

Under the Hood of Leveraged ETFs



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Do you have a view on the market? (Who doesn't?) Do you just have a view on an asset class or a specific sector? Maybe you think the market is set to rally 10% over the next few months. Wouldn't it be great if there was a vehicle that allowed you to get twice the return of the index? Or maybe back in September of 2008 you thought financials were about to drop. How would you like the ability to short the financial sector without opening a margin account and shorting specific stocks? Maybe you would even like to gain two times short exposure?

Today there are Exchange-Traded Funds (ETFs) which can seemingly give you the ability to express these views (and more). I am referring to inverse and leveraged ETFs. Like other ETFs they have daily liquidity and transparency. The inverse ETFs are designed to return the opposite of the daily return of an index. There are leveraged ETFs that target a level of return two times the daily return of an index. And there are even leveraged-inverse ETFs which aim to provide two times the opposite of the daily return of an index.

These inverse and leveraged ETFs have exploded in popularity: There are 106 inverse and leveraged ETFs with \$25 billion in assets. In January 2009 at E*TRADE, 70% of ETFs trades were leveraged ETFs. Recently Direxion launched 3x Bull and 3x Bear Market ETFs which ups the amount of leverage available to ETF investors.

When we see growth and stats like that, it raises a red flag for us. It signals that investors may be following a trend and not fully comprehending their investment vehicles. Two paragraphs above, in describing the returns of inverse and leveraged ETFs, I was careful to use the phrase “daily return of an index.” This objective of providing a daily return combined with the effects of leverage and compounding may result in returns that surprise buy-and-hold investors.

Hypothetical Example

As a disclaimer, this section is going to dive into the mathematics behind leverage and compounding returns. Before diving into real-life examples, I believe a hypothetical example may help clarify and explain the returns we see in real-life.

Let's take an imaginary index “ABC” and invest \$100 in the index. On day one the index goes up 10%. At the end of day one, we have \$110 [$100 * (1+0.1) = 110$]. On day two the index falls by 10%. At the end of day two, we are left with \$99 [$110 * (1-0.1) = 99$]. Remember we are losing 10% of \$110 or a loss of \$11. Overall, we lost 1% on this investment.

Now imagine we invest \$100 in a 2x Long Index ABC that provides two times the daily return of ABC. In our example, the 2x Long ABC would increase by 20% to \$120 [$100 * (1+0.2) = 120$]. On day two the 2x Long ABC decreases by 20% to \$96 [$120 * (1-0.2) = 96$]. Again, we are losing 20% of \$120 or a loss of \$24. Over the two day period the 2x Long ABC investor would be down 4% versus an unleveraged loss of 1%.

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This discrepancy is only made worse over time. If we continue our pattern of 10% up-days followed by 10% declines for 4 weeks (20 trading days) we see that the ABC index would be down 10%, while the leveraged ETF would be down 34%.

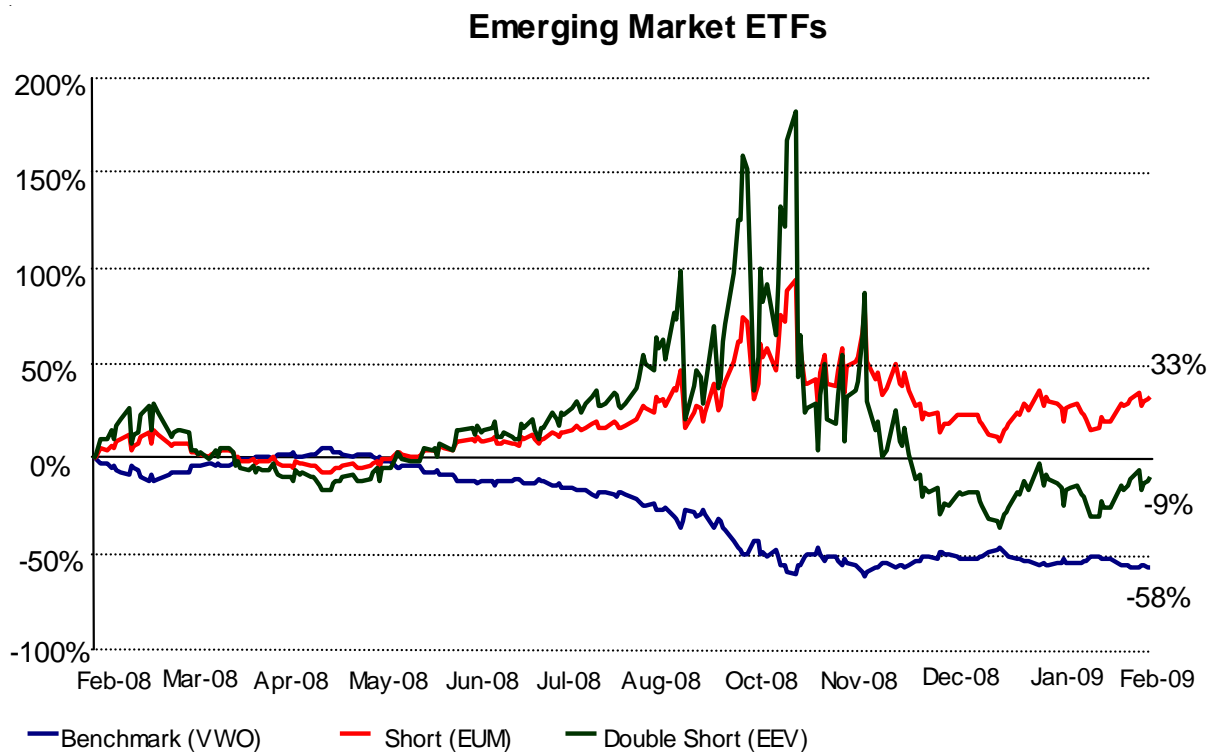
(In the chart below I have demonstrated how inverse and leveraged-inverse ETFs would perform in the same hypothetical situation. Notice how the effects of leverage are the same when shorting.)

	Day 0	Day 1: up 10%	Day 2: Down 10%	Continue Pattern for 4 weeks
2x Long Fund ABC	\$100	\$120	\$96	-34%
Fund ABC	\$100	\$110	\$99	-10%
Inverse Fund ABC	\$100	\$90	\$99	-10%
2x Inverse Fund ABC	\$100	\$80	\$96	-34%

Real-Life Experiences

With that understanding of the effects of leverage and daily compounding we can dive into some actual examples. How did these inverse and leveraged ETFs actually perform in the market?

For our first example, let's look at Emerging Market ETFs. In this example we will use the Vanguard Emerging Markets (VWO) ETF as our benchmark return. This ETF aims to deliver the unleveraged return of the MSCI Emerging Markets Index. Below is a chart comparing the return of VWO versus various short ETF vehicles over the past year (ending 2/28/09). Over this time period the fund VWO was down 58%. Over the same time period the UltraShort MSCI Emerging Markets ProShares (EEV) ETF, which provides double short exposure, was down 9%. The ETF performed as it was designed – delivering twice the inverse of the *daily* return of the emerging markets index.



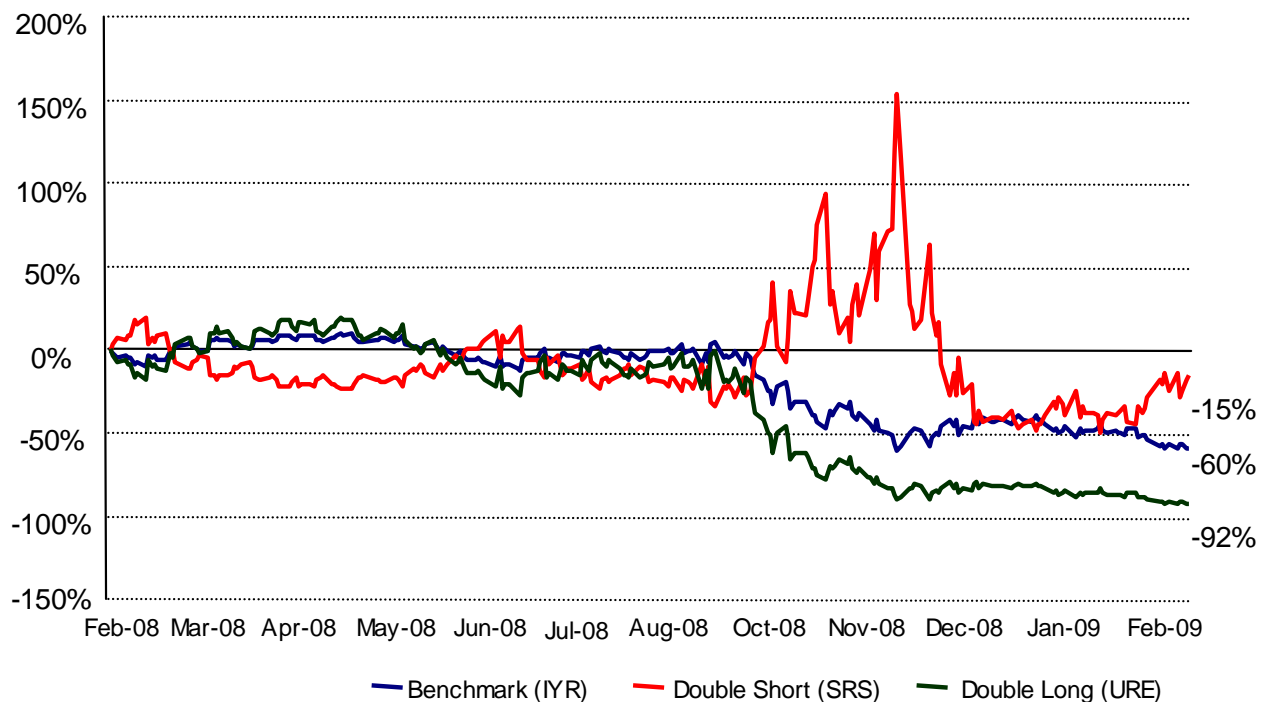
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If your investment thesis a year ago was to be short the emerging markets and you selected to buy-and-hold EEV to express your view, you had the correct view but the execution was off. The negative 9% return is not as bad as the 58% decline in VWO but is probably not what most investors would expect from a two times short position.

For another example we can look at Real Estate ETFs over the same twelve month period. Using the iShares Dow Jones US Real Estate (IYR) as our unleveraged baseline, real estate was down 60%. Over this same time period the UltraShort Real Estate ProShares (SRS) ETF, which provides two times leveraged short exposure to daily return of the real estate market, was down 15%. As you can see on the graph, there were times when the UltraShort fund was actually down more than the unleveraged index. Again, this fund performed inline with the expectation of twice the opposite of the daily return of the real estate market. An investor may have had the correct investment outlook but the vehicle chosen to express that view certainly yielded an unexpected and disappointing result.

Real Estate ETFs



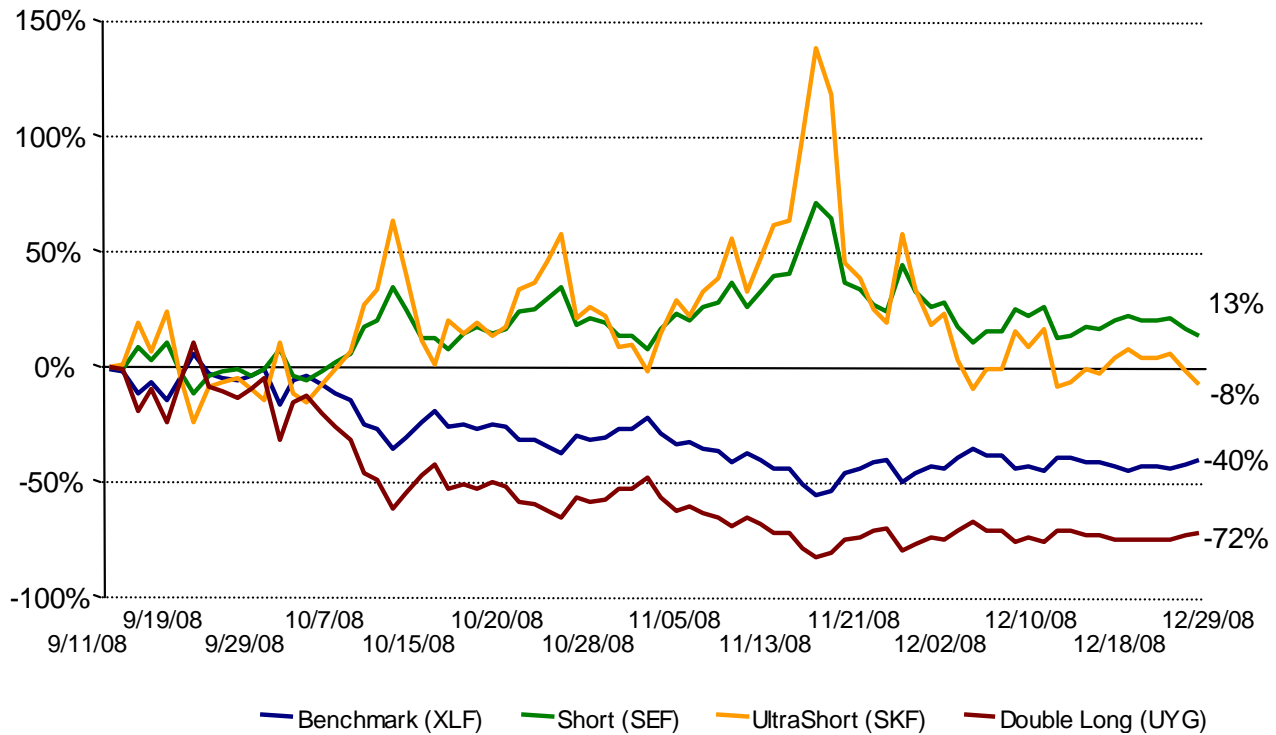
At the risk of beating a dead horse, I want to present one more real-life demonstration of how leverage and daily compounding can distort the returns of the buy-and-hold investor. This time we are looking at the financial sector from 9/12/08 through 12/31/08. As seen below, our benchmark for the financial sector (Financial SPDR – XLF) was down 40% over this time period. Over that same time, the UltraShort Financial ProShares (SKF) ETF was down 8% while providing twice the inverse of the daily return of the financial sector.

Just prior to the collapse of Lehman, going short the financial sector would have been a good strategy. (It is so easy in hindsight!) However had an investor selected to buy and hold the double short financial sector ETF to express this view, they would have been disappointed by the execution.

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Financial ETFs



Other Concerns

Hopefully, by this point, I have driven home the effects of leverage and compounding daily returns to the buy-and-hold investor. Before moving on to the conclusion I want to highlight a few other characteristics of inverse and leveraged ETFs:

First, they tend to be on the expensive end of the ETF cost spectrum. The average ETF charges 58 bps (bps stands for basis points; one basis point is 0.01%.) in expenses. Inverse and leveraged ETFs offered by ProShares and Direxion charge 90-95 bps. Those offered by Rydex are in the 70 bps ballpark.

Second, while I am by no means a tax specialist, I do have a warning concerning taxes. These ETFs use swaps and other derivative products to gain the inverse or leveraged exposures they target. These derivative products can generate significant capital gains. For example, the Short S&P 500 ProShares (SH) distributed roughly \$12 in short term gains in December 2008. This was 14% of the fund at the time! While ETFs tend to be more tax efficient than mutual funds, it is not a blanket statement that can be applied across the board.

Finally, as with all ETFs, there are varying levels of liquidity among the inverse and leveraged ETFs. The less actively traded ETFs can (and do) trade at wider bid-ask spreads and can deviate from NAV at times.

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To be avoided at all costs?

Certainly these ETFs are not for everyone but I am not going to condemn them outright. They can serve a role in a portfolio to maintain market exposure or hedge positions. The short ETFs in particular, can make it easier to express a short view without a margin account or the other costs and risk associated with shorting individual securities. The inverse and leveraged ETFs provide more options to express an investment outlook – and as an investor I like more options.

These can be effective investment vehicles if used as intended – as a trading vehicle, held for hours or days rather than weeks, months or years. As demonstrated above, the effects of leverage and compounding can result in potentially surprising returns over time for the buy-and-hold investor. ETFs are often advertised as simple and transparent but, as with any investment, it is important to understand how the vehicle intends to perform (so called “looking-under-the-hood”) and to set appropriate expectations.

-- Jeff DeMaso, Research Analyst