform the S&P 500 and in several years nearly 90% of mutual funds failed to outperform the S&P 500[6].

---

[2] A selection of these methods, which is by no means exhaustive, includes breakout systems, systems based on moving averages and systems based on pattern recognition. Some systems have half a dozen rules governing trade entry. On top of that, the systems add stop-loss rules, such as money management stops, and take profit rules.

[3] For example, between January 1995 and February 2005, the beta of the HFRI Equity Hedge Index to the Russell 2000 Index was .4.

[4] See, e.g. "Hedge Funds Selling Beta as Alpha", Bridgewater Daily Observations, June 2003.

[5] "Style beta" refers to the returns associated with particular investment styles such as value, growth, merger arbitrage or trend following. See, e.g., Clifford Asness, "An Alternative Future", Journal of Portfolio Management, 30th Anniversary Issue, 2004, 94.

[6] John Bogle, 1999, Common Sense on Mutual Funds: New Imperatives for the Intelligent Investor, p. 119.

Current Managed Futures Benchmarks are Inadequate

To determine the degree to which a CTA's returns are subject to negative alpha, style beta and charging for alpha and delivering beta requires a determination of that CTA's alpha. Making this determination requires a benchmark against which to measure CTA performance.

Historically, there really hasn't been such a benchmark. CTA indices represent the results of investing **in** CTAs, not the results of investing **like** CTAs. In the absence of a benchmark, the only way to evaluate CTAs historically has been to compare them to their peers, either individually or as part of an investable index of CTAs. This can be a useful exercise, but suffers from several limitations which dramatically restrict its utility.

This most important drawback of peer group analysis in this context is that one cannot use it to separate alpha from beta, let alone quantify that alpha. One can, of course, use the Capital Asset Pricing Model (CAPM) to calculate a beta and alpha between any two return streams. However, having alpha to a peer group does not necessarily entail having alpha to a benchmark. For example, a CTA could have alpha to its peers but not a benchmark if a large portion of the peer group did not have alpha to the "true" benchmark[7]. Thus, even if a CTA outperforms its peers, it does not necessarily mean it is adding value relative to the true benchmark.

Other limitations follow from the nature of CTAs and the ways in which they are differentiated. For example, CTAs follow trends in different time frames. If markets are exhibiting strong trending behavior in the 10-day time horizon and weak trending behavior in the 40-day time horizon, a CTA built to capture shorter-term trends will, in this particular environment, look better than one built to capture longer-term trends. Unless investing in trends in one time frame consistently produces superior returns to investing in another[8], this difference will not be indicative of superior ability or superior returns going forward. If investing in trends in one particular time frame does consistently produce superior returns, investing in trends in that time frame would likely be a superior style beta, not alpha. Thus, comparing CTAs seeking to capture trends in different time frames is analogous in the equity world to comparing a growth manager to a value manager: if one outperforms, it may be simply because one style is currently exhibiting superior returns and not at all due to the superior skill of the manager.

Another, similar, limitation is that CTAs trade different markets and different sectors. Comparing the performance of such CTAs may be more indicative of the beta returns from different market than anything else. To extend the equity analogy, comparing CTAs trading different markets would be equivalent to benchmarking a U.S. healthcare manager against a peer group including British telecommunication managers, Japanese bank managers, or German consumer goods managers. Such a comparison also reveals more about the return of the beta of different markets, as opposed to the return generated by the skill of a manager.

There is, also, of course, the practical problem of getting enough data from the peer group, each of whose members needs to provide data of sufficient granularity and length to permit full utilization of the data provided by the CTA being evaluated.

---

[7] Even if the peer group exhibits positive alpha to the benchmark, the alpha of a given manager to the peer group could be positive while being negative to the benchmark.
[8] There is some evidence that trends in certain time frames generate returns which are superior to the returns generated in other time frames, but not by an amount to counteract the benefit of investing in a more diverse group of time frames.

Developing a Valid Benchmark for CTAs

Since peer group analysis will not serve, in order to ascertain the alpha of CTAs a viable benchmark for CTAs is required. To be valid, this benchmark would need to be transparent, investable, measurable and appropriate[9]. Appropriateness, in this case, would mean that the benchmark would have to avoid distortions caused by market and sector selection and cover all of the different time frames in which CTAs seek to profit.

Conquest Managed Futures Beta: A Benchmark

The Conquest Managed Futures Beta benchmark meets all of these goals. It provides transparency with respect to trade entry and exit, position sizing and markets traded. As all instruments in the index are freely traded, it is investable, and as a result of being transparent and investable, it is measurable. As set forth below, the Conquest Managed Futures Beta benchmark is also appropriate.

The Conquest Managed Futures Beta benchmark consists of twenty systems trading the world's most liquid currency, fixed income, commodity, and equity index markets. In designing the benchmark, particular care was taken to avoid the danger of optimizing. In general, the more complicated a trading system, the more parameters there are in the trading system, the more possible versions of the system there are and therefore, the greater the ability to fine tune the system to produce specific results from a set of market prices and the greater the susceptibility of the system to optimization. As a corollary to this, the fewer parameters there are, the more likely past performance is to be indicative of future results.

The trend following system at the heart of the benchmark is as simple as possible and contains only a single parameter: enter a market long when its price exceeds its highest price over the time frame being examined and short the market when its price is below its lowest price for that period[10]. To ensure that all relevant time frames were captured, the system utilizes twenty different time frames from 5 days to 200 days. To minimize the overlap between the systems, the time frames were chosen based on a logarithmic function, which results in systems being more closely spaced near the shorter end and more widely spaced near the longer end of the range. This makes intuitive sense: 5- and 10-day trends look very dissimilar whereas 195- and 200-day trends look nearly identical.

Markets were selected on the basis of liquidity and diversification[11]. That is, the most liquid markets in the world were selected consistent with having exposure to all asset classes (commodities, equities, fixed income and currencies) and all geographic regions (Asia, Europe and North America). In addition, an effort was made to ensure that the exposure of the benchmark to different asset classes was representative of the exposure of the managed futures space and that the markets traded are representative of those traded by CTAs. Allocations to

---

[9] There are a number of formulations of these criteria. The most popular version, put forth by the CFA Institute, also specifies that a good benchmark must be unambiguous and specified in advance. These requirements are both embraced by the requirement of transparency. The additional requirement that a good benchmark should be representative of current investment opinion is less significant in this context, where there are only a relatively limited number of markets to trade.

[10] More formally: Where N equals the number of days, go long if the price exceeds the highest price occurring over the past N days and go short if the price goes below the lowest price occurring over the past N days.

[11] 55 markets are included. The complete list of markets is included in Appendix B.

different sectors[12] were determined by averaging the sector allocations of 26 different long-term trend following managers[13]. Markets within each sector are equally weighted, except where liquidity conditions dictate otherwise[14]. The size of positions in a market is based on the thirty day historical standard deviation of closing prices in that market.

Validating the Benchmark

While the Conquest Managed Futures Beta benchmark accurately represents the range of time frames and markets traded by CTAs, if its correlation to the CTA indices were too low, it would be evidence that the proposed benchmark was not capturing the relevant beta and could not serve as a valid benchmark. Thus, for example, certain other passive trend following programs, such as the MLM Index and the S&P DTI[15] do not provide the beta of the managed futures space. On the other hand, if the correlation is high, it provides significant evidence that the proposed benchmark is capturing the relevant beta.

We compared the results of the Conquest Managed Futures Beta benchmark, after accounting for fees, interest and slippage[16], to the returns of well-known CTA indices including the S&P Managed Futures Index (an equal weighted index of 14 large CTAs), the CSFB Tremont Managed Futures Index (an asset-weighted index of 29 CTAs which seeks to represent between 85% and 90% of the assets in the CTA space), the Barclay BTOP 50 Index (an equally weighted index of larger CTAs) and the Calyon Financial Barclay Index (which consists of 23 of the largest CTAs). The comparison covered the period commencing with the inception of each index and concluding on December 31, 2004. The results were:

---

[12] The Conquest Managed Futures Beta benchmark recognizes six sectors: equity indices, fixed income, currencies, softs, metals and energies.

[13] This allocation will change in the future based on changes in average sector allocation of the sample group of long-term trend following managers. However, the current allocation was used to generate prior returns of the Conquest Managed Futures Beta benchmark.

[14] For the less liquid markets only the ten systems with the largest values of N were traded. In other words, for these markets only the longer term systems were traded.

[15] The correlation of the MLM Index and the S&P DTI to CTA indices, for the period from inception of the indices through December 31, 2004, is set forth in Appendix A. In general, the correlation of the MLM Index to the CTA indices for the period ranges from .27 to .46, while the correlation of the S&P DTI to the CTA indices for the period ranges from .42 to .52.

[16] For this purpose, and all other calculations in this paper, the returns of the Conquest Managed Futures Beta benchmark were reduced by a 1% annual management fee, the fee charged by the Conquest Managed Futures Select Fund, which seeks to replicate the Conquest Managed Futures Beta benchmark. Interest was assumed earned on cash balances at the t-bill rate. Slippage assumptions are set forth in Appendix B. It should be noted that returns of the Conquest Managed Futures Beta benchmark, and to a large extent, returns of the Conquest Managed Futures Select Fund are hypothetical. The hypothetical results were obtained by applying the systems used by the Conquest Managed Futures Select Fund to historical prices in the markets traded by the Conquest Managed Futures Select Fund. The market weights used for prior periods were the current market weights. Hypothetical or simulated performance results have certain inherent limitations. Unlike an actual performance record, simulated results do not represent actual trading. Also, since the trades have not actually been executed, the results may have under-or over-compensated for the impact, if any, of certain market factors, such as lack of liquidity. Simulated trading programs in general are also subject to the fact that they are designed with the benefit of hindsight. No representation is being made that any account will or is likely to achieve profits or losses similar to those shown. In addition, it should be noted that while returns of indices and funds not managed by Conquest Capital Group LLC or its affiliates were obtained from sources deemed to be reliable, no representation is being made about the accuracy of such sources.

Name (Inception Date)	Correlation	Annualized Alpha of Conquest Managed Futures Beta to Indices
S&P Managed Futures Index (January 1998)	.90	4.1%
CSFB Tremont Managed Futures Index (January 1994)	.75	24.4%
BTOP 50 Index (January 1990)	.82	45.4%
Calyon Financial Barclay Index (January 1990)	.81	44.7%

Given the correlations of between .75 and .9 to the broader CTA indices, it seems clear that Conquest Managed Futures Beta is capturing the style beta common to managed futures.[17] Conquest Managed Futures Beta also evidences significant alpha to the CTA indices, which militates in favor of the proposition that CTAs demonstrate negative alpha.

Measuring CTA Alpha

This benchmark can now be used to measure the alpha of individual CTAs. As the table below makes clear, most CTAs failed to outperform or even equal the Conquest Managed Futures Beta benchmark.

Name	Inception (if after Jan-90)[18]	Correlation	Beta to Conquest Managed Futures Benchmark	Total Alpha for period	Annualized Alpha (if positive)
Campbell Financial, Metal & Energy (Large)	Jan-90	67.88%	72.83%	-1528.70%	Negative
Transtrend Diversified Standard Risk (USD)	Jun-92	69.08%	42.75%	-326.71%	Negative
Graham K4	Jan-99	72.62%	94.99%	94.59%	11.7%
Winton Diversified	Oct-97	78.94%	102.60%	81.81%	8.6%

---

[17] The correlations are very stable. For the period discussed in the paper we calculated the rolling 24 month correlations of Conquest Managed Futures Beta to the indices. The results indicate that a correlation of .7 or greater was shown to the indices in between 78% and 98% of the periods, depending on the index. With respect to the S&P Managed Futures Index, the Calyon Financial Barclay Index and the BTOP 50 Index, the volatility of the rolling correlations was low, between 6% and 9%. The higher volatility of the rolling correlations to the CSFB Tremont Managed Futures Index is entirely due to its first 18 months of returns, as is its relatively lower overall correlation. As the Conquest Managed Futures Beta benchmark remained highly correlated to both of the other than extant indices, the Calyon Financial Barclay Index and the BTOP 50 Index, and the correlation of the CSFB Managed Futures Index to those indices was at a historical low of .5 and .53 respectively, it would seem most logical to conclude that the CSFB Managed Futures Index was not, during that period, completely representative of the CTA universe. The rolling correlations are contained in Appendix C.

[18] No data prior to January 1990 was used. Thus, CTAs which commenced trading prior to January 1990 are designated by that date even though it was not their inception date.

Name					
Aspect Diversified	Dec-98	90.35%	98.08%	-28.42%	Negative
Sunrise Davco	Jan-90	63.69%	89.63%	-1840.43%	Negative
John W. Henry Strategic Allocation Program	Jul-96	74.18%	100.35%	-153.43%	Negative
Man AHL Alpha PLC	Oct-95	81.98%	71.65%	16.46%	1.7%
Rotella Polaris Funds	Jan-98	82.54%	61.09%	-36.98%	Negative
Chesapeake Diversified	Jan-90	73.61%	76.59%	-1676.93%	Negative
Beach Discretionary Composite	Jun-94	73.53%	68.23%	-129.42%	Negative
Milburn Diversified	Jan-90	69.46%	74.51%	-1885.79%	Negative
Rabar Diversified	Jan-90	73.38%	108.11%	-2455.03%	Negative
DKR Quantitative Strategies	Jan-00	79.44%	41.77%	51.74%	8.7%
Dunn WMA Program	Jan-90	67.83%	147.74%	-2986.07%	Negative
Drury - Diversified	May-97	64.35%	81.77%	109.29%	10.1%
Eagle Global	Jan-92	70.55%	118.23%	-360.87%	Negative
Willowbridge Argo	Mar-91	72.17%	147.84%	-2200.43%	Negative
Cipher Diversified	Nov-94	60.29%	74.68%	132.49%	8.7%
Eclipse Global Monetary Program	Jun-92	70.36%	73.34%	-794.88%	Negative

Fourteen of the twenty largest CTAs failed to demonstrate alpha to the Conquest Managed Futures Beta benchmark from their inception until December 31, 2004. Six of these CTAs did demonstrate alpha over this period. Alpha, of course, though often used as a synonym for manager skill is really just the residual term in the Capital Asset Pricing Model and represents merely unexplained variation which can represent either skill, random fluctuation or some combination of the two. To the extent the residual term represents skill it should be relatively stable over time: manager's skill does not change in a random fashion. Significant fluctuations of the residual term would suggest that the supposed alpha is nothing more than random variation.

For each of the 20 largest CTAs, we calculated the rolling twelve month alpha of that CTA to the Conquest Managed Futures Beta benchmark from the later of its inception or January 1990 to December 31, 2004. We also calculated the average of those alphas, the percentage that were negative and the standard deviation of those alphas.

Name	Avg	% Negative	St Dev	Total Alpha	Annualized Alpha, If Positive
Campbell Financial, Metal & Energy (Large)	-6.78%	63.91%	13.67%	-1528.70%	Negative
Transtrend Diversified Standard Risk (USD)	-1.59%	60.00%	8.22%	-326.71%	Negative
Graham K4	9.88%	31.15%	14.86%	94.59%	11.7%
Winton Diversified	2.72%	47.37%	12.82%	81.81%	8.6%
Aspect Diversified	0.14%	51.61%	7.32%	-28.42%	Negative
Sunrise Davco	-8.56%	51.48%	20.20%	-1840.43%	Negative
John W. Henry Strategic Allocation Program	-5.72%	76.92%	13.11%	-153.43%	Negative
Man AHL Alpha PLC	2.55%	32.97%	6.78%	16.46%	1.7%
Rotella Polaris Funds	-0.68%	46.58%	9.00%	-36.98%	Negative
Chesapeake Diversified	-8.95%	69.82%	13.55%	-1676.93%	Negative

Beach Discretionary Composite	2.28%	43.10%	14.59%	-129.42%	Negative
Milburn Diversified	-9.63%	79.29%	11.62%	-1885.79%	Negative
Rabar Diversified	-15.57%	78.70%	23.22%	-2455.03%	Negative
DKR Quantitative Strategies	6.96%	16.33%	7.25%	51.74%	8.7%
Dunn WMA Program	-13.93%	67.46%	30.13%	-2986.07%	Negative
Drury – Diversified	4.89%	33.33%	13.83%	109.29%	10.1%
Eagle Global	-5.14%	55.86%	21.66%	-360.87%	Negative
Willowbridge Argo	-16.79%	75.97%	27.08%	-2200.43%	Negative
Cipher Diversified	2.58%	46.85%	20.67%	132.49%	8.7%
Eclipse Global Monetary Program	-6.39%	60.71%	14.46%	-794.88%	Negative

Of the six CTAs evidencing positive alpha, two evidenced negative alpha in 45% of the periods and three more evidenced negative alpha in over 30% of the periods. Interestingly the two that evidenced negative alpha in the fewest periods are also the two that have the shortest lives.

On the other hand, CTAs evidencing negative alpha overall also evidence positive alpha in certain subperiods. In two cases, these CTAs evidence positive alpha in a majority of twelve month sub-periods. The following charts illustrate the rolling alpha of several of these CTAs.[19]

---
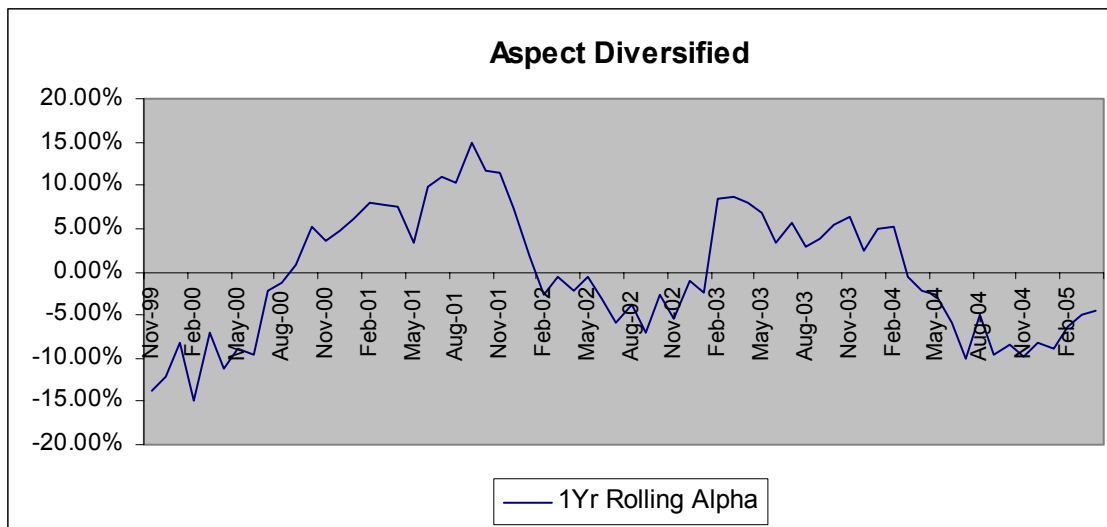
[19] The charts of all of the rolling alpha are attached as Appendix D.

Beach Discretionary Composite

Cipher Diversified
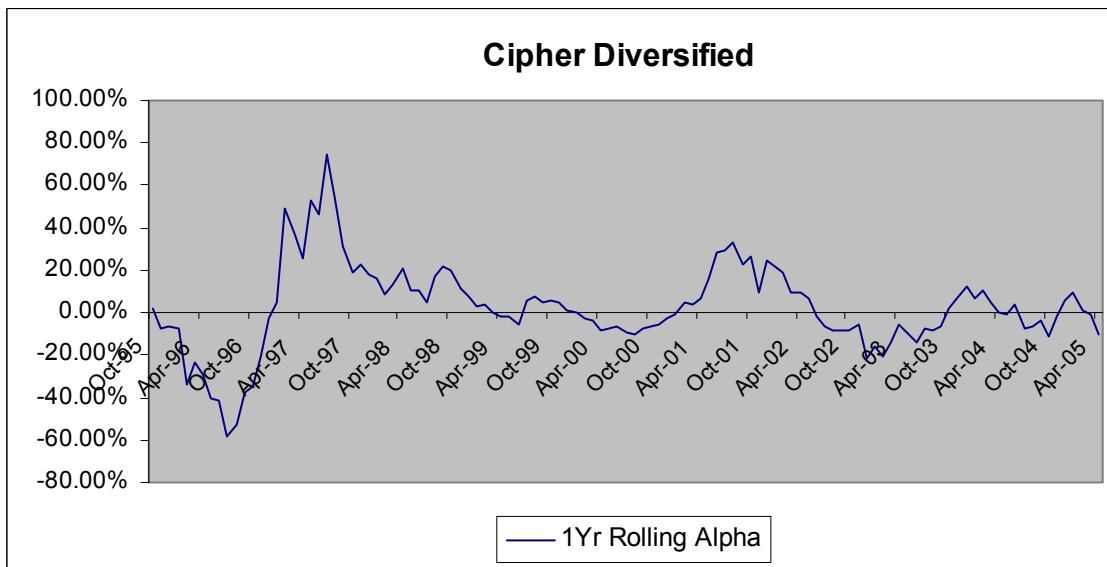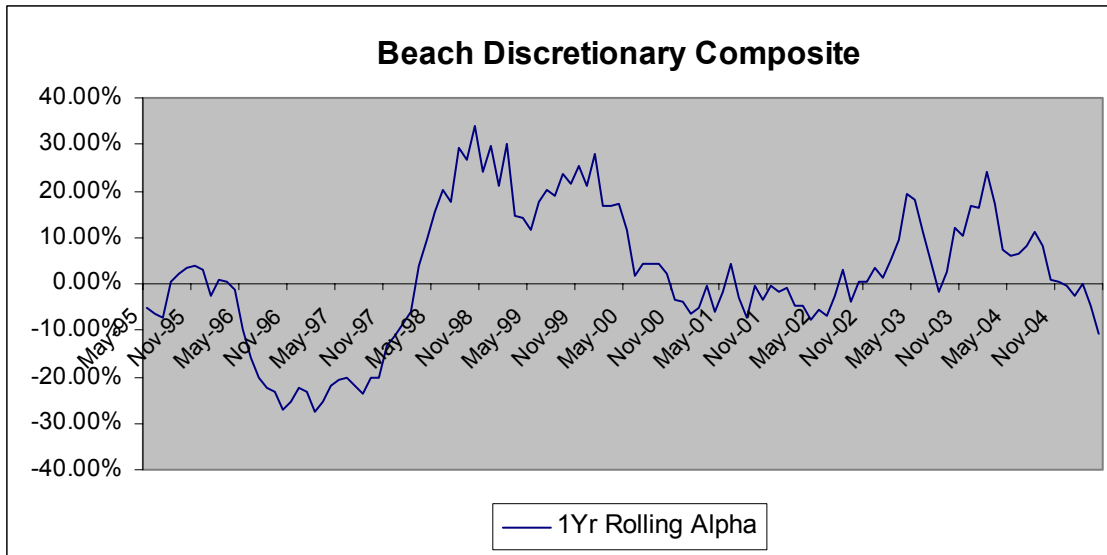
These varying results suggest that the "alpha" term in this context is more indicative of random fluctuation then skill. Similarly, the relatively high standard deviation of rolling twenty-four month alphas relative to their averages also is suggestive of a random process.

Thus, while any one CTA might outperform the benchmark in a particular period, this is likely due to biases in system design or sector allocations randomly generating excess returns in some periods that are not necessarily sustainable or repeatable.

Lower Fees and Total Transparency: Beta is a Better Bet

It is a commonplace that passive indexing is highly competitive with "active" management in the traditional side of the asset management universe[20]. The reasons for this appear equally applicable to the managed futures space. Overwhelmingly, as this paper evidences, the returns in the space are beta returns which can be replicated by a relatively simple formula. As in the

---

[20] It has been estimated that 14% of the assets of U.S. equity mutual funds are invested in index funds.

traditional side of the asset management universe, beta can be delivered for lower fees than alpha. In addition, in both spaces, many managers deliver negative alpha, and it is not possible, based on prior performance alone, to determine which managers will generate positive alpha in the future.

In the case of managed futures, there are additional reasons why beta is the better way to access the space. Unlike other ways to access managed futures, beta allows for total transparency. Beta also, by virtue of the simplicity of its trading systems, avoids the dangers of over-optimization.

Finally, while CTAs are generally exposed to trends in only a few time horizons, MFS is exposed to trends in a broad spectrum of time frames. Thus, to replicate the exposure provided by MFS one would need to find, not a CTA evidencing alpha to MFS but an entire diversified portfolio of CTAs evidencing alpha to MFS. While it can't be proven that this is impossible, we have shown that it is not possible to select a portfolio of CTAs based on their returns which will consistently provide alpha to MFS[21]. This also is not too surprising, given that many CTAs exhibit negative alpha to MFS.

MFS thus provides both a benchmark for evaluating CTAs and a way for institutions to access the managed futures style beta in an understandable, transparent and fairly priced way. As a beta, the Conquest Managed Futures Beta deserves a place in any portfolio, just as any other beta does, based on its correlation to other betas and return characteristics.

---

[21] See Appendix E.

APPENDIX A

Correlation to CTA indices of Conquest Managed Futures Select, MLM Index and S&P DTI for the period from inception of the indices to December 31, 2004.

	Conquest MFS	MLM	DTI
S&P Managed Futures Index (January 1998)	**0.90**	0.46	0.52
CSFB Tremont Managed Futures Index (January 1994)	**0.75**	0.27	0.42
BTOP 50 Index (January 1990)	**0.82**	0.29	0.47
Calyon Financial Barclay Index (January 1990)	**0.81**	0.31	0.49

APPENDIX B

List of markets traded and slippage applied to Conquest Managed Futures Beta for purposes of comparisons. Instruments are futures, except for currency markets which are forward contracts.

Instrument	1/2 Turn Slippage
Coffee	0.4
Corn	1
Cotton	0.4
Live Cattle	0.4
Soybeans	1 ½
Wheat	1
Brent	0.072
Crude Oil	0.095
Gas Oil	0.75
Heating Oil	0.002
Natural Gas	0.0125
Unleaded Gas	0.00317
Australian 3Yr Bonds	0.01
Australian Bank Bills	0.01
Bobl	0.0075
Bund	0.0075
Euribor	0.0025
Eurodollar	0.012
FSS	0.008
FV2	1/32
Gilt	0.05
Japanese Government Bonds	0.015
US 10Yr Note	1/32
US 30Yr Bond	3/64
Australian Dollar	0.0002
British Pound	0.0003
Canada/Yen	0.035
Canadian Dollar	0.00028
Dollar Index	0.078
Euro	0.00025
Euro/Sterling	0.0005
Euro/Yen	0.025
Japanese Yen	0.02
Mexican Peso	0.005
New Zealand Dollar	0.0005
South African Rand	0.005
Sterling/Yen	0.055
Swiss Franc	0.00035
Swiss/Yen	0.03
Copper	0.525
Gold	0.51
LME Aluminum	2.3
LME Lead	2
LME Nickel	50.5
LME Zinc	3.35
CAC-40	2.5

Instrument	1/2 Turn Slippage
DAX	3.9
DJ Euro Stoxx	1.2
Hang Seng	10
IBEX-35	5
NASDAQ	0.5
Nikkei	7.5
Russell	0.35
Taiwan Index	0.5
TOPIX	0.65

APPENDIX C

ROLLING CORRELATIONS

The following table shows rolling twenty-four month correlations of the Conquest Managed Futures Beta benchmark to CTA indices. The comparison covered the period commencing with the inception of each index and concluding on December 31, 2004.

Period Starting	Index Name Period Ending	S&P Managed Futures Index	Calyon Financial Barclay Index	BTOP 50 Index	CSFB Tremont Managed Futures Index
Jan-90	Dec-91		0.68	0.71	
Feb-90	Jan-92		0.74	0.75	
Mar-90	Feb-92		0.75	0.76	
Apr-90	Mar-92		0.75	0.76	
May-90	Apr-92		0.75	0.76	
Jun-90	May-92		0.74	0.74	
Jul-90	Jun-92		0.74	0.74	
Aug-90	Jul-92		0.76	0.77	
Sep-90	Aug-92		0.74	0.75	
Oct-90	Sep-92		0.78	0.79	
Nov-90	Oct-92		0.82	0.81	
Dec-90	Nov-92		0.82	0.81	
Jan-91	Dec-92		0.82	0.81	
Feb-91	Jan-93		0.80	0.79	
Mar-91	Feb-93		0.81	0.81	
Apr-91	Mar-93		0.86	0.86	
May-91	Apr-93		0.86	0.85	
Jun-91	May-93		0.86	0.85	
Jul-91	Jun-93		0.87	0.86	
Aug-91	Jul-93		0.87	0.85	
Sep-91	Aug-93		0.87	0.85	
Oct-91	Sep-93		0.86	0.85	
Nov-91	Oct-93		0.88	0.86	
Dec-91	Nov-93		0.89	0.86	
Jan-92	Dec-93		0.83	0.80	
Feb-92	Jan-94		0.80	0.77	
Mar-92	Feb-94		0.81	0.77	
Apr-92	Mar-94		0.78	0.74	
May-92	Apr-94		0.79	0.74	
Jun-92	May-94		0.79	0.75	
Jul-92	Jun-94		0.80	0.75	
Aug-92	Jul-94		0.76	0.68	
Sep-92	Aug-94		0.85	0.77	
Oct-92	Sep-94		0.86	0.80	
Nov-92	Oct-94		0.86	0.80	
Dec-92	Nov-94		0.86	0.81	
Jan-93	Dec-94		0.85	0.79	

14

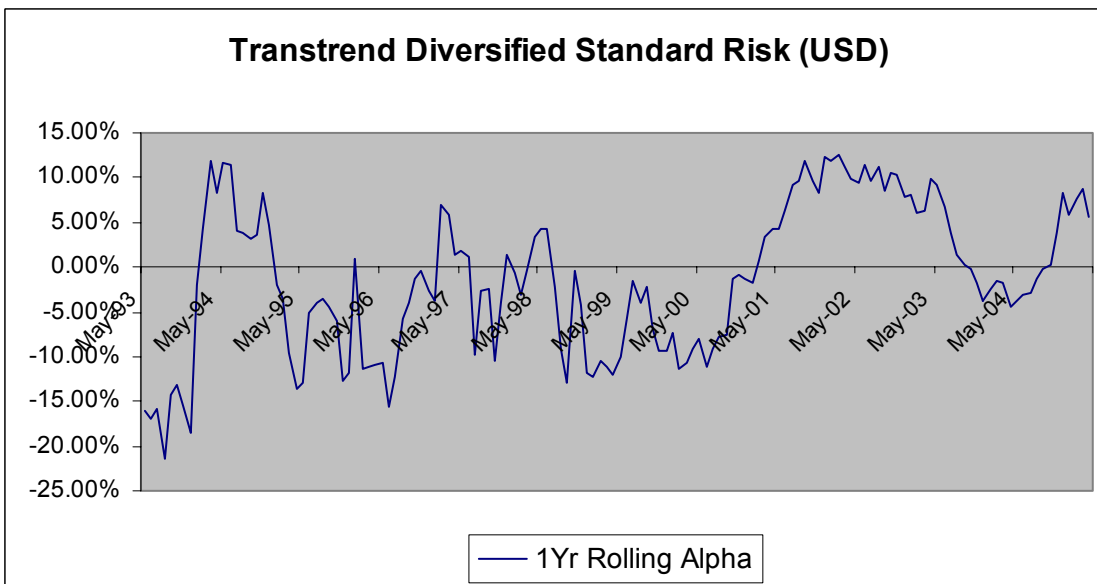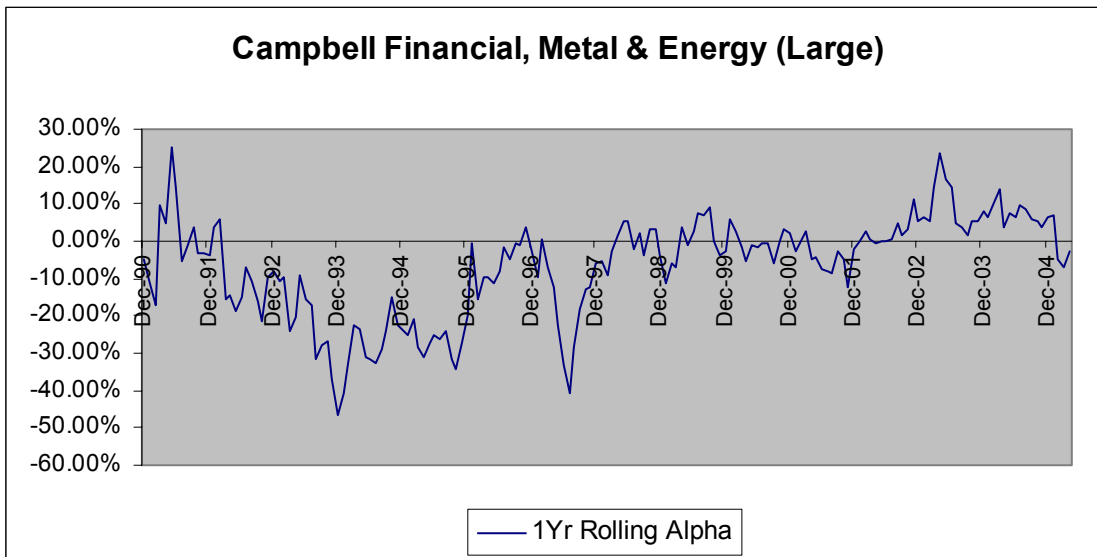| Period Starting	Period Ending	S&P Managed Futures Index	Calyon Financial Barclay Index	BTOP 50 Index	CSFB Tremont Managed Futures Index
Feb-93	Jan-95		0.87	0.81	
Mar-93	Feb-95		0.83	0.75	
Apr-93	Mar-95		0.86	0.80	
May-93	Apr-95		0.86	0.80	
Jun-93	May-95		0.81	0.76	
Jul-93	Jun-95		0.82	0.77	
Aug-93	Jul-95		0.82	0.78	
Sep-93	Aug-95		0.82	0.77	
Oct-93	Sep-95		0.79	0.74	
Nov-93	Oct-95		0.80	0.77	
Dec-93	Nov-95		0.81	0.78	
Jan-94	Dec-95		0.81	0.79	0.15
Feb-94	Jan-96		0.79	0.77	0.15
Mar-94	Feb-96		0.76	0.74	0.21
Apr-94	Mar-96		0.77	0.76	0.22
May-94	Apr-96		0.77	0.77	0.27
Jun-94	May-96		0.77	0.77	0.29
Jul-94	Jun-96		0.75	0.76	0.24
Aug-94	Jul-96		0.74	0.74	0.24
Sep-94	Aug-96		0.70	0.71	0.24
Oct-94	Sep-96		0.72	0.72	0.25
Nov-94	Oct-96		0.75	0.75	0.33
Dec-94	Nov-96		0.78	0.78	0.38
Jan-95	Dec-96		0.79	0.79	0.39
Feb-95	Jan-97		0.79	0.78	0.40
Mar-95	Feb-97		0.79	0.77	0.40
Apr-95	Mar-97		0.77	0.76	0.32
May-95	Apr-97		0.77	0.76	0.33
Jun-95	May-97		0.79	0.80	0.51
Jul-95	Jun-97		0.77	0.79	0.47
Aug-95	Jul-97		0.78	0.80	0.62
Sep-95	Aug-97		0.80	0.83	0.70
Oct-95	Sep-97		0.84	0.85	0.83
Nov-95	Oct-97		0.83	0.85	0.83
Dec-95	Nov-97		0.82	0.84	0.84
Jan-96	Dec-97		0.80	0.82	0.82
Feb-96	Jan-98		0.82	0.83	0.83
Mar-96	Feb-98		0.85	0.87	0.84
Apr-96	Mar-98		0.85	0.88	0.84
May-96	Apr-98		0.88	0.90	0.87
Jun-96	May-98		0.88	0.89	0.87
Jul-96	Jun-98		0.86	0.88	0.87
Aug-96	Jul-98		0.85	0.87	0.86
Sep-96	Aug-98		0.84	0.86	0.90
Oct-96	Sep-98		0.84	0.85	0.89

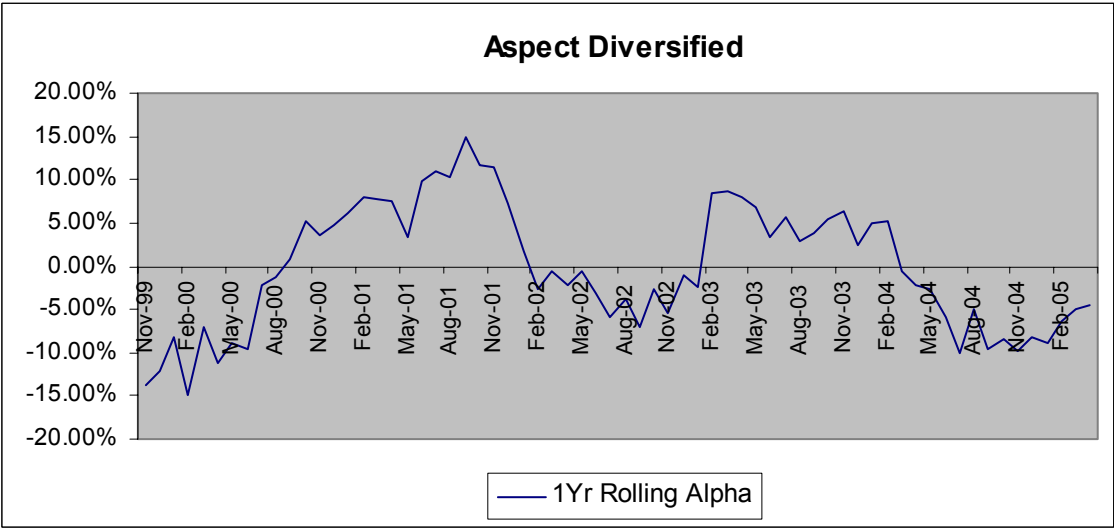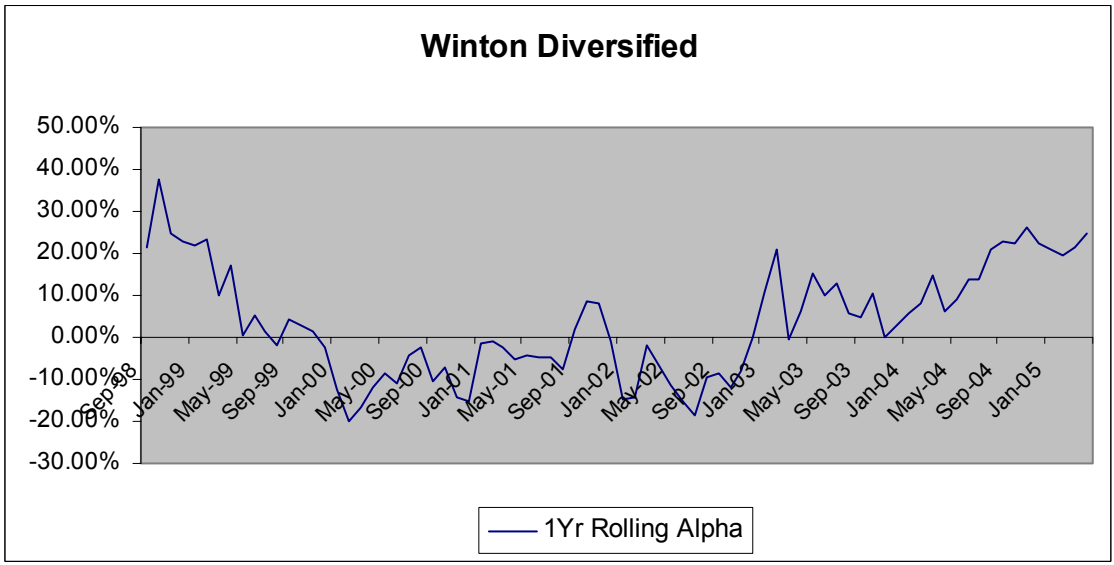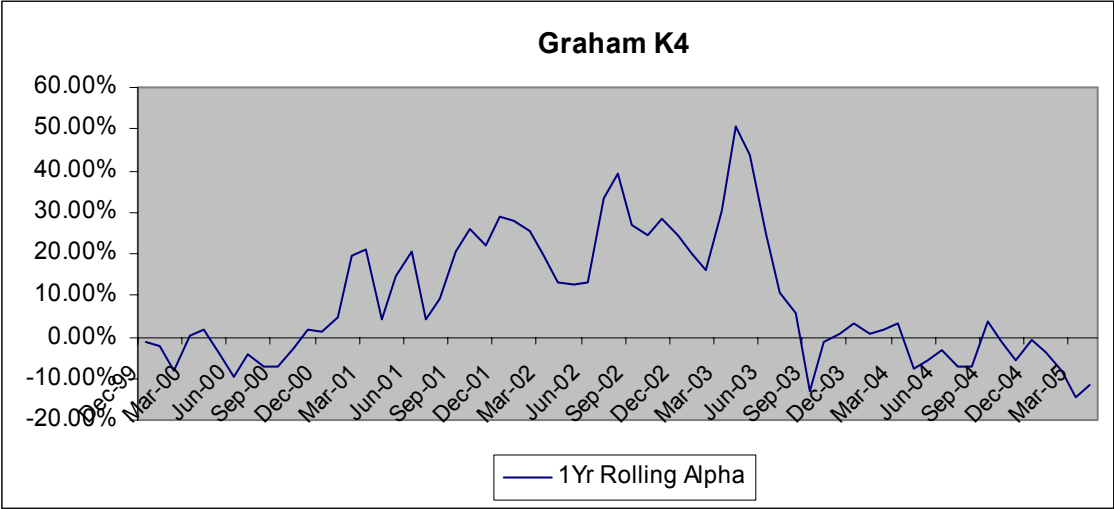| Period Starting	Index Name Period Ending	S&P Managed Futures Index	Calyon Financial Barclay Index	BTOP 50 Index	CSFB Tremont Managed Futures Index
Dec-96	Nov-98		0.80	0.79	0.86
Jan-97	Dec-98		0.79	0.79	0.86
Feb-97	Jan-99		0.80	0.79	0.86
Mar-97	Feb-99		0.77	0.78	0.86
Apr-97	Mar-99		0.78	0.78	0.86
May-97	Apr-99		0.78	0.78	0.87
Jun-97	May-99		0.81	0.81	0.88
Jul-97	Jun-99		0.81	0.80	0.89
Aug-97	Jul-99		0.76	0.75	0.87
Sep-97	Aug-99		0.74	0.72	0.86
Oct-97	Sep-99		0.74	0.72	0.88
Nov-97	Oct-99		0.74	0.72	0.86
Dec-97	Nov-99		0.75	0.73	0.84
Jan-98	Dec-99	0.82	0.74	0.71	0.85
Feb-98	Jan-00	0.82	0.72	0.70	0.85
Mar-98	Feb-00	0.81	0.71	0.69	0.84
Apr-98	Mar-00	0.82	0.73	0.71	0.84
May-98	Apr-00	0.81	0.71	0.69	0.83
Jun-98	May-00	0.80	0.70	0.68	0.82
Jul-98	Jun-00	0.82	0.71	0.69	0.82
Aug-98	Jul-00	0.84	0.72	0.70	0.83
Sep-98	Aug-00	0.77	0.63	0.59	0.70
Oct-98	Sep-00	0.73	0.56	0.51	0.65
Nov-98	Oct-00	0.75	0.62	0.60	0.71
Dec-98	Nov-00	0.80	0.70	0.69	0.77
Jan-99	Dec-00	0.87	0.81	0.81	0.83
Feb-99	Jan-01	0.86	0.80	0.79	0.82
Mar-99	Feb-01	0.88	0.82	0.81	0.82
Apr-99	Mar-01	0.89	0.84	0.83	0.84
May-99	Apr-01	0.90	0.86	0.85	0.87
Jun-99	May-01	0.89	0.85	0.84	0.85
Jul-99	Jun-01	0.90	0.85	0.85	0.86
Aug-99	Jul-01	0.91	0.86	0.86	0.86
Sep-99	Aug-01	0.91	0.86	0.87	0.87
Oct-99	Sep-01	0.92	0.86	0.87	0.89
Nov-99	Oct-01	0.93	0.86	0.87	0.90
Dec-99	Nov-01	0.94	0.88	0.89	0.92
Jan-00	Dec-01	0.95	0.89	0.91	0.92
Feb-00	Jan-02	0.95	0.90	0.91	0.91
Mar-00	Feb-02	0.96	0.91	0.93	0.93
Apr-00	Mar-02	0.96	0.90	0.92	0.93
May-00	Apr-02	0.96	0.90	0.92	0.93
Jun-00	May-02	0.96	0.89	0.92	0.92
Jul-00	Jun-02	0.96	0.90	0.93	0.92

Period Starting	Index Name / Period Ending	S&P Managed Futures Index	Calyon Financial Barclay Index	BTOP 50 Index	CSFB Tremont Managed Futures Index
Aug-00	Jul-02	0.96	0.90	0.93	0.93
Sep-00	Aug-02	0.96	0.90	0.94	0.92
Oct-00	Sep-02	0.96	0.89	0.94	0.93
Nov-00	Oct-02	0.97	0.90	0.94	0.93
Dec-00	Nov-02	0.97	0.90	0.95	0.93
Jan-01	Dec-02	0.96	0.89	0.94	0.93
Feb-01	Jan-03	0.96	0.90	0.95	0.93
Mar-01	Feb-03	0.96	0.90	0.95	0.94
Apr-01	Mar-03	0.97	0.91	0.96	0.94
May-01	Apr-03	0.96	0.90	0.95	0.94
Jun-01	May-03	0.95	0.91	0.95	0.93
Jul-01	Jun-03	0.95	0.91	0.95	0.93
Aug-01	Jul-03	0.95	0.91	0.95	0.93
Sep-01	Aug-03	0.95	0.91	0.95	0.93
Oct-01	Sep-03	0.95	0.92	0.95	0.92
Nov-01	Oct-03	0.95	0.91	0.95	0.92
Dec-01	Nov-03	0.94	0.92	0.95	0.92
Jan-02	Dec-03	0.95	0.93	0.96	0.92
Feb-02	Jan-04	0.95	0.93	0.96	0.92
Mar-02	Feb-04	0.94	0.93	0.96	0.91
Apr-02	Mar-04	0.94	0.93	0.96	0.92
May-02	Apr-04	0.94	0.93	0.96	0.92
Jun-02	May-04	0.94	0.94	0.96	0.93
Jul-02	Jun-04	0.94	0.95	0.96	0.92
Aug-02	Jul-04	0.94	0.95	0.96	0.92
Sep-02	Aug-04	0.94	0.95	0.96	0.93
Oct-02	Sep-04	0.94	0.96	0.96	0.92
Nov-02	Oct-04	0.91	0.95	0.95	0.90
Dec-02	Nov-04	0.91	0.94	0.95	0.90
Jan-03	Dec-04	0.90	0.93	0.93	0.88
	Average Correlation	0.91	0.82	0.82	0.77
	Standard Deviation of Correlations	0.06	0.07	0.09	0.23
	Percentage greater than .7	98%	83%	82%	78%

APPENDIX D

ROLLING ALPHAS OF TWENTY LARGEST CTAS TO CONQUEST MANAGED FUTURES SELECT FUND FROM THE LATER OF JANUARY 1990 OR INCEPTION UNTIL DECEMBER 2004

Campbell Financial, Metal & Energy (Large)

Transtrend Diversified Standard Risk (USD)

Graham K4

Winton Diversified

Aspect Diversified

Sunrise Davco

1Yr Rolling Alpha

John W. Henry Strategic Allocation Program

1Yr Rolling Alpha

Man AHL Alpha PLC

1Yr Rolling Alpha

Rotella Polaris Funds

1Yr Rolling Alpha

Chesapeake Diversified

1Yr Rolling Alpha

Beach Discretionary Composite

1Yr Rolling Alpha

Milburn Diversified

1Yr Rolling Alpha

Rabar Diversified

1Yr Rolling Alpha

DKR Quantitative Strategies

Dunn WMA Program

Drury - Diversified

1Yr Rolling Alpha

Eagle Global

1Yr Rolling Alpha

Willowbridge Argo

1Yr Rolling Alpha

Cipher Diversified

1Yr Rolling Alpha

Eclipse Global Monetary Program

1Yr Rolling Alpha

APPENDIX E

Conquest MFS vs. Actively Managed Portfolios of CTAs

In a study of multiple CTA portfolios with varied investment patterns, three variables and their effect on risk and return were studied. CTAs were chosen from a Barclay-Calyon Database of 2,033 individual performance records of managers (both extant and defunct). Managers were required to have at least $20MM under management. The period covered was January 1, 1990 through April 30, 2004.

- **Size:** Portfolios with 1, 3, 5, 10, 20 and 30 CTAs were studied.
- **Activeness of management**: Portfolios were reallocated every 1, 3, 6, 12 and 18 months.
- **Selection Criteria**: At each reallocation, the CTAs with the best rolling 1, 3, 6, 12 and 18 month returns are allocated to, comprising the portfolio until the next reallocation period. In order to examine the concept of timing CTAs (i.e. buying dips and selling after good performance), the study also picked those funds which had suffered in recent environments or had the worst rolling returns. The results are represented as "The Worst Of" portfolio.

The study revealed that activeness of management and selection criteria were relatively unimportant. The best portfolios (20 and 30 CTAs, reallocation every 18 months using 3 month returns) yield Sharpe Ratios of 0.88 and .8, assuming a 4% risk free rate, and Return to Drawdown ratios of 1.09. Conquest MFS, including interest, over the same period yields a Sharpe Ratio of 1.29 and a Return to Drawdown ratio of 1.72.

1 CTA

Compounded annual return							
Length of Lookback (down)	**Frequency of Reallocation (across)**						Total Field Average
	1month	3 months	6 months	12 months	18 months	Row Average	
1month	4.05	7.30	5.97	0.43	2.17	3.98	
3 months	5.62	1.27	2.75	1.96	4.48	3.22	
6 months	0.67	1.49	3.48	2.00	4.75	2.48	
12 months	3.59	2.31	1.89	1.83	4.78	2.88	
18 months	1.90	7.89	9.41	5.72	3.06	5.60	
Column Average	3.17	4.05	4.70	2.39	3.85		3.63

Max drawdown						
Length of Lookback (down)	**Frequency of Reallocation (across)**					
	1 Month	3 months	6 months	12 months	18 months	
1month	(32.51)	(15.81)	(30.09)	(44.42)	(43.06)	(33.18)
3 months	(25.74)	(50.22)	(27.83)	(47.98)	(52.53)	(40.86)
6 months	(39.12)	(59.73)	(42.73)	(45.52)	(43.58)	(46.14)
12 months	(41.82)	(51.56)	(39.18)	(69.12)	(71.98)	(54.73)
18 months	(37.52)	(19.78)	(20.20)	(49.74)	(45.94)	(34.64)
Column Average	(35.34)	(39.42)	(32.01)	(51.36)	(51.42)	(41.91)

Sharpe Ratio						
Length of Lookback (down)	**Frequency of Reallocation (across)**					
	1month	3 months	6 months	12 months	18 months	
1month	0.27	0.49	0.40	0.03	0.14	0.26
3 months	0.37	0.08	0.18	0.13	0.30	0.21
6 months	0.04	0.10	0.23	0.13	0.32	0.16
12 months	0.24	0.15	0.13	0.12	0.32	0.19
18 months	0.13	0.53	0.63	0.38	0.20	0.37
	(0.06)	0.00	0.05	(0.11)	(0.01)	0.24

Return to Drawdown Ratio						
Length of Lookback (down)	**Frequency of Reallocation (across)**					
	1month	3 months	6 months	12 months	18 months	
1month	0.12	0.46	0.20	0.01	0.05	0.12
3 months	0.22	0.03	0.10	0.04	0.09	0.08
6 months	0.02	0.02	0.08	0.04	0.11	0.05
12 months	0.09	0.04	0.05	0.03	0.07	0.05
18 months	0.05	0.40	0.47	0.11	0.07	0.16
	0.09	0.10	0.15	0.05	0.07	0.09

3 CTA

Compounded annual return							
Length of Lookback (down)	**Frequency of Reallocation (across)**						Total Field
	1month	3 months	6 months	12 months	18 months	Row Average	Average
1month	7.93	6.38	8.54	10.26	8.97	8.42	
3 months	9.32	7.56	9.17	6.67	11.88	8.92	
6 months	5.66	5.90	9.96	6.77	9.02	7.46	
12 months	6.70	5.48	8.79	11.61	16.05	9.73	
18 months	7.49	4.84	11.08	8.92	12.21	8.91	
Column Average	7.42	6.03	9.51	8.85	11.63		8.69

Max drawdown						
Length of Lookback (down)	**Frequency of Reallocation (across)**					
	1 Month	3 months	6 months	12 months	18 months	
1month	(20.35)	(21.13)	(19.99)	(21.74)	(18.62)	(20.37)
3 months	(19.21)	(23.24)	(23.78)	(32.88)	(26.70)	(25.16)
6 months	(22.32)	(34.61)	(19.56)	(28.96)	(17.89)	(24.67)
12 months	(25.76)	(21.70)	(18.60)	(17.17)	(18.02)	(20.25)
18 months	(23.08)	(20.27)	(18.77)	(38.84)	(20.79)	(24.35)
Column Average	(22.14)	(24.19)	(20.14)	(27.92)	(20.40)	(22.96)

Sharpe Ratio						
Length of Lookback (down)	**Frequency of Reallocation (across)**					
	1month	3 months	6 months	12 months	18 months	
1month	0.53	0.42	0.57	0.68	0.60	0.29
3 months	0.62	0.50	0.61	0.44	0.79	0.33
6 months	0.37	0.39	0.66	0.45	0.60	0.23
12 months	0.44	0.36	0.58	0.77	1.07	0.38
18 months	0.50	0.32	0.74	0.59	0.81	0.33
	0.23	0.14	0.37	0.32	0.51	0.31

Return to Drawdown Ratio						
Length of Lookback (down)	**Frequency of Reallocation (across)**					
	1month	3 months	6 months	12 months	18 months	
1month	0.39	0.30	0.43	0.47	0.48	0.41
3 months	0.49	0.33	0.39	0.20	0.44	0.35
6 months	0.25	0.17	0.51	0.23	0.50	0.30
12 months	0.26	0.25	0.47	0.68	0.89	0.48
18 months	0.32	0.24	0.59	0.23	0.59	0.37
	0.34	0.25	0.47	0.32	0.57	0.38

5 CTA

Compounded annual return

Length of Lookback (down)	Frequency of Reallocation (across)						Total Field
	1month	3 months	6 months	12 months	18 months	Row Average	Average
1month	8.48	7.85	8.47	9.59	10.61	9.00	
3 months	8.34	6.56	9.50	9.53	13.16	9.42	
6 months	8.28	7.13	11.16	9.87	11.41	9.57	
12 months	10.03	6.68	10.86	12.76	10.45	10.16	
18 months	8.09	10.20	14.93	11.62	14.11	11.79	
Column Average	8.64	7.68	10.98	10.67	11.95		9.99

Max drawdown

Length of Lookback (down)	Frequency of Reallocation (across)						
	1 Month	3 months	6 months	12 months	18 months		
1month	(17.98)	(20.92)	(19.64)	(16.11)	(17.54)	(18.44)	
3 months	(20.58)	(24.30)	(24.90)	(19.67)	(17.31)	(21.35)	
6 months	(16.33)	(21.36)	(20.40)	(22.60)	(16.38)	(19.41)	
12 months	(18.59)	(17.91)	(22.63)	(17.85)	(33.91)	(22.18)	
18 months	(23.79)	(17.48)	(14.09)	(18.60)	(16.19)	(18.03)	
Column Average	(19.45)	(20.39)	(20.33)	(18.97)	(20.27)		(19.88)

Sharpe Ratio

Length of Lookback (down)	Frequency of Reallocation (across)						
	1month	3 months	6 months	12 months	18 months		
1month	0.30	0.26	0.30	0.37	0.44	0.33	
3 months	0.29	0.17	0.37	0.37	0.61	0.36	
6 months	0.29	0.21	0.48	0.39	0.49	0.37	
12 months	0.40	0.18	0.46	0.58	0.43	0.41	
18 months	0.27	0.41	0.73	0.51	0.67	0.52	
	0.31	0.25	0.47	0.44	0.53		0.40

Return to Drawdown Ratio

Length of Lookback (down)	Frequency of Reallocation (across)						
	1month	3 months	6 months	12 months	18 months		
1month	0.47	0.38	0.43	0.60	0.60	0.49	
3 months	0.41	0.27	0.38	0.48	0.76	0.44	
6 months	0.51	0.33	0.55	0.44	0.70	0.49	
12 months	0.54	0.37	0.48	0.71	0.31	0.46	
18 months	0.34	0.58	1.06	0.62	0.87	0.65	
	0.44	0.38	0.54	0.56	0.59		0.50

10 CTA

Compounded annual return							
Length of Lookback (down)	**Frequency of Reallocation (across)**						
	1month	3 months	6 months	12 months	18 months	Row Average	Total Field Average
1month	12.58	9.26	10.48	12.11	11.09	11.10	
3 months	9.11	7.11	10.01	11.58	17.10	10.98	
6 months	8.85	8.78	13.19	14.79	14.12	11.95	
12 months	10.97	11.91	13.51	14.92	13.25	12.91	
18 months	12.81	12.52	15.28	14.80	14.32	13.95	
Column Average	10.86	9.92	12.49	13.64	13.98		12.18

Max drawdown						
Length of Lookback (down)	**Frequency of Reallocation (across)**					
	1 Month	3 months	6 months	12 months	18 months	
1month	(15.85)	(20.69)	(20.85)	(16.88)	(15.65)	(17.98)
3 months	(19.44)	(23.47)	(25.72)	(16.97)	(18.48)	(20.82)
6 months	(15.75)	(17.50)	(19.36)	(19.63)	(13.11)	(17.07)
12 months	(17.40)	(20.14)	(21.73)	(14.99)	(18.46)	(18.54)
18 months	(15.34)	(16.11)	(13.91)	(14.92)	(18.32)	(15.72)
Column Average	(16.76)	(19.58)	(20.31)	(16.68)	(16.80)	(18.03)

Sharpe Ratio						
Length of Lookback (down)	**Frequency of Reallocation (across)**					
	1month	3 months	6 months	12 months	18 months	
1month	0.57	0.35	0.43	0.54	0.47	0.47
3 months	0.34	0.21	0.40	0.51	0.87	0.47
6 months	0.32	0.32	0.61	0.72	0.67	0.53
12 months	0.46	0.53	0.63	0.73	0.62	0.59
18 months	0.59	0.57	0.75	0.72	0.69	0.66
	0.46	0.39	0.57	0.64	0.67	0.55

Return to Drawdown Ratio						
Length of Lookback (down)	**Frequency of Reallocation (across)**					
	1month	3 months	6 months	12 months	18 months	
1month	0.79	0.45	0.50	0.72	0.71	0.62
3 months	0.47	0.30	0.39	0.68	0.93	0.53
6 months	0.56	0.50	0.68	0.75	1.08	0.70
12 months	0.63	0.59	0.62	1.00	0.72	0.70
18 months	0.84	0.78	1.10	0.99	0.78	0.89
	0.65	0.51	0.62	0.82	0.83	0.68

20 CTA

Compounded annual return

Length of Lookback (down)	Frequency of Reallocation (across)						Total Field Average
	1month	3 months	6 months	12 months	18 months	Row Average	
1month	13.34	10.92	11.76	13.12	12.92	12.41	
3 months	10.45	9.26	11.74	12.85	17.13	12.29	
6 months	10.39	11.08	13.19	12.63	13.86	12.23	
12 months	14.49	13.73	13.81	14.90	12.95	13.98	
18 months	13.57	13.44	13.54	14.22	13.88	13.73	
Column Average	12.45	11.69	12.81	13.54	14.15		12.93

Max drawdown

Length of Lookback (down)	Frequency of Reallocation (across)						
	1 Month	3 months	6 months	12 months	18 months		
1month	(14.63)	(20.76)	(20.01)	(17.90)	(17.61)	(18.18)	
3 months	(17.26)	(20.84)	(23.42)	(13.20)	(15.69)	(18.08)	
6 months	(17.40)	(20.27)	(21.80)	(17.40)	(15.72)	(18.52)	
12 months	(17.56)	(16.46)	(16.97)	(15.45)	(14.47)	(16.18)	
18 months	(13.61)	(15.22)	(16.14)	(17.10)	(16.18)	(15.65)	
Column Average	(16.09)	(18.71)	(19.67)	(16.21)	(15.93)		(17.32)

Sharpe Ratio

Length of Lookback (down)	Frequency of Reallocation (across)						
	1month	3 months	6 months	12 months	18 months		
1month	0.62	0.46	0.52	0.61	0.59	0.56	
3 months	0.43	0.35	0.52	0.59	0.88	0.55	
6 months	0.43	0.47	0.61	0.58	0.66	0.55	
12 months	0.70	0.65	0.65	0.73	0.60	0.67	
18 months	0.64	0.63	0.64	0.68	0.66	0.65	
	0.56	0.51	0.59	0.64	0.68		0.60

Return to Drawdown Ratio

Length of Lookback (down)	Frequency of Reallocation (across)						
	1month	3 months	6 months	12 months	18 months		
1month	0.91	0.53	0.59	0.73	0.73	0.68	
3 months	0.61	0.44	0.50	0.97	1.09	0.68	
6 months	0.60	0.55	0.61	0.73	0.88	0.66	
12 months	0.83	0.83	0.81	0.96	0.89	0.86	
18 months	1.00	0.88	0.84	0.83	0.86	0.88	
	0.77	0.62	0.65	0.84	0.89		0.75

30 CTA

Compounded annual return							
Length of Lookback (down)	**Frequency of Reallocation (across)**						
	1month	3 months	6 months	12 months	18 months	Row Average	Total Field Average
1month	14.16	12.43	12.79	13.88	14.13	13.48	
3 months	12.19	10.87	12.39	12.72	15.95	12.82	
6 months	11.99	12.50	14.18	13.52	14.63	13.36	
12 months	13.44	14.18	14.54	14.18	13.17	13.90	
18 months	13.91	14.36	14.39	14.36	14.63	14.33	
Column Average	13.14	12.87	13.66	13.73	14.50		13.58

Max drawdown						
Length of Lookback (down)	**Frequency of Reallocation (across)**					
	1 Month	3 months	6 months	12 months	18 months	
1month	(14.87)	(18.99)	(19.46)	(17.40)	(17.79)	(17.70)
3 months	(17.23)	(20.68)	(22.64)	(13.57)	(14.65)	(17.75)
6 months	(16.87)	(18.78)	(18.42)	(15.11)	(14.69)	(16.77)
12 months	(13.73)	(14.18)	(14.01)	(16.33)	(15.44)	(14.74)
18 months	(16.95)	(14.25)	(13.53)	(16.85)	(15.45)	(15.41)
Column Average	(15.93)	(17.38)	(17.61)	(15.85)	(15.60)	(16.47)

Sharpe Ratio						
Length of Lookback (down)	**Frequency of Reallocation (across)**					
	1month	3 months	6 months	12 months	18 months	
1month	0.68	0.56	0.59	0.66	0.68	0.63
3 months	0.55	0.46	0.56	0.58	0.80	0.59
6 months	0.53	0.57	0.68	0.63	0.71	0.62
12 months	0.63	0.68	0.70	0.68	0.61	0.66
18 months	0.66	0.69	0.69	0.69	0.71	0.69
	0.71	0.69	0.74	0.75	0.80	0.64

Return to Drawdown Ratio						
Length of Lookback (down)	**Frequency of Reallocation (across)**					
	1month	3 months	6 months	12 months	18 months	
1month	0.95	0.65	0.66	0.80	0.79	0.76
3 months	0.71	0.53	0.55	0.94	1.09	0.72
6 months	0.71	0.67	0.77	0.89	1.00	0.80
12 months	0.98	1.00	1.04	0.87	0.85	0.94
18 months	0.82	1.01	1.06	0.85	0.95	0.93
	0.82	0.74	0.78	0.87	0.93	0.82

1 CTA Worst Of

Compounded annual return							
Length of Lookback (down)	**Frequency of Reallocation (across)**						Total Field Average
	1month	3 months	6 months	12 months	18 months	Row Average	
1month	1.69	3.39	3.90	4.82	6.63	4.09	
3 months	3.56	3.00	0.25	(0.63)	6.73	2.58	
6 months	(0.18)	0.27	(0.23)	0.85	3.73	0.89	
12 months	0.83	1.82	1.90	(0.30)	4.96	1.84	
18 months	5.72	7.89	2.13	1.84	9.08	5.33	2.95
Column Average	2.32	3.27	1.59	1.32	6.23		

Max drawdown							
Length of Lookback (down)	**Frequency of Reallocation (across)**						
	1month	3 months	6 months	12 months	18 months		
1month	(62.23)	(27.97)	(38.74)	(27.90)	(22.52)	(35.87)	
3 months	(33.28)	(30.16)	(32.82)	(44.56)	(20.28)	(32.22)	
6 months	(39.93)	(28.60)	(49.53)	(35.79)	(54.90)	(41.75)	
12 months	(39.62)	(46.63)	(47.65)	(34.41)	(20.57)	(37.78)	
18 months	(20.02)	(20.85)	(69.67)	(72.00)	(15.86)	(39.68)	(37.46)
Column Average	(39.02)	(30.84)	(47.68)	(42.93)	(26.83)		

Sharpe Ratio						
Length of Lookback (down)	**Frequency of Reallocation (across)**					
	1month	3 months	6 months	12 months	18 months	
1month	-0.15	-0.04	-0.01	0.05	0.18	0.01
3 months	-0.03	-0.07	-0.25	-0.31	0.18	-0.09
6 months	-0.28	-0.25	-0.28	-0.21	-0.02	-0.21
12 months	-0.21	-0.15	-0.14	-0.29	0.06	-0.14
18 months	0.11	0.26	-0.12	-0.14	0.34	0.09
	-0.11	-0.05	-0.16	-0.18	0.15	-0.27

Return to Drawdown Ratio						
Length of Lookback (down)	**Frequency of Reallocation (across)**					
	1month	3 months	6 months	12 months	18 months	
1month	-0.03	-0.12	-0.10	-0.17	-0.29	0.11
3 months	-0.11	-0.10	-0.01	0.01	-0.33	0.08
6 months	0.00	-0.01	0.00	-0.02	-0.07	0.02
12 months	-0.02	-0.04	-0.04	0.01	-0.24	0.05
18 months	-0.29	-0.38	-0.03	-0.03	-0.57	0.13
	-0.01	0.05	-0.06	-0.08	0.25	0.08

3 CTAs Worst Of

Length of Lookback (down)	Compounded annual return						
	Frequency of Reallocation (across)						
	1month	3 months	6 months	12 months	18 months	Row Average	Total Field Average
1month	8.57	4.65	7.92	6.79	9.50	7.49	
3 months	9.16	7.53	8.03	3.00	10.02	7.55	
6 months	7.45	8.45	8.31	5.14	6.59	7.19	
12 months	9.47	10.59	9.94	6.63	11.17	9.56	
18 months	8.78	11.01	10.69	9.40	12.90	10.56	
Column Average	8.69	8.45	8.98	6.19	10.04		8.47

Length of Lookback (down)	Max drawdown					
	Frequency of Reallocation (across)					
	1month	3 months	6 months	12 months	18 months	
1month	(24.47)	(33.50)	(19.31)	(21.29)	(17.39)	(23.19)
3 months	(27.15)	(22.00)	(16.47)	(27.01)	(16.74)	(21.87)
6 months	(21.74)	(29.93)	(28.68)	(25.10)	(27.10)	(26.51)
12 months	(26.02)	(21.47)	(20.98)	(21.27)	(19.72)	(21.89)
18 months	(18.66)	(20.30)	(21.82)	(23.58)	(11.89)	(19.25)
Column Average	(23.61)	(25.44)	(21.45)	(23.65)	(18.57)	(22.54)

Length of Lookback (down)	Sharpe Ratio					
	Frequency of Reallocation (across)					
	1month	3 months	6 months	12 months	18 months	
1month	0.30	0.04	0.26	0.19	0.37	0.23
3 months	0.34	0.24	0.27	-0.07	0.40	0.24
6 months	0.23	0.30	0.29	0.08	0.17	0.21
12 months	0.36	0.44	0.40	0.18	0.48	0.37
18 months	0.32	0.47	0.45	0.36	0.59	0.44
	0.31	0.30	0.33	0.15	0.40	0.30

Length of Lookback (down)	Return to Drawdown Ratio					
	Frequency of Reallocation (across)					
	1month	3 months	6 months	12 months	18 months	
1month	-0.35	-0.14	-0.41	-0.32	-0.55	0.32
3 months	-0.34	-0.34	-0.49	-0.11	-0.60	0.35
6 months	-0.34	-0.28	-0.29	-0.20	-0.24	0.27
12 months	-0.36	-0.49	-0.47	-0.31	-0.57	0.44
18 months	-0.47	-0.54	-0.49	-0.40	-1.08	0.55
	0.37	0.33	0.42	0.26	0.54	0.38

5 CTAs Worst Of

Compounded annual return							
Length of Lookback (down)	**Frequency of Reallocation (across)**						
	1month	3 months	6 months	12 months	18 months	Row Average	Total Field Average
1month	7.36	7.60	7.87	7.34	10.53	8.14	
3 months	10.97	8.51	8.33	4.96	9.34	8.42	
6 months	14.83	12.01	9.49	6.44	10.01	10.56	
12 months	11.32	9.67	8.75	7.50	11.48	9.74	
18 months	12.02	14.39	13.12	10.60	12.49	12.52	
Column Average	11.30	10.44	9.51	7.37	10.77		9.88

Max drawdown						
Length of Lookback (down)	**Frequency of Reallocation (across)**					
	1month	3 months	6 months	12 months	18 months	
1month	(28.68)	(30.34)	(21.65)	(21.28)	(17.03)	(23.80)
3 months	(21.91)	(27.09)	(21.87)	(19.58)	(18.12)	(21.71)
6 months	(16.93)	(24.26)	(24.80)	(22.09)	(18.71)	(21.36)
12 months	(19.28)	(19.95)	(18.80)	(22.50)	(17.66)	(19.64)
18 months	(17.68)	(19.42)	(20.32)	(19.64)	(20.06)	(19.42)
Column Average	(20.90)	(24.21)	(21.49)	(21.02)	(18.32)	(21.19)

Sharpe Ratio						
Length of Lookback (down)	**Frequency of Reallocation (across)**					
	1month	3 months	6 months	12 months	18 months	
1month	0.22	0.24	0.26	0.22	0.44	0.28
3 months	0.46	0.30	0.29	0.06	0.36	0.29
6 months	0.72	0.53	0.37	0.16	0.40	0.44
12 months	0.49	0.38	0.32	0.23	0.50	0.38
18 months	0.53	0.69	0.61	0.44	0.57	0.57
	0.49	0.43	0.37	0.22	0.45	0.39

Return to Drawdown Ratio						
Length of Lookback (down)	**Frequency of Reallocation (across)**					
	1month	3 months	6 months	12 months	18 months	
1month	-0.26	-0.25	-0.36	-0.34	-0.62	0.34
3 months	-0.50	-0.31	-0.38	-0.25	-0.52	0.39
6 months	-0.88	-0.50	-0.38	-0.29	-0.54	0.49
12 months	-0.59	-0.48	-0.47	-0.33	-0.65	0.50
18 months	-0.68	-0.74	-0.65	-0.54	-0.62	0.64
	0.54	0.43	0.44	0.35	0.59	0.47

10 CTAs Worst Of

Compounded annual return

Length of Lookback (down)	Frequency of Reallocation (across)					Row Average	Total Field Average
	1month	3 months	6 months	12 months	18 months		
1month	9.31	9.84	10.00	9.33	11.61	10.02	
3 months	11.09	9.38	8.68	8.92	11.10	9.83	
6 months	14.53	12.05	10.14	9.64	11.43	11.56	
12 months	13.71	11.26	9.93	10.07	10.26	11.05	
18 months	14.41	13.37	12.72	11.36	11.11	12.59	
Column Average	12.61	11.18	10.29	9.86	11.10		11.01

Max drawdown

Length of Lookback (down)	Frequency of Reallocation (across)						
	1month	3 months	6 months	12 months	18 months		
1month	(18.29)	(19.35)	(15.89)	(16.05)	(16.05)	(17.13)	
3 months	(18.41)	(21.58)	(18.04)	(18.47)	(14.74)	(18.25)	
6 months	(16.52)	(23.51)	(16.15)	(15.69)	(15.54)	(17.48)	
12 months	(14.49)	(19.45)	(22.27)	(21.63)	(23.88)	(20.34)	
18 months	(14.73)	(18.45)	(19.33)	(17.71)	(20.00)	(18.04)	
Column Average	(16.49)	(20.47)	(18.34)	(17.91)	(18.04)		(18.25)

Sharpe Ratio

Length of Lookback (down)	Frequency of Reallocation (across)						
	1month	3 months	6 months	12 months	18 months		
1month	0.35	0.39	0.40	0.36	0.51	0.40	
3 months	0.47	0.36	0.31	0.33	0.47	0.39	
6 months	0.70	0.54	0.41	0.38	0.50	0.50	
12 months	0.65	0.48	0.40	0.40	0.42	0.47	
18 months	0.69	0.62	0.58	0.49	0.47	0.57	
	0.57	0.48	0.42	0.39	0.47		0.47

Return to Drawdown Ratio

Length of Lookback (down)	Frequency of Reallocation (across)						
	1month	3 months	6 months	12 months	18 months		
1month	-0.51	-0.51	-0.63	-0.58	-0.72	0.58	
3 months	-0.60	-0.43	-0.48	-0.48	-0.75	0.54	
6 months	-0.88	-0.51	-0.63	-0.61	-0.74	0.66	
12 months	-0.95	-0.58	-0.45	-0.47	-0.43	0.54	
18 months	-0.98	-0.72	-0.66	-0.64	-0.56	0.70	
	0.76	0.55	0.56	0.55	0.62		0.60

20 CTAs Worst Of

Compounded annual return							
Length of Lookback (down)	**Frequency of Reallocation (across)**						
	1month	3 months	6 months	12 months	18 months	Row Average	Total Field Average
1month	10.69	11.49	10.93	11.08	11.63	11.16	
3 months	13.15	13.78	11.11	10.20	11.23	11.89	
6 months	14.55	14.71	12.55	12.90	12.82	13.51	
12 months	13.08	11.99	11.27	12.30	11.19	11.97	
18 months	17.95	15.62	14.07	12.97	13.18	14.76	
Column Average	13.88	13.52	11.99	11.89	12.01		12.66

Max drawdown						
Length of Lookback (down)	**Frequency of Reallocation (across)**					
	1month	3 months	6 months	12 months	18 months	
1month	(19.64)	(16.79)	(15.88)	(17.76)	(17.09)	(17.43)
3 months	(14.39)	(15.52)	(18.52)	(18.78)	(14.53)	(16.35)
6 months	(13.41)	(17.58)	(11.63)	(16.25)	(15.77)	(14.93)
12 months	(15.24)	(17.83)	(20.72)	(19.04)	(20.01)	(18.57)
18 months	(18.11)	(17.72)	(20.77)	(21.09)	(22.62)	(20.06)
Column Average	(16.16)	(17.09)	(17.50)	(18.58)	(18.00)	(17.47)

Sharpe Ratio						
Length of Lookback (down)	**Frequency of Reallocation (across)**					
	1month	3 months	6 months	12 months	18 months	
1month	0.45	0.50	0.46	0.47	0.51	0.48
3 months	0.61	0.65	0.47	0.41	0.48	0.53
6 months	0.70	0.71	0.57	0.59	0.59	0.63
12 months	0.61	0.53	0.48	0.55	0.48	0.53
18 months	0.93	0.77	0.67	0.60	0.61	0.72
	0.66	0.63	0.53	0.53	0.53	0.58

Return to Drawdown Ratio						
Length of Lookback (down)	**Frequency of Reallocation (across)**					
	1month	3 months	6 months	12 months	18 months	
1month	-0.54	-0.68	-0.69	-0.62	-0.68	0.64
3 months	-0.91	-0.89	-0.60	-0.54	-0.77	0.73
6 months	-1.09	-0.84	-1.08	-0.79	-0.81	0.90
12 months	-0.86	-0.67	-0.54	-0.65	-0.56	0.64
18 months	-0.99	-0.88	-0.68	-0.61	-0.58	0.74
	0.86	0.79	0.68	0.64	0.67	0.72

30 CTAs Worst Of

Compounded annual return							
Length of Lookback (down)	**Frequency of Reallocation (across)**						
	1month	3 months	6 months	12 months	18 months	Row Average	Total Field Average
1month	11.23	12.74	12.11	11.82	13.18	12.22	
3 months	14.34	15.47	12.54	12.21	11.97	13.31	
6 months	17.89	15.83	13.17	13.62	13.40	14.78	
12 months	14.45	14.21	13.99	14.55	12.87	14.01	
18 months	17.19	15.92	15.00	13.98	13.76	15.17	
Column Average	15.02	14.83	13.36	13.24	13.04		13.90

Max drawdown						
Length of Lookback (down)	**Frequency of Reallocation (across)**					
	1month	3 months	6 months	12 months	18 months	
1month	(17.47)	(14.88)	(15.00)	(17.03)	(16.66)	(16.21)
3 months	(14.59)	(13.19)	(17.47)	(16.84)	(15.41)	(15.50)
6 months	(13.10)	(13.68)	(12.25)	(16.01)	(15.36)	(14.08)
12 months	(16.06)	(14.86)	(18.18)	(18.63)	(18.28)	(17.20)
18 months	(17.52)	(15.69)	(17.94)	(18.77)	(16.30)	(17.24)
Column Average	(15.75)	(14.46)	(16.17)	(17.46)	(16.40)	(16.05)

Sharpe Ratio						
Length of Lookback (down)	**Frequency of Reallocation (across)**					
	1month	3 months	6 months	12 months	18 months	
1month	0.48	0.58	0.54	0.52	0.61	0.55
3 months	0.69	0.76	0.57	0.55	0.53	0.62
6 months	0.93	0.79	0.61	0.64	0.63	0.72
12 months	0.70	0.68	0.67	0.70	0.59	0.67
18 months	0.88	0.79	0.73	0.67	0.65	0.74
	0.73	0.72	0.62	0.62	0.60	0.66

Return to Drawdown Ratio						
Length of Lookback (down)	**Frequency of Reallocation (across)**					
	1month	3 months	6 months	12 months	18 months	
1month	-0.64	-0.86	-0.81	-0.69	-0.79	0.75
3 months	-0.98	-1.17	-0.72	-0.73	-0.78	0.86
6 months	-1.37	-1.16	-1.08	-0.85	-0.87	1.05
12 months	-0.90	-0.96	-0.77	-0.78	-0.70	0.81
18 months	-0.98	-1.01	-0.84	-0.74	-0.84	0.88
	0.95	1.03	0.83	0.76	0.79	0.87