

Longer-Term Strategies for Geared ETFs

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Put a View on Volatility into Action

Geared—also known as leveraged and inverse—ETFs are generally used as short-term tactical tools, because most have daily performance objectives. However, this issue of Strategy Insights outlines two strategies that may allow sophisticated investors to benefit from longer term positions in these funds when markets are rising.

Strategy #1: Rising, Low Volatility Market—
Buy a Leveraged ETF

Strategy #2: Rising, Choppy Market—
Short an Inverse ETF

The goal of a typical leveraged or inverse fund is to return a multiple of an index for a single day. For any longer period, the return may be more or less than that multiple because of the mathematics of compounding. In some market scenarios, sophisticated investors may seek to take advantage of compounding to potentially enhance returns.

This issue illustrates how leveraged and inverse funds can be employed in rising market scenarios to seek to benefit from low or high volatility. Of course, these strategies are not suitable for all investors. Only sophisticated investors who understand how geared funds perform over time and who are prepared to be actively engaged in monitoring their investments should consider using geared ETFs for longer periods. To learn more about geared fund investing, visit proshares.com.

Strategy #1: Buy a Leveraged ETF in Rising, Low Volatility Markets

When You Expect:

- Low volatility and upward-trending markets

Strategy:

- Buy a 2x leveraged ETF for returns potentially higher than two times the benchmark return over time

Risks:

- Falling markets or high volatility could result in magnified losses
- ETFs have numerous specific risks; consult a prospectus for more details

A Look at the Numbers

When a leveraged fund with a daily objective is held for longer than one day, compounding can boost returns in strongly rising, low volatility markets. This is illustrated in **Table 1**, where a mathematical formula was used to estimate 2x index returns reset daily, isolating the effects of compounding at various volatility and return levels for a six-month period. The ratios in the table measure the extent to which the leveraged returns may be greater or less than the daily multiple (2x in this case) of benchmark returns. For example, a return ratio of 2.2 implies a leveraged return of 2.2 times the benchmark return. This example does not include other factors, like fees, expenses and transaction costs that would affect a fund's performance.

As we see in the green-shaded area of **Table 1**, when index returns climb and volatility remains relatively low, return ratios can match or exceed the 2x multiple. This is because compounding has a positive effect on returns in this market environment and leverage magnifies that effect. When volatility climbs, return ratios are less than the 2x multiple. Of course, an incorrect outlook on market return or volatility could result in losses.

See the back page for important information about the calculations in the table.

Table 1: Ratios of Estimated 2x Leveraged Returns to Index Returns in Rising Markets

		Six-Month Volatility (Annualized)											
		5%	10%	15%	20%	25%	30%	35%	40%	45%	50%	55%	60%
Six-Month Index Return	40%	2.4	2.4	2.3	2.3	2.2	2.2	2.1	2.0	1.9	1.8	1.7	1.6
	35%	2.3	2.3	2.3	2.2	2.2	2.1	2.0	1.9	1.8	1.7	1.6	1.5
	30%	2.3	2.3	2.2	2.2	2.1	2.1	2.0	1.9	1.8	1.6	1.5	1.4
	25%	2.2	2.2	2.2	2.1	2.1	2.0	1.9	1.8	1.6	1.5	1.4	1.2
	20%	2.2	2.2	2.1	2.1	2.0	1.9	1.8	1.6	1.5	1.4	1.2	1.0
	15%	2.1	2.1	2.1	2.0	1.9	1.8	1.6	1.5	1.3	1.1	0.9	0.7
	10%	2.1	2.0	2.0	1.9	1.7	1.6	1.4	1.2	0.9	0.7	0.4	0.1
	5%	2.0	1.9	1.8	1.6	1.4	1.1	0.7	0.4	(0.1)	(0.5)	(1.1)	(1.6)

■ Leveraged Return ≥ Two Times the Index Return

□ Leveraged Return < Two Times the Index Return

This table is hypothetical and for illustrative purposes only. It does not represent actual investment or index returns. The illustration excludes fees, expenses and transaction costs which would reduce returns. The position is held and not adjusted throughout the period.

Strategy #2: Short an Inverse ETF in Rising, Choppy Markets

When You Expect:

- Choppy, highly volatile but somewhat positive market conditions

Strategy:

- Sell short a -2x ETF for returns potentially higher than two times the benchmark return over time

Risks:

- If the market falls, losses could be magnified with leverage
- Short selling has its own set of risks, including the potential for unlimited losses
- ETFs have numerous specific risks; consult a prospectus for more details

A Look at the Numbers

As in our first trading strategy, the market is rising. But what if volatility is high? In a choppy environment, 2x leveraged return ratios (**Table 1**) might be positive but less than two times the index return, as seen in the white boxes on the right side of the table. In this case, you could attempt to exceed the 2x multiple by employing Strategy #2, which involves selling short an inverse fund under rising but choppy conditions. (Short selling an inverse fund creates positive exposure to the benchmark.)

Table 2 shows estimated ratios based on a mathematical calculation of “short selling” -2x index returns reset daily for a six-month period compared to index returns for the period. This example

does not include other factors, like fees, expenses and transaction costs that would affect a fund’s performance.

As we see in the green-shaded area, in a positive return, highly volatile environment these estimates may produce return ratios equal to or greater than two times the index return. Of course, short selling has its own set of risks, and losses from short selling are potentially unlimited.

See the back page for important information about the calculations in the table.

Ratios of Estimates for "Short Selling" -2x Returns to Index Returns in Rising Markets

		Six-Month Index Volatility (Annualized)											
		5%	10%	15%	20%	25%	30%	35%	40%	45%	50%	55%	60%
Six-Month Index Return	40%	1.2	1.2	1.3	1.3	1.3	1.4	1.4	1.5	1.6	1.6	1.7	1.8
	35%	1.3	1.3	1.3	1.4	1.4	1.5	1.6	1.6	1.7	1.8	1.9	1.9
	30%	1.4	1.4	1.4	1.5	1.5	1.6	1.7	1.8	1.9	2.0	2.1	2.2
	25%	1.4	1.5	1.5	1.6	1.7	1.8	1.9	2.0	2.1	2.2	2.4	2.5
	20%	1.5	1.6	1.6	1.7	1.8	2.0	2.1	2.3	2.4	2.6	2.8	3.0
	15%	1.6	1.7	1.8	1.9	2.1	2.3	2.5	2.7	2.9	3.2	3.5	3.7
	10%	1.8	1.9	2.0	2.2	2.5	2.8	3.1	3.5	3.9	4.3	4.8	5.2
	5%	1.9	2.1	2.5	2.9	3.5	4.2	4.9	5.7	6.6	7.5	8.5	9.4

■ Short Selling Results ≥ Two Times the Index Return □ Short Selling Results < Two Times the Index Return

This table is hypothetical and for illustrative purposes only. It does not represent actual investment or index returns. The illustration excludes fees, expenses and transaction costs which would affect returns. The position is held and not adjusted throughout the period.

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About ProShares

ProShares is the world's largest manager of leveraged and inverse ETFs.* Our 112 ETFs provide exposure to U.S. and foreign equities, fixed-income, commodities, and currency benchmarks. To learn more about our Short, Ultra and Alpha ETFs, visit us online at proshares.com or call 866.776.5125.

*Source: Lipper, based on a worldwide analysis of all of the known providers of funds in these categories. The analysis covered ETFs, ETNs, and mutual funds by the number of funds and assets (as of 6/30/2010).

Understanding the Risks

Investors with a point of view about market direction and index volatility can design strategies to attempt to take advantage of compounding by holding leveraged and inverse funds for longer holding periods. If your view about volatility or index movement is incorrect, losses can be magnified with Strategy #1, and, as with most shorting strategies, potentially unlimited with Strategy #2. Investors using these or any other longer-term strategies involving leveraged and inverse funds should monitor their positions closely.

How the Estimated Ratios Were Calculated

The estimated ratios in Tables 1 and 2 were created using a mathematical formula for geared fund returns based on time, volatility, and index returns. To isolate the effects of compounding at various volatility and return levels, we did not include fees, expenses or transaction costs, which would affect the returns. Keep in mind that other factors could affect fund returns, such as the fund not meeting its daily objective, inability to trade shares or other unforeseen events. Table 1 reflects 2x index returns reset daily over a six month period; in Table 2 the opposite of -2x index returns was used as a basis for the ratios.

Volatility represents the degree of fluctuation in the returns of an index. It is typically calculated using standard deviation, a statistical measure that captures the range, or variability, of returns around a mean (average).

The following references include more information on the mathematics behind compounded returns for geared funds.

Maneesh Deshpande, Rohit Bhatia. *"Leveraged ETPs: Myths & Reality,"* Barclays Capital Equity Research, November 17, 2009.

Joanne Hill, George Foster. *"Understanding Returns of Leveraged and Inverse Funds,"* Journal of Indexes, September/October 2009.

"Inverse and Leveraged ETF Primer," Morgan Stanley Quantitative and Derivative Strategies, October 11, 2010.

Phil Mackintosh and Victor Lin. *"Longer Term Plays on Leveraged ETFs,"* Credit Suisse Portfolio Strategy, April 12, 2010.

William J. Trainor Jr., Ph.D., CFA. *"The Effect of Time, Trend, Volatility, and Leverage on Relative Returns,"* East Tennessee State University, December 2009.



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