Follow The Money

I am often asked to explain why I like trading fixed income trend. I am a simple man and I like to bet on winners and fixed income has been winning the trend horse race by several lengths, and then some. Certainly, in the CTAs I have worked in, around 70% of actual profits have been from fixed income. Other asset classes certainly contributed, but fixed income has dominated historical performance. Allow me to demonstrate… Let us run some historical data analysis covering liquid futures across asset classes and trend speeds:

	Trend speed:		
sector	**Fast**	**Mid-Freq**	**Slow**
Fixed Income	0.49	0.5	0.46
Commodities	0.32	0.28	0.11
FX	0.12	0.21	0.16
Equities	-0.01	0.15	0.11

Figure 1: Average gross market trend Sharpe per asset class simulated over 103 liquid futures markets. 1995-2024.

Fixed Income is not only the best performers but are also the most consistent across all trading speeds. Is that a fluke? We divide the last 29.5 years into 5-year intervals and examine performance in each of these subperiods:

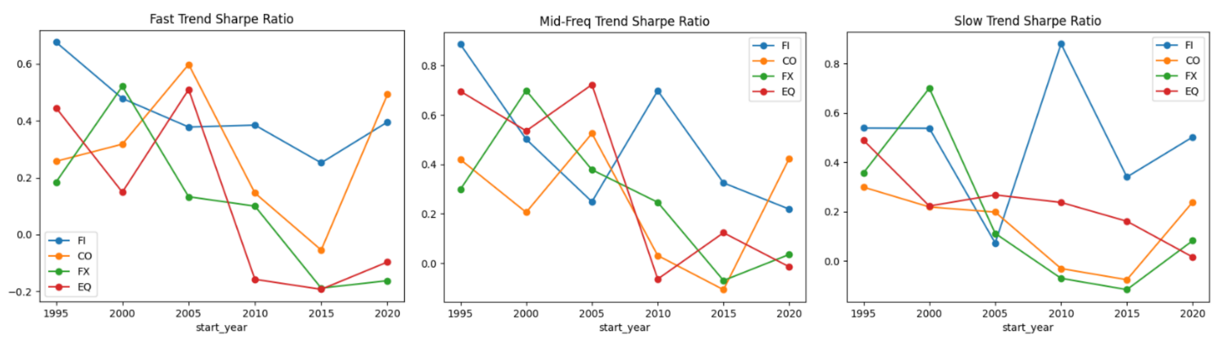

Figure 2: Average gross market trend Sharpe per asset-class and speed grouped per 5 years periods. We can see how, in the liquid space, fixed income has been the most consistent contributor to performance across all speeds.

The data tells two stories:

- Post Great Financial Crash (GFC), gross average market Sharpe has dropped (incidentally, just as a wall of money flowed into CTAs). The usual story is that this applies mostly to fast trend but in the graphs, it is evident in all speeds. Fast trend has become even less viable because it's also expensive to run. This is why we have seen CTAs migrating to slower trend speeds.
- Just like house prices, there are three factors that explain CTA performance (certainly since GFC): fixed income, fixed income, and fixed income.

What makes fixed income so special? Compared to other asset classes, fixed income has two unique attributes affecting its trading dynamics: liquidity fragmentation and central banks.

Liquidity and autocorrelation

If you want to own Ford, there is one liquid share class to trade. Sellers and buyers converge upon an exchange and an order book forms where you can buy as many shares as you really need. Conversely, if you want to own Ford debt, there are scores of bonds to choose from, with different maturities, coupons, and seniority; to say nothing of the possibility of weird optionality and convertibility terms. This hinders the formation of a centralized trading venue so finding a counterparty that owns a specific bond or wants to buy the specific Ford bond you own, is a task often delegated to dealer brokers. The GFC caused liquidity in the bond market to deteriorate even further as capital requirements meant banks became unable to hold an inventory of bonds on their own book. Some technological innovations have emerged to speed up the matching of buyers and sellers, but the structural diversity of bonds issuance makes match-making tricky.

As a result, price discovery is a slow process and leads to autocorrelation in trades and returns. Trend following uses this autocorrelation to convert short term price trends into alpha. I discussed the contribution of autocorrelation to trend in my previous "How good is trend at trend following" blog.

Going with the flow

Money supply is controlled by central banks, players that are not motivated by financial gains: instead, they care about inflation, unemployment, and the state of the real economy. This creates persistent distortions leading to persistent money flows. If the Fed holds rates at 0.5% while treasuries yield 3%, we will start seeing people borrowing cash at 0.5% to finance treasury bonds: a positive carry trade. This imbalance generates flows that will be persistent over time and lead to the smooth bond price trends that CTAs love and cherish.
A commercially motivated Fed would raise the cost of money (i.e. raise borrowing rates) but the Fed is much more concerned with economic activity and is keeping the rates low precisely to encourage cheap borrowing: this positive carry trade is a transmission mechanism to encourage banks to lend and ensure low long-term borrowing rates. The real economy will be the main beneficiary: businesses will invest, jobs will be created. The financial markets will benefit too from putting on the positive carry trade. We, as CTAs, simply go with the flow.

Breaking it down - A little bit of maths

There is an elegant way to demonstrate how important carry is to trend performance. Whenever a quant examines a new asset class, the first question is: what is the (self-financing) total return time series? This is the first step is to understand what a (self-financing) long-only investment in the asset would look like.

For cash bonds the answer is simple:

Total Returns = Clean Price Returns + Carry

On a daily scale, carry (accrual less cost of finance) is tiny compared to clean price volatility. If we go back to a 10y treasury priced at par ($100) and earning a 3% coupon financed by 0.5% cash example, carry earns us $2.5 a year, which is one cent earned per business day. This is tiny compared to the daily price volatility of around 25c.

However, as we average returns over a longer horizon, carry becomes a greater proportion of the trend-following signal. Carry earned grows *linearly* in time while volatility grows much more slowly, at roughly *sqrt(time)*. After a year, we have earned $2.5 on an annual volatility of around $4… we get a 2.5/4 = 0.625 vol-adjusted carry return.

Guesstimating it…

Before looking at data, can we guesstimate the impact of carry, on trend's performance? Luckily, we don't have to: we have done the work at "How Good Is Trend" and a vol-adjusted carry of c should translate to 0.5 c^2 / sqrt(1 + c^2) of 3-months trend performance.

We plug 0.6 Sharpe into the equation and get just under 18bp of Sharpe for our 3-month momentum strategy.

- Being long-only would have gained us a 0.6 Sharpe, and we got only 17 bps but, on the upside, we gain positive convexity to make up for this. A faster trend strategy would gain even less in return (e.g. a monthly momentum would gain just over 10 bps) but have even higher convexity.
- Performance pickup increases with carry so high carry markets such as EM bonds, or low-vol markets, such as the STIR futures, also naturally trend better.
- If we can go short, then negative carry works just as well! If your yield curve happens to be inverted, carry would still boost trend's performance.

Show me the money!

Nice intuition, but does it work? We ran a slow trend strategy (3m to 6m holding period) for 541 vanilla fixed coupon $-denominated government EM bonds (with at least 5 years of history) across multiple issuers. We first ran trend on the bond *clean prices* (magically removing carry from both signal and accounting) and then on the *total return* (with carry in both signal and accounting).

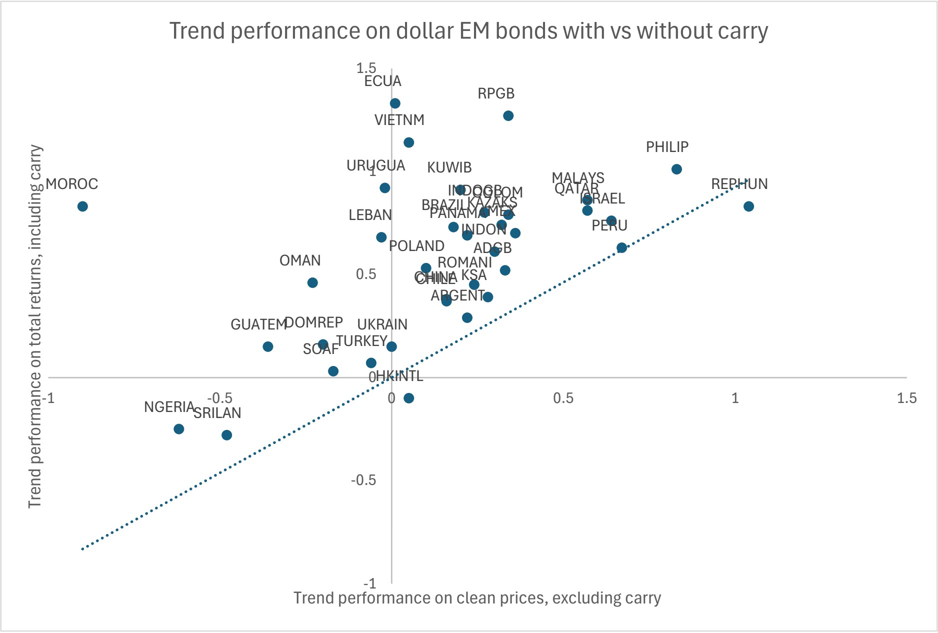

Figure 3: Clean vs Total returns slow trend, gross average trend gross Sharpe per government issuer.

It is nice to see that our estimate for carry impact is not far off from reality. It's not that clean prices do not trend (they do, the distribution is centred in the positive quadrant) but carry is the fixed income slow-trend magic sauce.

Are the good times over?

Since Paul Volcker's days, we have lived through a secular reduction in rates that coincided with a stellar fixed income trend performance. As early as 2013, when I was the Head of Fixed Income at AHL, post taper-tantrum, clients were worried if it was the right time to invest in CTAs. Their argument was clear:

- CTA performance comes from fixed income.
- Fixed income performance comes from the Volcker-to-Yellen (V2Y) interest rate reduction.
- Given this secular trend is about to end, should fixed income (and CTA) performance drop?

The Volcker-to-Yellen drop in rates sounds like a plausible explanation of fixed income performance until we realize that the *clean prices* trend should account for it. If V2Y was the primary reason for fixed income performance, we should have seen much stronger clean prices trends. But no, it is Carry: it seems people invest in fixed income for… well, fixed income.

Conviction vs concentration

The real question is why should a CTA invest in anything *but* fixed income? The choice between concentration vs conviction could not be starker, especially if we focus on the classic allocation decision: bonds versus equities.

For an allocator to CTAs, equity allocation within a CTA provides equity convexity at next to no cost, much cheaper than a tail-protection product, so zero Sharpe on the equity sub-portfolio is fine.

For a CTA fund manager, allocating to equity markets increases capacity and the increase in management fees may well compensate for the loss in performance.

So bundling an alpha product (fixed income trend) with an insurance product (equity trend) may make commercial sense to both sides.

But for a simple man like me, focused on alpha, a diversified fixed income portfolio offers the highest conviction asset class to bet on. I just follow the money.

Yoav Git
Quant Research

This material is provided for informational or educational purposes only and does not constitute a solicitation of any securities in any jurisdiction in which such solicitation is unlawful or to any person to whom it is unlawful. Moreover, it neither constitutes an offer to enter into an investment agreement with the recipient of this document nor an invitation to respond to it by making an offer to enter into an investment agreement.

This material may contain "forward-looking" information that is not purely historical in nature. Such information may include projections, forecasts, estimates of yields or returns, and proposed or expected portfolio composition. Moreover, certain historical performance information of other investment vehicles or composite accounts managed by Nuveen may be included in this material and such performance information is presented by way of example only. No representation is made that the performance presented will be achieved, or that every assumption made in achieving, calculating or presenting either the forward-looking information or the historical performance information herein has been considered or stated in preparing this material. Any changes to assumptions that may have been made in preparing this material could have a material impact on the investment returns that are presented herein by way of example.

This material is not intended to be relied upon as a forecast, research or investment advice, and is not a recommendation, offer or solicitation to buy or sell any securities or to adopt any investment strategy. The information and opinions contained in this material are derived from proprietary and non-proprietary sources deemed by Nuveen to be reliable, and not necessarily all-inclusive and are not guaranteed as to accuracy. There is no guarantee that any forecasts made will come to pass. Company name is only for explanatory purposes and does not constitute as investment advice and is subject to change. Any investments named within this material may not necessarily be held in any funds/accounts managed by Nuveen. Reliance upon information in this material is at the sole discretion of the reader. Views of the author may not necessarily reflect the view s of Nuveen as a whole or any part thereof.

All information has been obtained from sources believed to be reliable, but its accuracy is not guaranteed. There is no representation or warranty as to the current accuracy, reliability or completeness of, nor liability for, decisions based on such information and it should not be relied on as such. For term definitions and index descriptions, please access the glossary on nuveen.com. Please note, it is not possible to invest directly in an index.

Past performance is not a guide to future performance. Investment involves risk, including loss of principal. The value of investments and the income from them can fall as well as rise and is not guaranteed. Changes in the rates of exchange between currencies may cause the value of investments to fluctuate.

This information does not constitute investment research as defined under MiFID.

Nuveen, LLC provides investment solutions through its investment specialists.

3478784

PCM-3429859PE-O0224X