Overview

A leveraged exchange-traded fund (ETF) is a financial instrument that seeks to deliver a daily return\(^1\) that is a multiple of the return of an underlying index, while an inverse ETF seeks to deliver a daily return equal to the opposite of the return of an underlying index. For example, a 2x leveraged ETF may seek to deliver double the daily returns of the S&P 500 Index, while an inverse ETF may seek to deliver the opposite of the daily returns of the S&P 500 Index. An ETF may be both leveraged and inverse, meaning that it seeks to deliver daily returns that are a multiple of the opposite of the underlying index’s daily return.

\(^1\) Here and elsewhere in this paper, “returns” refers to percentage returns.
The first issuance of leveraged and inverse ETFs in the United States included 12 funds issued in June 2006 by ProFunds Group. Since then, this class of ETFs has experienced substantial growth—by the end of June 2009, there were about 120 leveraged and inverse ETFs holding over $30 billion in assets. These types of securities have expanded to include funds that track currencies, commodities, and bonds. In the first seven months of 2009 alone, leveraged and inverse ETFs saw net cash inflows of over $20 billion even after regulatory actions likely decreased investor interest. Some leveraged and inverse ETFs are now among the most highly traded securities in the stock market. The Wall Street Journal noted that Direxion’s Financial Bear 3X ETF experienced transactions of 23 million shares on 25 February 2009 "on only two million shares outstanding—implying an average holding period of less than 34 minutes."

Perhaps due to the recent market turmoil, leveraged and inverse ETFs have become a popular tool for investors to hedge their positions or gain greater exposure to index movements.

Recent Developments

In June 2009, the Financial Industry Regulatory Authority (FINRA) issued a Regulatory Notice to remind brokers and securities firms of their “sales practice obligations relating to leveraged and inverse exchange-traded funds.” Citing the daily rebalancing feature of these securities, FINRA stated that they are “typically… unsuitable for retail investors who plan to hold them for longer than one trading session, particularly in volatile markets.” Although FINRA followed up with a 13 July 2009 podcast that stated that a “sophisticated trading strategy that will be closely monitored by a financial professional… might require a leveraged or inverse ETF to be held longer than one day,” regulators and financial institutions remain concerned about retail investor suitability. Several financial institutions have since issued their own warnings or restricted their sales of leveraged and inverse ETFs. On 31 July 2009, Massachusetts regulators sent subpoenas to four financial institutions—Ameriprise Financial Inc., LPL Financial Corp., Edward Jones, and UBS AG—seeking information on how these products are marketed to investors.

3 State Street Global Advisors as cited in “Subpoenas Put Pressure on ETFs With Twist,” Wall Street Journal, 1 August 2009.
6 FINRA Regulatory Notice 09-31, June 2009.
7 For example, financial institutions that have issued warnings include Fidelity and Charles Schwab, and financial institutions that have restricted sales include Morgan Stanley Smith Barney, UBS AG, and Wells Fargo Advisors.
8 “Subpoenas Put Pressure on ETFs With Twist,” Wall Street Journal, 1 August 2009.
On 18 August 2009, the Securities and Exchange Commission (SEC) and FINRA issued a joint alert because they “believe[d] individual investors may be confused about the performance objectives of leveraged and inverse exchange-traded funds.” The SEC and FINRA stated that while leveraged and inverse ETFs have daily performance objectives, some investors may have the “expectation that the ETFs may meet their stated daily performance objectives over the long term as well.” Following this, on 31 August 2009, FINRA issued a notice that effective 1 December 2009, it is increasing margin requirements for investors using margin to purchase leveraged ETFs.

**The Controversy Over Rebalancing**

The controversies surrounding leveraged ETFs involve the fact that with any approach to leveraged investing, if the exposure to the underlying investment isn’t adjusted periodically, the degree of leverage changes as returns are generated. For example, an investor can achieve an initial 2x leverage in a margin account by investing $5,000 of equity and borrowing an additional $5,000 in order to purchase $10,000 worth of securities. Suppose that the $10,000 worth of exposure experiences a return of 10% over the next month, or $1,000, meaning that the gross value of the securities increases to $11,000, while the equity in the account increases to $6,000. The leverage in the account is now equal to $11,000 divided by $6,000, which is approximately 1.83x, while the cumulative return on the equity in the account to date still reflects the original leverage ratio of 2x, and is equal to 20% ($1,000/$5,000).

This investor now has a choice—ignore the changing leverage ratio in order to preserve the expected cumulative return ratio at 2x, or rebalance the portfolio by purchasing more securities. Suppose that the account, which now has $6,000 in equity and $11,000 of exposure, is not rebalanced, and subsequently experiences another 10% return over a second month. The exposure in the account increases to $12,100 (equal to a 10% increase on the $11,000 of exposure), while the equity in the account increases to $7,100 (equal to the initial $5,000 in equity plus the returns of $1,000 and $1,100 over the two months). The leverage ratio further decreases to 1.7x ($12,100/$7,100). The return on the initial exposure of $10,000 is 21% ($12,100 represents a 21% increase from $10,000), while the return on the equity, at 42% ($7,100 represents a 42% increase from $5,000), is twice the return on the $10,000 exposure.

However, consider the return on the equity in the account over only the second month. The $1,100 increase in equity divided by the $6,000 value of the equity at the beginning of the second month implies a return of 18.3%, which is equal to the leverage ratio of 1.83x at the end of the first month multiplied by the 10% return on the exposure in the account over the second month. One investor might be pleased with the fact that his/her equity in the account has yielded twice the 21% return on the initial $10,000 in exposure over the two months. Another investor might well wonder why his/her return on the equity in the account over the second month has only yielded 1.83x times the 10% return on the exposure in the account over the second month.

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9 Similarly, a decrease in value of the securities will generally lead to a higher leverage ratio, due to the fact that the initial $5,000 of equity in the account will initially experience greater (specifically 2x) negative returns than the returns on the entire $10,000 worth of securities.
Suppose instead that the same account is rebalanced by purchasing an additional $1,000 of securities through borrowed funds, leaving the equity at $6,000, but increasing the exposure to $12,000. This preserves the original leverage ratio of 2x. Assuming the account experiences the same 10% return over the second month, the exposure in the account would increase to $13,200 (equal to a 10% increase on the $12,000 of exposure), while the equity in the account increases to $7,200 (equal to the initial $5,000 in equity plus the returns of $1,000 and $1,200 over the two months). The return on the equity over the second month is equal to the $1,200 gain in equity divided by the $6,000 initial equity, which is 20%, or twice the 10% return on the account exposure.

The examples above illustrate a trade-off between preserving the initial leverage ratio and maintaining the cumulative return ratio. Contrary to recent negative press about leveraged ETFs, however, there are advantages and disadvantages to either decision.

The chart below demonstrates that actual leveraged ETF returns may yield returns closer to the desired degree of leverage from period to period than a margin account that ignores rebalancing. In this example, an investor who chose a strategy involving a simple margin account without rebalancing will experience returns in the second half of the period that are substantially less than twice the returns on the underlying index, while an investor who purchased an actual leveraged ETF will experience returns in both sub-periods that are close to twice the index return.

Intuitively, this can be explained by referring to the previous example illustrating that when the market rises, the leverage ratio decreases. Rebalancing has the effect of increasing the margin on the account so that the leverage ratio is restored.

Further, though beyond the scope of this piece, a margin account that experiences substantial negative returns will lead to sharp increases in the degree of leverage, potentially resulting in a margin call. Though some recent press has criticized leveraged ETFs for failing to achieve desired returns during the recent market crash in late 2008, this argument ignores the fact that many leveraged ETFs may have benefited some investors by lowering their degree of leverage as the market fell.

Note that the return on the simple margin account over the first half of the period is equal to exactly twice the index return—this is the case because the initial leverage ratio at the beginning of the period was exactly 2x. The act of rebalancing effectively resets the return ratio, ensuring returns equal to the rebalanced leverage ratio over the forthcoming period until the next time the account is rebalanced.
The simple margin account example ignores rebalancing, which means that as the market index experiences positive returns, the leverage ratio decreases, leading to returns that are less than twice the index returns in subsequent periods. A leveraged ETF, which typically rebalances daily, yields returns that are much more in line with the desired leverage ratio in future periods.

Though each account may be more or less advantageous than the other under various circumstances, the leveraged ETF approach of rebalancing daily is more consistent with the objectives of an investor who desires to maintain a specific degree of leverage while invested in the leveraged ETF.
The Impact of Recent Market Turmoil

Further complicating matters, recent longer-term deviations of cumulative returns on leveraged and inverse ETFs from their underlying indices (adjusted for their stated leverage ratios) are likely the result of unforeseen and unusually high volatility caused by the recent financial crisis. In fact, prior to the market crash in late 2008, the average month-long deviation for one particular leveraged ETF, the ProShares Ultra S&P 500 ETF, was 0.27%, far below recent deviations that have led to recent complaints regarding these securities.

The chart below tracks historical differences in cumulative returns between a simple margin account that ignores rebalancing with an initial leverage ratio of 2x and the ProShares Ultra S&P 500 ETF by purchase date from its inception in June 2006 through August 2009. The data suggest that the deviation in returns between these two strategies has increased following the market turmoil of late 2008 and is likely the catalyst for recent controversies involving leveraged and inverse ETFs.

Exhibit 2. ProShares Ultra S&P 500 ETF
Disputes and Litigation

Between 1 August and 30 September 2009, a number of class action lawsuits were filed against issuers of leveraged inverse ETFs. These lawsuits generally allege false and misleading statements in the registration statements of the securities at issue. The lawsuits include allegations that the relevant registration statements failed to disclose that inverse correlation between an inverse leveraged fund and the underlying index over time was an extremely rare occurrence, and that the funds at issue deceived investors into believing that their desired exposure was attainable. These lawsuits also allege that the inverse leveraged funds increase market volatility and cause dislocations in related markets.

Broker-dealers who sold these securities to their customers are also coming under scrutiny. Securities law firm Klayman & Toskes, P.A. announced on 5 August 2009 that it was pursuing an investigation of retail brokerage firms relating to their sales of leveraged and inverse ETFs,12 and Massachusetts regulators issued subpoenas to four financial institutions for the same reason.

What’s Next?

Considerable misconceptions regarding the nature of leveraged and inverse ETFs have surfaced recently in the popular press, much of it lacking empirical and theoretical support. Recently filed lawsuits against issuers of these securities have further involved allegations that have not been fully supported, including guaranteed losses over the long term and extreme magnification of volatility in the market.

A consensus on the return characteristics and suitability of leveraged and inverse ETFs for retail investors has also yet to be formed. Opinions have been expressed at one extreme that these securities are absolutely inferior to other leveraged investing methods, such as margin accounts or purchasing derivative securities directly. Other research and analyses suggest that these securities can be an appropriate vehicle for properly informed investors. As with many other instances of recent financial innovation, it remains to be seen whether the recent controversy over leveraged and inverse ETFs will eventually prove to be an unfortunate byproduct of the financial crisis, or the result of an ill-designed security exposed by the same.

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