Part 2: Trend's Not Dead (It's Just Moved to a Trendier Neighborhood)

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In Part 2 of 2 we use a novel dataset of alternative commodity markets to show that the "trendiness" of less mainstream markets, selected based on a set of simple criteria, is inherently higher and that trend following in these markets has continued to be significantly better. Part 1, "Trend, My Friend, Is This the End?", appeared in the Winter 2019 edition of the GCARD.

Alternative Markets

Our hypothesis is that markets that exhibit certain characteristics should be inherently more "trendy." Namely:

- Are dominated by hedgers, not speculators – less competition, natural alpha transfer
- Are structurally insulated from risk on/off and typical macro factors – no policy driven capping/flooring of trends
- Exhibit fixed or inelastic supply/demand – forces prices to do all the work to clear markets
- Lack fungibility and temporal arbitrage – maintain diversification, inherit lots of carry

Alternative Commodity Markets: One Such Neighborhood?

We believe that *Alternative Commodity* markets demonstrate these characteristics, identifying 95 markets (that we currently trade.) For example, one can trade freight futures based on the Panamax[1] Timecharter Index. The availability of these ships is a classic case of inelastic supply and demand since it takes between 1 and 3 years to construct a new ship and that ship can then be in service for 25 to 30 years.

Another example is coal. Commissioning a new coal mine requires a large investment in time and capital and once opened, the cost of decommissioning is very high. This means that market prices can exceed the marginal cost by a large amount for significant periods of time before new mines are developed. Equally, it means that mines will run at a loss on low coal prices for longer than market economics might suggest.

We choose to represent inherent trendiness via the cumulative autocorrelation term from Lo (2002) since this provides a simple and intuitive measure of the extent to which a returns time series is autocorrelated over extended periods. See the second square-root term in Equation 1 on the next page.

(Equation 1) $$\sigma_{annual} = \sqrt{n}\sigma_{daily}\sqrt{1 + 2\sum_{i=1}^{n}\frac{n-i}{n}\rho_i}$$

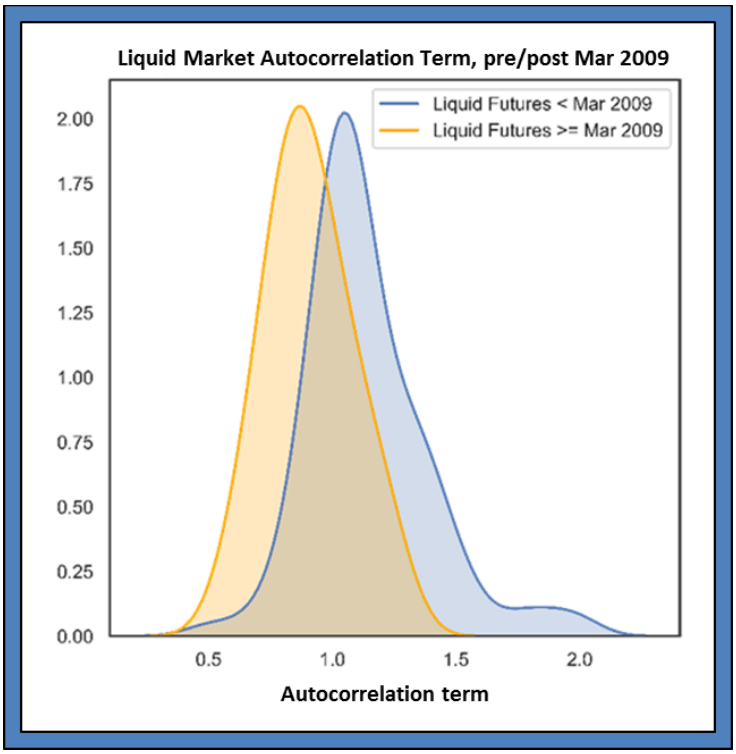
We measure this for both 100+ liquid futures markets pre-/post- the Global Financial Crisis (GFC)[2] (Figure 1) and also compare to alternative commodities post-GFC (Figure 2), considering autocorrelation lags out to 1 year. Two observations can be made:

i) Just as with the smile trend densities examined in Babbedge and Kerson (2019a) and Babbedge and Kerson (2019b), we see a decline in autocorrelation "trendiness" for liquid futures for the recent period; and

ii) We see that alternative commodity markets tend to have a larger autocorrelation trendiness term, as per the hypothesis.

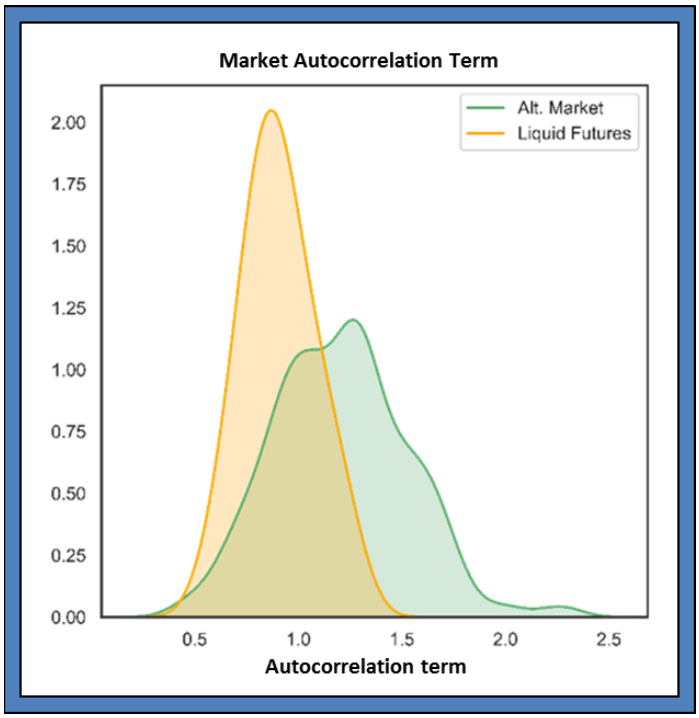
We note that adoption, instead, of the Hurst exponent leads to similar observations so those results are not reproduced here. (This statistical measure was originally proposed in Hurst (1951).)

Figure 1
Trendiness for Liquid Futures Pre- and Post-GFC, Showing the Reduction in the Measure Post-GFC



Sources: Gresham Investment Management (GIM), Bloomberg.

Figure 2
Trendiness of Liquid Futures as Compared to Alternative Commodities for the Post-GFC Period, Showing the Higher Level in Alternative Commodities



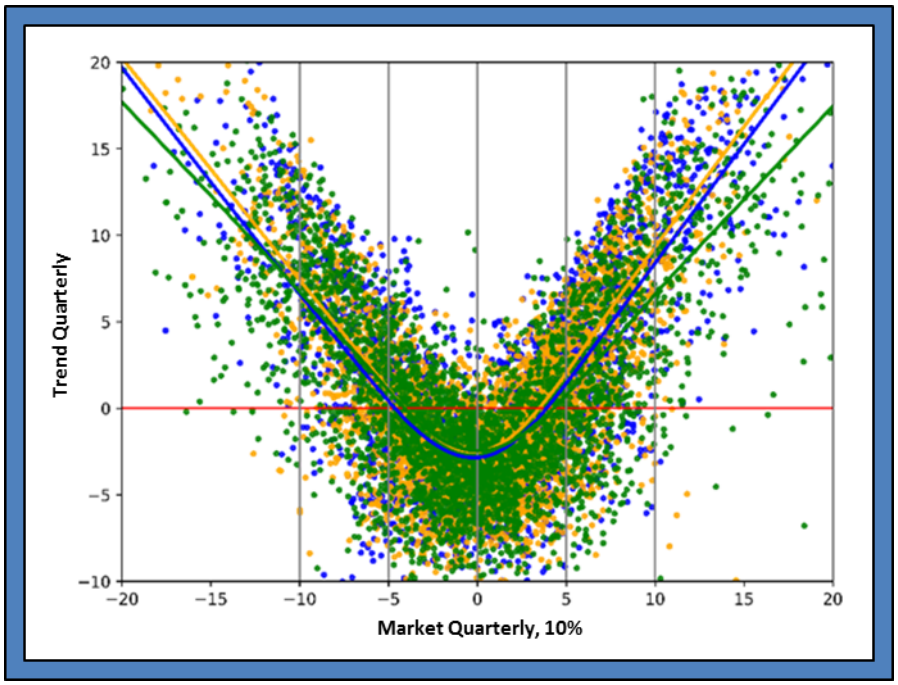
Sources: GIM, Bloomberg.

Trend Following in Alternative Commodities

We run a medium-speed trend-following backtest on both the set of 100+ liquid futures markets and on the set of 95 alternative commodity markets, being careful to apply realistic trading cost estimates based on our proprietary dataset of actual trading costs. We then plot risk-adjusted quarterly returns of futures markets[3] versus the resulting simulated quarterly return from trend following[4] on those individual markets. The quarterly timeframe is chosen since it is similar in timeframe to the horizon of medium-speed trend followers and is therefore the most relevant timeframe for comparison. For the liquid markets there is sufficient history to split the data into pre- and post-GFC. In each case we overlay a LOESS line of best fit. Please see Figure 3 on the next page. The resulting convex "CTA smile" is a well-known result and demonstrates how trend following is akin to a synthetic long straddle (e.g., Merton (1981)).

As per Babbedge and Kerson (2019b), it is remarkable how consistent that fit is across the three datasets, meaning that for a given risk-adjusted quarterly market move one can essentially "look up" the resulting return from trend following that market, *modulo* some scatter.

Figure 3
Quarterly Return CTA Smile for Liquid Futures in Two Periods (blue = pre-GC, orange = post-GFC) and for Alternative Commodities post-GFC (green). LOESS Fits Indicated. Market Quarterly Returns are Risk-Adjusted to 10% Annualized Risk.

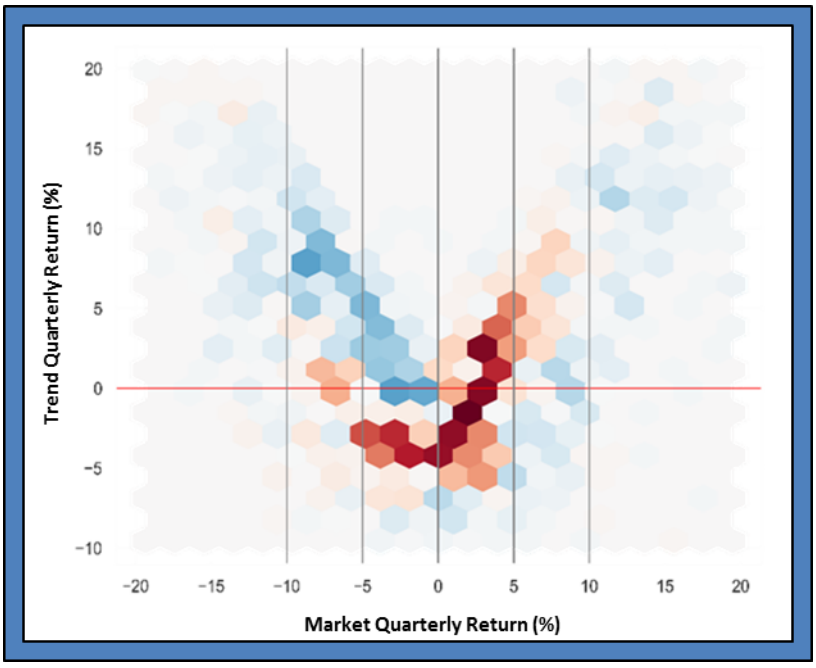


Sources: GIM, Bloomberg.

Crucially, when we compare the relative frequency of market risk-adjusted quarterly returns between liquid futures and alternative commodities post-GFC[5], we find that the alternative commodities exhibited an *increased* density of *large* quarterly market risk-adjusted returns and a *decreased* occurrence of *small* moves. Since the key to the profitability of trend following is the relative population of the edges of the CTA smile compared to the center of the smile (where trend makes losses), this difference is central to the observation that trend following in alternative commodities has been significantly better.

In Figure 4 we present the differential density chart comparing alternative commodities to liquid futures post-GFC and provide fractions in Table 1 below.

Figure 4
Differential Density Chart Comparing Alternative Commodities to Liquid Futures Post-GFC



Sources: GIM, Bloomberg.

Notes: This figure shows increased occurrences in blue and decreased in red when comparing alternative commodity markets to liquid futures markets. We see higher rates of large quarterly market returns and lower rates of small market moves for the alternatives.

Table 1
Occurrence Counts for Small and Large Market Quarterly Returns

	Small Trend (|Mkt Retn| < 5%)	Large Trend (|Mkt Retn| > 10%)
Liquid Futures pre-GFC	59% of quarters	10% of quarters
Liquid Futures post-GFC	68% of quarters	5% of quarters
Alt Comms post-GFC	*56% of quarters*	*14% of quarters*

Comparison to the Mainstream

Finally, we construct a portfolio of alternative commodities and compare the simulated cumulative performance after all fees and costs to that of the Barclay CTA Index in Figure 5. In Table 2 we provide correlations to major representative macro factors.

As per the original hypothesis we observe that simulated historical performance of the alternative commodities trend following has been far better than similar strategies applied to liquid futures markets in the post-GFC period, while exhibiting low correlation to more mainstream factors.

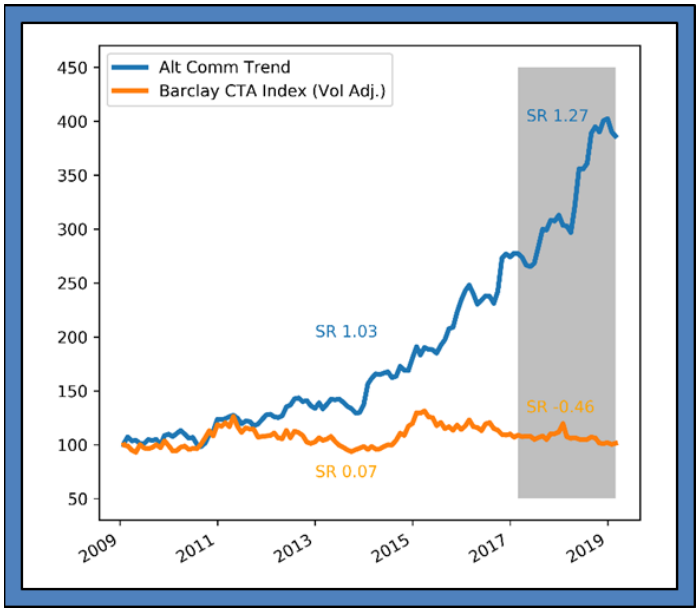
Table 2

	Alt Comm Trend	Barclay CTA	S&P 500	BCOM
Barclay CTA	0.15			
S&P 500	0.06	0.43		
BCOM	0.17	0.26	0.67	
Barclays Ag. Bond	0.14	0.19	-0.07	-0.19

Abbreviations: BCOM stands for the Bloomberg Commodity Index while Barclays Ag. Bond stands for the Barclays Capital U.S. Aggregate Bond Index.

Figure 5

Performance Comparison for the Barclay CTA Index and the Alternative Commodity Trend Strategy. Shaded Region Indicates Period Where the Strategy Was Live Traded.



Sources: GIM, Bloomberg.

Concluding Remarks

We looked to identify markets that should, in principle, exhibit stronger trending behaviors. We found that a novel dataset of *alternative commodity markets*, selected based on a set of simple criteria, had inherently higher trendiness and that, as a result, trend following in these alternative markets has continued to be significantly better than for the mainstream. Thus, it seems, "trend is not dead – it has just moved to a more trendy neighborhood."

Endnotes

1 The largest size of ship able to navigate the Panama Canal.

2 With March 2009 as the start of the post-GFC, although exact date choice has minimal impact on conclusions.

3 Risk-adjusted to an annualized risk of 10%.

4 Again, targeting 10% annualized risk.

5 Due to shorter histories there is insufficient data to meaningfully populate the pre-GFC period for Alternative Commodities.

References

Babbedge, T. and J.S. Kerson, 2019a, "Trend's Not Dead," Gresham Investment Management White Paper, July 9. Available via *SSRN*: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3404669 on October 14, 2019.

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Author Biographies

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Dr. Thomas Babbedge has over 10 years of experience building and assessing quantitative trading systems for the world's largest CTA. After obtaining a Ph.D. in Extragalactic Astrophysics from Imperial College London, he worked as a post-doctoral researcher at Imperial and a visiting researcher at Caltech. In 2007 Dr. Babbedge joined Winton Capital Management where he worked as a Senior Researcher, Head of Investment Analytics, and Personal Researcher for David Harding. In 2016 he joined GreshamQuant within Gresham Investment Management to develop Alternative Market strategies. Dr. Babbedge is an author/co-author of over 50 peer-reviewed scientific papers in international journals including *Nature*, with citations totaling to 6,000.

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Mr. J. Scott Kerson is responsible for GreshamQuant's strategy research at Gresham Investment Management. Prior to joining Gresham, Mr. Kerson was a partner at AHL Partners, LP, where he was Head of Commodities and a member of the AHL Research Advisory Board. Previously, Mr. Kerson held a variety of commodity research and trading positions, including Commodities Model Owner in Barclays Global Investors systematic macro group, discretionary trader and quant at Ospraie and Amaranth, and Managing Director at Deutsche Bank and Merrill Lynch. Mr. Kerson holds a B.A. in Economics with Highest Honors from the University of California at Santa Cruz and departed "AbD" with a M.A. in Financial Economics from Duke University.

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