



A Double Kazoo with a Kazazz:

Inverse-Double-Short-Leveraged ETFs Have Arrived!

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Leveraged ETFs have been in the news a lot recently. Bloomberg's Vildana Hajric reported on [billions of dollars of inflows](#) before and during the market volatility surrounding Trump's evolving tariff policy announcements. We have been fascinated by these structures, and written many articles on leveraged ETFs ([here](#), [here](#), [here](#), and [here](#)), and even made a [Leveraged ETF Return Calculator](#) available on our website.

We and others, such as Matt Levine, have brought attention to the phenomenon of "volatility drag" on returns that leveraged ETFs experience. The drag arises from the trades the ETF needs to do each day to keep leverage constant at the promised target multiple of its underlying asset's daily returns.

For horizons longer than one day, a leveraged long or short ETF will have a return which is less than the return of the underlying asset multiplied by the leverage multiple.² The shortfall is equal to the volatility drag. The more the leverage, and the more volatile the underlying asset, the larger the volatility drag. You can find the formula for volatility drag in the shaded sidebar below.

¹ This is not an offer or solicitation to invest, nor are we tax experts and nothing herein should be construed as tax advice. **Past returns are not indicative of future performance.**

Thank you to our colleagues Jerry Bell, Steven Schneider and Brandon Labbe for their help with this note, and also to our friends who let us share our thinking with them. You know who you are, but we won't thank you publicly in case this article proves controversial in any way.

² Where the return of the underlying asset is expressed as a daily compounded return. Also, after adjusting for the financing rate pertaining to the leverage or short position.

Volatility drag example:

The largest leveraged ETF at the moment is the ProShares UltraPro QQQ (ticker TQQQ) which gives 3x leveraged exposure to the Nasdaq 100 index. Over the past year, the QQQ index was up 6.5% (annualized daily compounded return), with 25% realized annualized volatility. We'll assume zero interest rates, borrowing costs and trading frictions for this illustration.³ With these assumptions, the return on this 3x leveraged long ETF would be:

$$0.5\% = \text{Leverage} * \text{QQQ return} - \text{Volatility Drag} = 3 * 6.5\% - 19\%$$

And the return, again annualized daily compounded, of a 3x short QQQ ETF (ProShares does offer this too, ticker SQQQ) would be:

$$-58\% = -3 * 6.5\% - 38\%$$

$$\text{Volatility Drag} = \frac{L(L-1)\sigma^2}{2}$$

where L is leverage and σ is the annual volatility of the asset.

Every time we write about leveraged ETFs and volatility drag, numerous readers write in saying that they have run short positions in leveraged ETFs to "earn the volatility drag." It seems we weren't the only ones hearing this. Bloomberg's Katie Greifeld⁴ related a conversation with Rob Arnott - a pioneer of smart-beta investing - who told her he's been profiting from shorting leveraged long and inverse ETFs in his personal account, taking advantage of the "volatility drag" on returns. Also, David Einhorn's Greenlight Capital said in its Q4 2024 investor letter that it shorted several single-stock exchange traded funds (e.g. MSTU and MSTX), partially offset by owning shares of MicroStrategy (MSTR). Greenlight says the position was a "material winner."

Given all this excitement from sophisticated investors on shorting leveraged ETFs, we suppose it was inevitable that someone would try to package the trade into its own ETF. And here it comes - an application to the SEC for a MicroStrategy Double Short Hedged ETF. The issuer is Tidal ETF Services, who themselves are the sponsor for a range of leveraged long and short ETFs. This is how the [prospectus](#), which is awaiting SEC registration and launch, describes the strategy. [hot off the press: after we finished writing this note, Tidal filed another [prospectus](#) with the SEC, this time for their "Defiance Nasdaq 100 Double Short Hedged ETF." The proposed ETF will go short a 3x long leveraged Nasdaq 100 ETF and a 3x short inverse Nasdaq 100 ETF, probably the ones we discussed in the shaded technical sidebar above.]:

The Fund is an actively managed exchange-traded fund ("ETF") that seeks to generate returns by simultaneously taking short positions in two different daily 2x leveraged ETFs that track the stock of MicroStrategy Incorporated ("MSTR"): one with a daily 2x long exposure (the "Long 2X MSTR ETF") and the other with a daily 2x short exposure (the "Short 2X MSTR ETF")...

³ These and other simplifications explain the difference between these estimated returns and the actual return of the ProShares ETFs over the past year.

⁴ It seems as though Bloomberg reporters are even more interested in these leveraged ETFs than we are!

Rather than attempting to profit from changes in the price of MSTR itself..., the Fund is designed to benefit from the structural features of Leveraged MSTR ETFs, which are products designed to be held for only one day. As described in each of the Leveraged MSTR ETF prospectuses, holding shares for greater than one day may result in performance experiences that...may result in performance decay (the gradual loss in value that leveraged ETFs may experience over time, especially in volatile or non-trending markets due to daily rebalancing). These features can cause both long and short leveraged ETFs to perform very differently over time than their daily 2x or -2x objective.

*By simultaneously shorting both a Long 2X MSTR ETF and a Short 2X MSTR ETF, **the Fund aims to exploit these differences to generate returns.** For example, if the Long 2X MSTR ETF fails to deliver 2x returns over a given period greater than one-day, it may experience negative performance for that period, thereby resulting in positive performance for the Fund through its short position. Similarly, if the Short 2X MSTR ETF fails to achieve -2x returns over the same period, this may result in negative performance for the Short 2X MSTR ETF, thereby resulting in positive performance for the Fund through its short position.*

*Under normal market conditions, the Fund will target approximately 100% exposure to each short position. By simultaneously shorting both a Long 2X MSTR ETF and a Short 2X MSTR ETF, the Fund seeks to mitigate directional market risks associated with MSTR stock movements. **The Fund's net exposure to MSTR is intended to remain neutral,** so that fluctuations in MSTR's stock price have limited impact on the Fund's overall performance. **Instead, the Fund is designed to benefit from the performance decay that may occur in these leveraged ETFs over time - particularly in volatile or range-bound markets where both the long and short leveraged ETFs may decline in value.** [emphasis added]*

A feature of note is that the ETF manager intends to keep the two short positions equal to the capital in the ETF, though giving themselves some slack if they find that too difficult to do every day.

Apart from the question of the merits of this new ETF, it serves up a terrific job interview question for a Wall Street trading desk:

Question: assume zero interest rates for borrowing and lending, no trading frictions and that the 2x leveraged long and short MicroStrategy ETFs are generating daily returns exactly equal to 2x and -2x the daily return of MicroStrategy stock.⁵ What is the expected one-year return of this new Double Short Hedged ETF if the realized annualized volatility of MicroStrategy over the year was 90% and MicroStrategy finished the year where it started, for a 0% return? In case it's helpful, the annual volatility drag on the 2x leveraged long ETF is 81% and for the 2x leveraged short ETF it is 243%. Hint: don't trust ChatGPT.

⁵ For completeness the interviewer might need to add a few other assumptions, such as that the daily return of MicroStrategy is never larger than 50% in either direction.

The answer is that the expected return of the Double Short Hedged ETF is zero. In other words, you shouldn't expect to earn anything from the volatility drag. And that's the case whatever the one-year return of MicroStrategy stock. The explanation is very simple. We'll again assume that interest rates, borrow fees on the shorts and all frictions and fees are zero, and that the leveraged ETFs are delivering exactly 2x and -2x the daily return of MSTR. The stated approach of the Double Short Hedged ETF is to maintain an equal short in the 2x leveraged long and the 2x leveraged short MSTR ETFs. At the start of each day, the Double Short ETF will effectively have a 2x short position in MSTR exactly offset by a 2x long position in MSTR. Whatever MSTR's return is for a given day, the daily profit in the Double Short ETF will be zero.

Once we recognize that this ETF is in fact not going to benefit from earning the volatility drag of the underlying ETFs it's shorting, we see that the only factors that drive its expected return are the various frictions and operational difficulties involved in running the underlying ETFs and in this Double Short Hedged ETF itself, and the level of interest rates. The Double Short Hedged ETF benefits from the management fees, leverage and shorting costs, and trading frictions incurred by the underlying ETFs it plans to go short. But on the other side of the ledger, its return will be reduced by its own management fee, borrowing costs, and the frictions involved in trading those leveraged ETFs to keep a balanced exposure to the MSTR stock price. It will also earn interest on the capital in the ETF. When you add all these positive and negative frictions together, we suspect the dominant one will be the borrow fee associated with shorting the leveraged long and short MSTR ETFs, which will result in this new ETF having a negative expected return relative to short-term interest rates.

We wonder whether the sponsor of this new ETF appreciates that it is structured in such a way that it will not benefit from the volatility drag effect which its prospectus claims it is designed to capture? Perhaps the sponsor, and such investors as have expressed interest in this ETF, think this is a good product based on a historical simulation of its strategy using leveraged long and short MSTR ETFs that have existed since August 2024.

We ran that simulation using MSTU for the 2x leveraged long and MSTZ for the 2x leveraged short MSTR ETFs. We found that the return on the hypothetical Double Short Hedged ETF would have been about 38% from inception on September 18, 2024 to March 31, 2025, assuming zero borrow fee and frictions. However, all the simulated gain came from MSTU and MSTZ significantly underperforming the 2x daily returns they were structured to deliver,⁶ rather than from volatility drag.⁷

You may be wondering how Rob Arnott and David Einhorn profited by shorting leveraged long and short ETFs, given what we're saying about the proposed Double Short Hedged ETF. Part of the explanation lies in the fact that the leveraged long and short MSTR ETFs did so poorly relative to their stated daily return objectives, as noted above. Another part of the answer might be that they

⁶ It's been widely reported, and the returns confirm, that these levered ETFs have had operational difficulties maintaining their stated leverage ratios.

⁷ Tidal states in the prospectus that they won't be shorting their own leveraged 2x long and 2x short ETFs on MSTR, but we ran a simulation using their ETFs to see if the history would be about the same. We were surprised that the return using their leveraged ETFs would have been 26% lower than using their competitor's ETFs.

did not rebalance their holdings each day to maintain the same exposure to each ETF. If they just shorted the 2x leveraged long and short MSTR ETFs without doing any rebalancing, then they would indeed have earned the volatility drag, but they would have lost money if MSTR went up or down dramatically enough over the trade horizon. With no rebalancing, you can think of their profit and loss profile as looking similar to that of selling an options straddle on MSTR.

One thing we're pretty sure of is that the growth in complexity in structured products targeted at retail investors is far from over, though we hope we won't see an ETF launch based on going short this Double Short Hedged MicroStrategy ETF before Labor Day! On the bright side, analysts such as all those Bloomberg reporters who can explain these complex financial products to investors - and occasionally even to issuers - won't be out of their entertaining and public-spirited jobs for a while!