ProShare Advisors LLC

Leveraged and Inverse ETFs:
Trends, Strategies, and Return Dynamics

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Joanne M. Hill, Head of Investment Strategy

Agenda

- **The Expanding World of ETFs: Driven by Use as a Hybrid Trading & Fund Management Product**
- **Focus on Leveraged and Inverse Funds: Profile and Recent Flows**
- **Holding Leveraged and Inverse Funds Over Time: Understanding Returns**

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The Expanding World of ETFs:

Driven by Use as a Hybrid Trading and Fund Management Product

Drivers of ETF growth in the current investment environment

Strategic growth factors are shared by institutional and individual investors

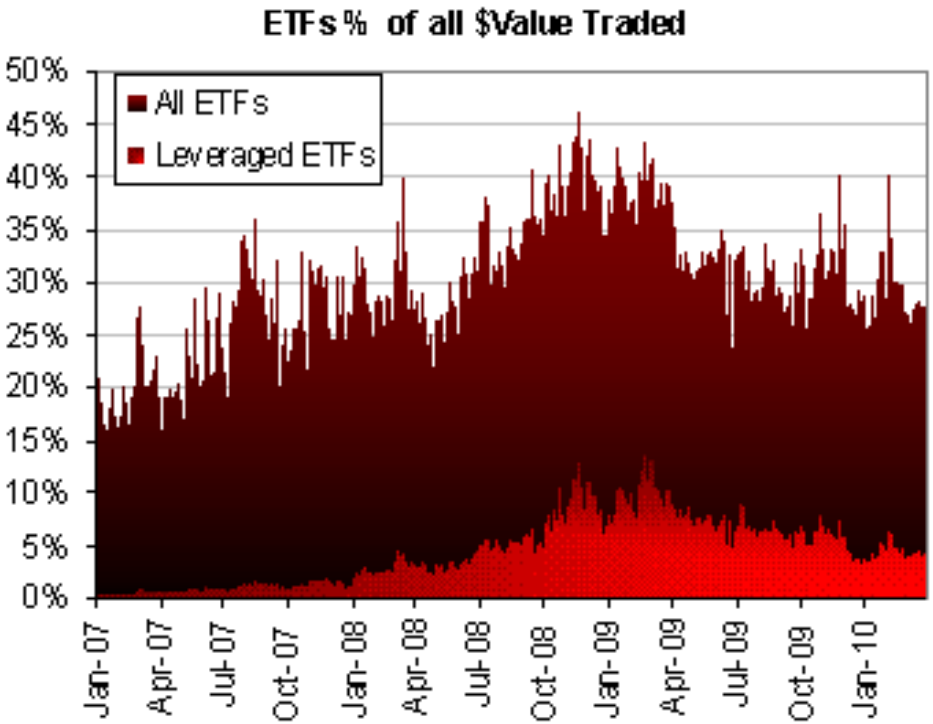
- Increased focus on asset classes and market segments rather than individual stocks
- Broader choice set of tradable indexes for expressing investment views, risk management, and cash equitization
- Recognition that portfolio strategies must be more opportunistic and adaptive to shifts in market risk
- More of an absolute return focus

Unique ETF features have contributed to higher pace of growth vs. mutual funds

- **Fund features valued by institutions and individual investors**
  - Transparency in pricing and trading activity
  - Operational efficiencies of buying and shorting like a stock
  - Access via exchanges and facilitation from dealer capital
  - Ongoing arbitrage activity; daily creation and redemption process
- **Financial advisors and individuals**
  - Greatly expanded and more liquid choices for expressing long and short views, hedging, using leverage
  - Access during trading day versus only at close for mutual funds
  - Competitive fees
  - Tax efficiency

Liquidity features of ETFs are a key driver of asset growth

- **Short-term trading tools**
  - Approaching 30-40% of overall U.S. equity volumes[1]
- **Heavy institutional use**
  - Estimated that 40-50% of assets held by institutions and a much larger portion of trading activity[2]

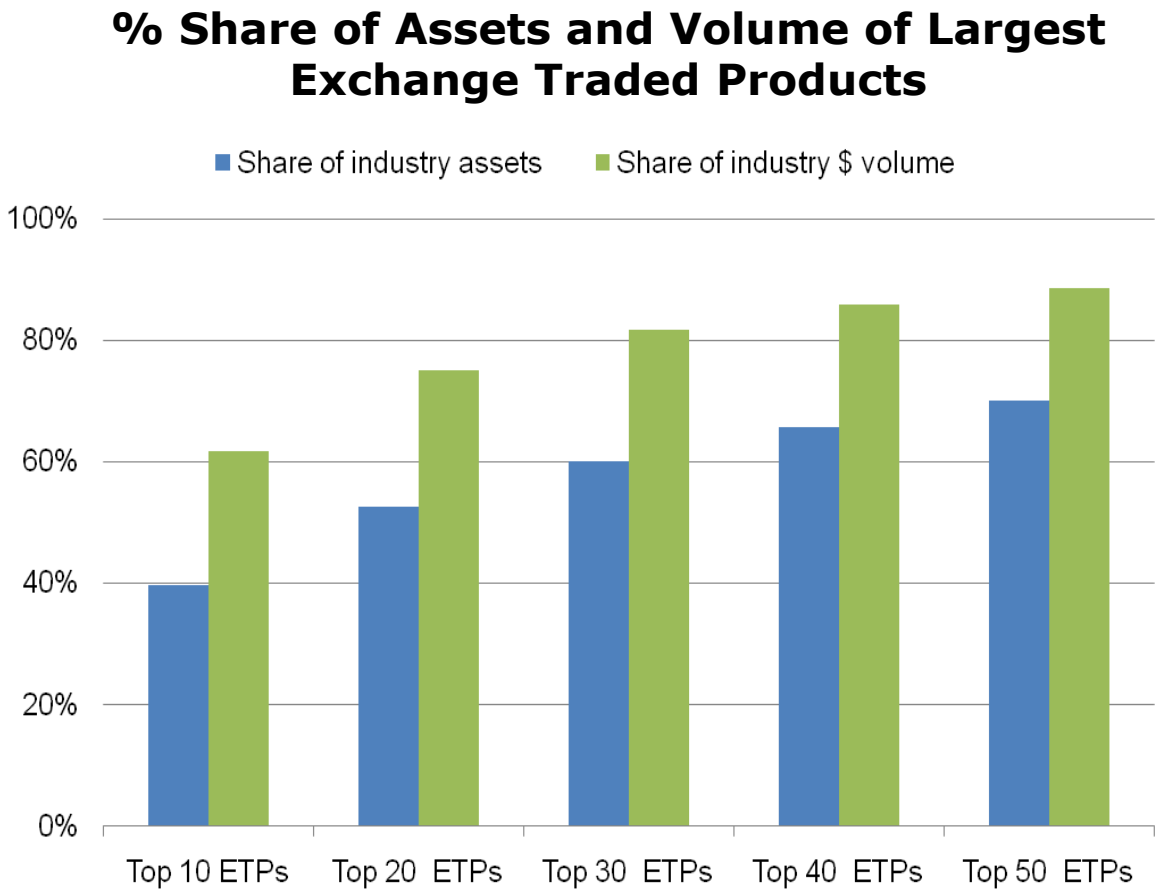


Source: Credit Suisse: Portfolio Strategy, April 5, 2010

Source: [1] Bloomberg
[2] 2009 Strategic Insight report
Past performance does not guarantee future results.

A surprising degree of concentration across ETFs

- A small number of ETFs dominate assets and trading
- BUT, most product expansion is outside of equities and in more specialized and narrowly-focused index strategies



Source: Bloomberg, March 2010

Past performance does not guarantee future results.

Largest ETFs are valued for both investment and trading features

- The list includes widely used equity indexes but also gold, TIPS, and corporate debt
- A wide range of ratios of $Assets to Daily $Volume
- The average ratio of $Asset/Volume across all ETFs has recently been approximately 10 days

Largest long-only ETFs

Ticker	ETF Name	Assets (m)*	$Assets/ Daily Volume
SPY	SPDR S&P 500	$77,824	4.0
GLD	streetTRACKS Gold	$40,504	24.4
EFA	iShares MSCI EAFE	$35,735	19.4
EEM	iShares MSCI Emerging Markets	$35,099	4.9
VWO	Vanguard Emerging Markets	$22,920	19.2
IVV	iShares S&P 500	$22,782	56.0
QQQQ	PowerShares QQQ	$20,917	2.2
TIP	iShares Barclays TIPS	$20,128	170.0
VTI	Vanguard Total Stock Market	$14,425	67.9
IWM	iShares Russell 2000	$13,244	2.2

Source: Bloomberg, March 2010

Past performance does not guarantee future results.

ETF flows vary with market themes and investors' risk appetite

In 2009, interest included:

- Commodities (gold and natural gas) and emerging markets
  - Strong returns and diversification potential
- Fixed-income (corporate, and inflation-hedged) inverse S&P 500 and financial sectors
  - Risk reduction, income, and tactical asset class views

Top ETF asset gainers in 2009*

Ticker	ETF Name	YTD Flows	$Assets/ Daily Volume
GLD	streetTRACKS Gold Shares	$11,095	27.9
VWO	Vanguard Emerging Markets	$9,310	53.8
TIP	iShares Barclays TIPS	$8,860	130.4
EEM	iShares MSCI Emerging Markets	$5,791	13.3
UNG	United States Natural Gas	$5,297	10.3
LQD	iShares iBoxx $ Investment Grade	$4,830	108.6
CSJ	iShares Barclays 1-3 Year Credit	$3,937	77.2
FAZ	Direxion Daily Financial Bear 3x Shares	$3,382	0.8
BND	Vanguard Total Bond	$3,211	132.5
SDS	ProShares UltraShort S&P500	$2,963	1.9

* Source: Bloomberg, December 2009

Past performance does not guarantee future results.

QI 2010 ETF flows continue be tilted toward emerging markets and fixed-income

- Continuation of flows into emerging market equities and fixed-income funds
- New on list of top 10 flows in Q1 2010:
  - High yield bond ETFs (JNK) and VIX Futures ETN (VXX)
  - Equities: QQQQ, industrial sector (XLI), and dividend-tilted indexes (VIG)
- Off the list are gold, natural gas, corporate bond, and inverse financial sector and S&P 500 ETFs

Top ETF asset gainers in 2010*

Ticker	ETF Name	YTD Flows	$Assets/ Daily Volume
VWO	Vanguard Emerging Markets	$2,903	19.2
SHV	iShares Barclays Short Treasury Bond	$1,840	67.3
TIP	iShares Barclays TIPS	$1,586	170.0
QQQQ	PowerShares QQQ	$1,346	2.2
CSJ	iShares Barclays 1-3 Year Credit Bond	$1,068	125.6
BND	Vanguard Total Bond Market	$859	107.7
VXX	iPath S&P 500 VIX Short-Term Futures ETN	$830	1.8
JNK	SPDR Barclays Capital High Yield	$815	22.5
XLI	Industrial Select Sector SPDR	$775	2.6
VIG	Vanguard Dividend Appreciation	$771	62.9

* Source: Bloomberg, March 2010

Past performance does not guarantee future results.

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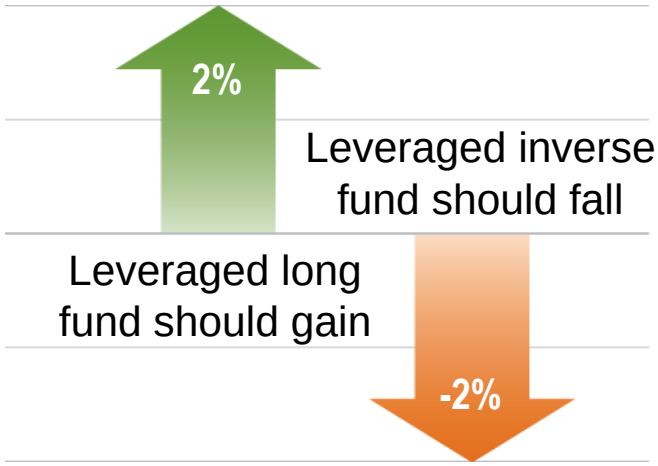
Focus on Leveraged and Inverse Funds:

Profile and recent flows

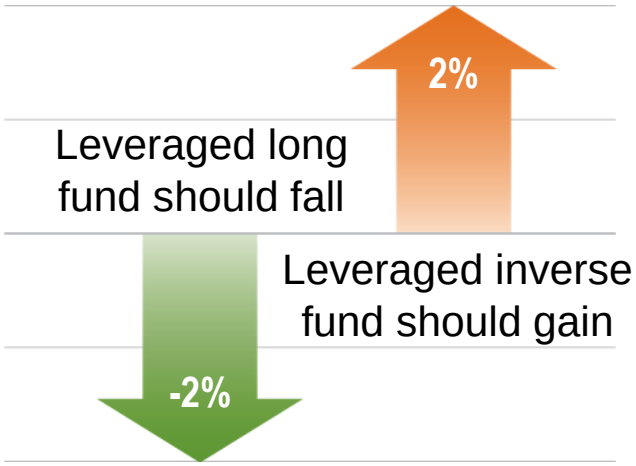
What are leveraged & inverse ETFs?

Example Using +2x and -2x ETFs

Up Day
(Index up 1%)



Down Day
(Index down 1%)



The ETFs seek a daily return that is a multiple of the return of the index (target). Due to compounding of daily returns, results over periods other than a day will likely differ in amount and possibly direction from the target return for the same period.

Before fees and expenses. There is no guarantee an ETF will meet its objective.

Leveraged and inverse funds and ETFs: History and profile

- **Leveraged and inverse mutual funds introduced in 1993**
  - Grew to over 100 funds with $10 billion in assets
  - ETFs introduced in 2006 in the U.S.
- **Today more than 178 U.S. traded ETFs have assets > $31 billion with daily volume of > $18 billion**
  - A wide range of leveraged and inverse funds spanning a variety of asset classes and market segments
    - Global equity indexes
    - Developed and emerging market country equity indexes
    - Style, sector and industry equity indexes
    - Fixed-income (U.S. Treasury indexes)
    - Commodities
    - Currencies

Source: Bloomberg, March 2010

Why they're valued

- **Efficient tool for investors with a view of the market**
- **Can trade and follow like a stock**
- **Can't lose more than you invest**
- **Institutional pricing**
- **Transparent**
- **Liquid**

How they're used

- **Tactical tools like other ETFs**
- **Component of overall portfolio strategy**
  - Target exposure with less cash
  - Overweight or underweight exposure
  - Help manage overall portfolio risk or seek to hedge specific risk exposures

Largest leveraged and inverse ETFs

- Represent a mixture of fixed-income, equity and sector exposures
- More than $6 billion allocated toward the S&P 500 alone
  - Over 75% of which is weighted toward inverse exposure
- Sizable allocation toward hedging against threat of rising Treasury yields
- Select sectors such as financials and real estate continue to be of interest

Largest Leveraged & Inverse ETFs

Ticker	ETF Name	Assets (m)*	$Assets/ Daily Volume
TBT	ProShares UltraShort 20+ Year Treasury	$4,635	7.4
SDS	ProShares UltraShort S&P500	$3,242	0.9
UYG	ProShares Ultra Financials	$1,844	1.1
SSO	ProShares Ultra S&P500	$1,499	0.8
SH	ProShares Short S&P500	$1,489	6.6
FAZ	Direxion Daily Financial Bear 3x Shares	$1,232	0.2
QID	ProShares UltraShort QQQ	$919	0.6
FAS	Direxion Daily Financial Bull 3x Shares	$889	0.3
QLD	ProShares Ultra QQQ	$843	1.1
SRS	ProShares UltraShort Real Estate	$587	0.4

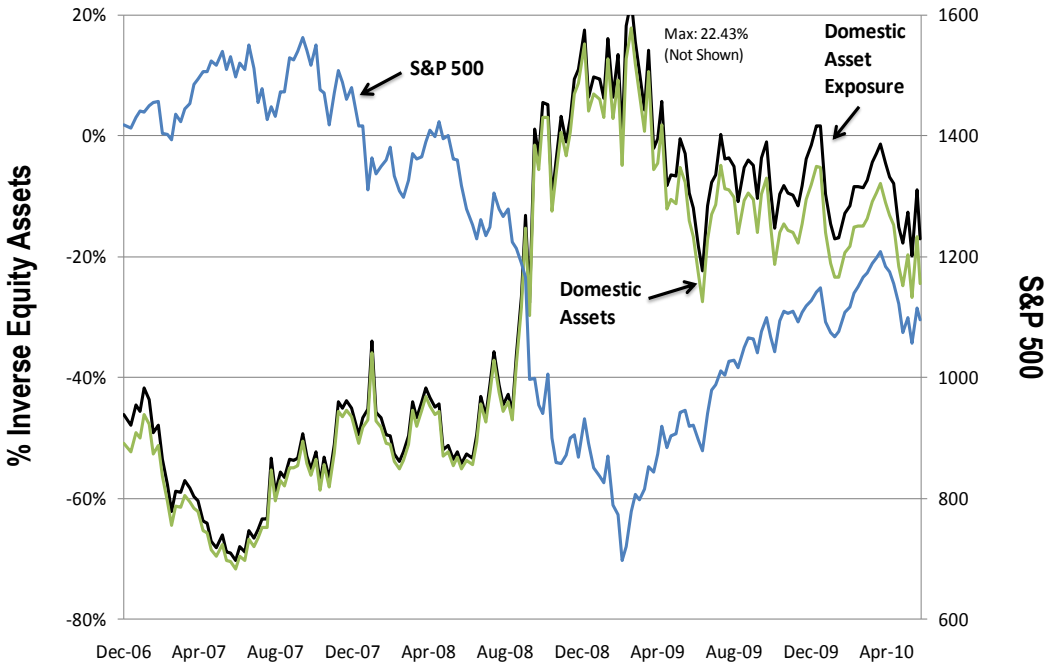
Source: Bloomberg, March 2010

Past performance does not guarantee future results.

Short bias has been in line with or just ahead of market trends

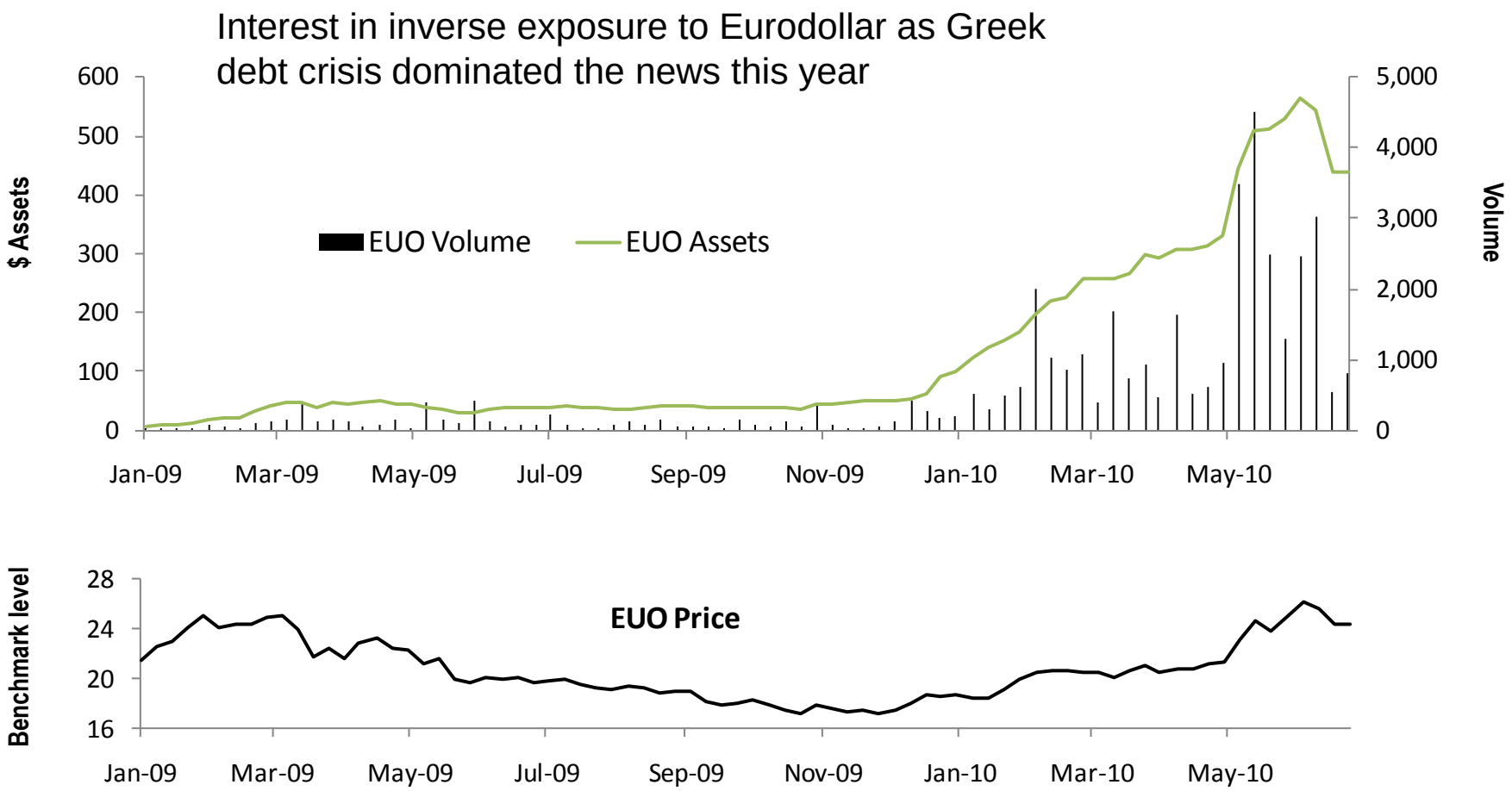
- Consistent with their appeal as efficient ways to express market views and help manage risk
- Pattern in line with S&P 500 through early 2009
  - **Through July 2008**: Inverse funds were clearly dominant
  - **February 2009**: Peak in long assets at 50%
  - **March 2009–2010**: Steady assets and exposure as S&P 500 has continued to rebound

ProShares Domestic Equity Assets & Asset Exposure vs. S&P 500



Source: ProFunds Group, December 29, 2006 – June 22, 2010. For illustrative purposes only. **Past performance does not guarantee future results.**

Market conditions can lead to sudden surge in trading and assets



Source: ProFunds Group, January 2009 – March 2010. For illustrative purposes only.
Past performance does not guarantee future results.

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Holding Leveraged and Inverse Funds Over Time:

Understanding Returns

Understanding returns over time

- **The universal effects of compounding**
- **Performance over periods greater than a day**
- **The value of monitoring and rebalancing**

Example of compounding on indexes and leveraged funds

	INDEX	2x FUND
	Daily Return	Daily Return
UPWARD TREND		
Day 1 Return	+10%	+20%
Day 2 Return	+10%	+20%
Compounded 2-day Return	+21%	+44%
DOWNWARD TREND		
Day 1 Return	-10%	-20%
Day 2 Return	-10%	-20%
Compounded 2-day Return	-19%	-36%
VOLATILE MARKET		
Day 1 Return	+10%	+20%
Day 2 Return	-10%	-20%
Compounded 2-day Return	-1%	-4%

For illustrative purposes only. The example does not take into account any fees or costs associated with an investment in the funds. Actual investment returns may vary in amount and direction from the stated objective.

The universal effects of compounding

- **Compounding affects all investments over time**
  - Upward trending periods enhances returns
  - Downward trending periods reduces losses
  - Volatile periods may reduce returns and increase losses
- **Positive and negative effects of compounding are magnified in leveraged and inverse funds**

Performance over time study

- **Research study published in *The Journal of Indexes***
- **Studied 50 years of data covering all possible 2, 7, 30, 91, and 183 day holding periods for leveraged and inverse versions (+2x and -2x) of selected indexes**
- **Compared returns for +2x and -2x Daily Objective Strategies to +2x and -2x index returns for the holding periods studied**
- **Index return history**
  - S&P 500® from 1958 – 2008
  - NASDAQ-100 from 1985 – 2008
  - Dow Jones U.S. Financial and Energy sectors from 1992 – 2008

Source: Understanding Returns of Leveraged and Inverse Funds, *Journal of Indexes*, September/October 2009

Daily Objective Strategy returns often close to fund multiple

+2x S&P 500 Daily Objective Strategy Returns: Frequency of Realized Multiples between 1.50 to 2.50					
Multiple Range	**2-Day**	**7-Day**	**30-Day**	**91-Day**	**183-Day**
1.50 to 2.50	99.6%	98.1%	94.7%	90.9%	90.1%
Negative or "flipped"	0.0%	0.2%	0.7%	1.1%	1.2%

-2x S&P 500 Daily Objective Strategy Returns: Frequency of Realized Multiples between -1.50 to -2.50					
Multiple Range	**2-Day**	**7-Day**	**30-Day**	**91-Day**	**183-Day**
-1.50 to -2.50	98.7%	94.6%	85.3%	74.9%	70.2%
Positive or "flipped"	0.1%	0.7%	2.0%	3.6%	3.4%

Performance over time study results

- **Historically, there was a high incidence of achieving returns close to the fund multiple times the index return**
- **The impact of compounding over long run was almost neutral for most broad indexes with a +2x and -2x multiple**
- **Results differ for ETFs that track more narrow or volatile indexes, or that seek a different multiple return for the index**

Monitoring and rebalancing

- **Similar concept as rebalancing asset allocations**
- **Some investors want returns close to the fund multiple times the index returns over longer periods**
- **Must monitor and rebalance to improve chances**
- **Rebalancing doesn't always increase returns**
  - In trending markets, rebalanced returns may in fact be lower (although closer to the fund multiple) than if no rebalancing was done

Source: Understanding Returns of Leveraged and Inverse Funds, *Journal of Indexes*, September/October 2009

The rebalancing equation

Index Return Greater Than Fund Return

Increase
Fund Exposure

Rebalance Amount =
Initial $ Invested x (1 + Index Return) – Current $ Assets in Position

Decrease
Fund Exposure

Index Return Less Than Fund Return

For illustrative purposes only.

Rebalancing strategies: A 3-step process

- **Determine rebalancing frequency**
  - Calendar based
  - Fixed band
  - Dynamic trigger
- **Monitor and compare results to 1x index return**
- **Calculate amount to add or remove to maintain desired exposure**

Rebalancing study

- **Study published in Institutional Investor Annual Guide to ETFs**
- **Examined trigger rebalancing scenarios using various triggers across a variety of market conditions**
  - S&P 500 from 1958 – 2009
  - Barclays 20+ Year Treasury from 1994 – 2009
  - NASDAQ-100 from 1985 – 2009
  - Dow Jones U.S. Financial & Dow Jones U.S. Oil & Gas
- **Focused on 6-month investment horizon for strategies designed to deliver +2 or -2x index returns daily**
- **Compared returns with and without 5% rebalancing trigger to 6-month index returns**

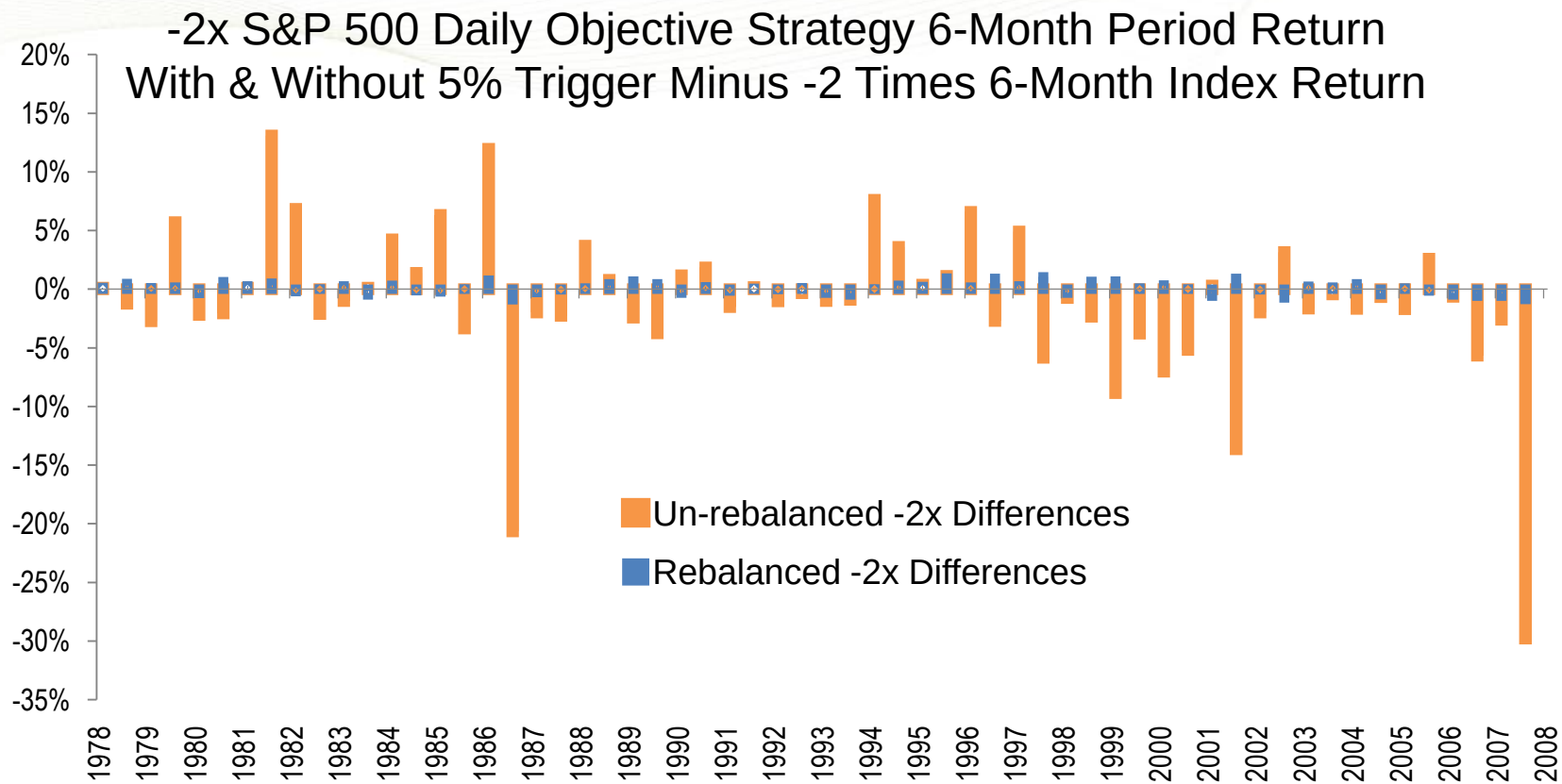
Source: Rebalancing Leveraged and Inverse Funds, Institutional Investor Journals, 8th Annual ETF Guide, October 2009. Compared returns with and without 5% rebalancing trigger to 6-month index returns.

S&P 500 +2x and -2x Daily Objective Strategies for 6-month periods

Frequency (%) of Realized Multiples within a Range of the Stated Fund Multiple (1959-2008)			
Realized Multiple Ranges		Historical +2x Daily Objective S&P 500	
		Un-rebalanced	Rebalanced
1.75	2.25	86.5%	95.0%
1.5	2.5	93.5%	99.5%
1	3	97.0%	99.5%
Negative or "flipped"		0.5%	0.5%
		Historical -2x Daily Objective S&P 500	
		Un-rebalanced	Rebalanced
-1.75	-2.25	43.0%	92.0%
-1.5	-2.5	71.5%	95.0%
-1	-3	88.0%	98.0%
Positive or "flipped"		2.0%	0.0%

Source: Bloomberg, June 2009. ProFunds Group Investment Analytics. **Past performance is no guarantee of future results.** For illustrative purposes only. Not indicative of an actual investment. Does not take into account any fees or transactional costs. **Results are for the S&P 500 Index only; results with respect to other indices will vary.**

Rebalancing reduced differences for S&P 500 inverse strategies



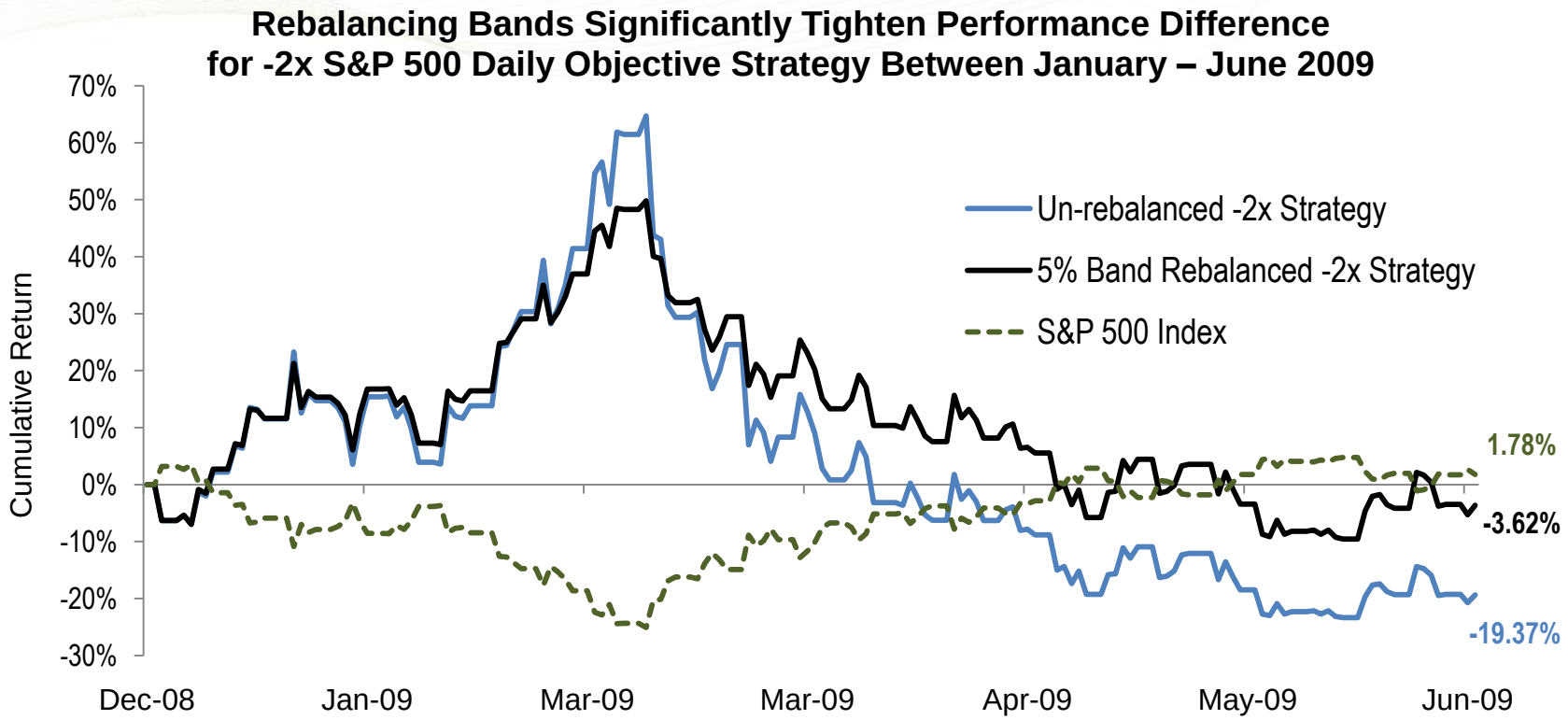
Source: Bloomberg. Note: Differences between -2x Daily Objective Strategy and -2 times index period return (with and without 5% rebalancing gap) over consecutive (non-overlapping) 6-month periods between 12/31/1978 and 12/31/2008.

Rebalancing was effective across a number of indexes

Realized Multiples Within +/- 0.50 Range of Stated Multiple Using a 5% Trigger Rebalance						
	+2x Daily Objective			-2x Daily Objective		
	Un-rebalanced	Rebalanced	Avg. Days between trades	Un-rebalanced	Rebalanced	Avg. Days between trades
Barclay's 20+ Year U.S. Treasury	91.7%	96.7%	127.2	75.0%	95.0%	16.5
S&P 500	93.5%	99.5%	88.4	71.5%	95.0%	12.1
NASDAQ-100	85.9%	97.8%	34.6	51.1%	96.7%	5.8
Dow Jones U.S. Financials	88.2%	97.1%	60.1	60.3%	91.2%	8.6
Dow Jones U.S. Oil & Gas	79.4%	94.1%	43.8	58.8%	97.1%	6.8

Source: Bloomberg, June 2009. ProFunds Group Investment Analytics. **Past performance is no guarantee of future results.** For illustrative purposes only. Not indicative of an actual investment. Does not take into account any fees or transactional costs. **Results are for the indexes listed only; results with respect to other indexes will vary.**

Rebalancing a -2x S&P 500 Daily Objective Strategy in early 2009



*Cumulative return on S&P 500 Index, un-rebalanced and rebalanced -2x one-day target strategies (using 5% rebalanced bands) for period from December 31st, 2008 through June 30th, 2009. Annualized S&P volatility for the period was 34.78%.

Summary of the effects of rebalancing on leveraged and inverse funds

- **The rebalancing process involves monitoring the gap between the fund return and the (unleveraged) index return**
- **Rebalancing can be used as a strategy to seek returns close to the index return times the fund multiple**
- **Rebalancing tends to reduce both the negative *and* positive effects of compounding**
- **Frequency of rebalancing varied depending on underlying market, index volatility and fund multiple**

Source: Rebalancing Leveraged and Inverse Funds, *Institutional Investor Magazine*, October 2009

What are major trends going forward from the ETF industry?

- **Staying at the forefront of investment innovation**
  - Access to fixed-income, commodity, and currency market segments via exchange tradable products
    - May be a watershed event for these asset classes
  - More customized and advanced tools than the hammers and saws of the early ETF days
  - Active management via ETFs
    - More products, but not a transforming event
- **Continued interest in tactical strategies will fuel growth in ETF assets and high levels of trading activity**
- **Leveraged/inverse ETFs will continue to be valued for**
  - Efficient tools to express investment views
  - Ability to help manage risk
  - Use in sophisticated strategies

What are major trends going forward from the ETF industry?

- **As investors turn to a more absolute return approach, direct and indirect use (through hedge funds) of ETFs should benefit**
- **Innovation with products incorporating alphas, new risk factors, and trading strategies**
- **A continued focus on product and strategy education**
  - Critical role for industry to educate ETF investors as they cover more asset classes, use derivatives in index construction and portfolio management, and have become more specialized

Additional information

See "Understanding Returns of Leveraged and Inverse Funds" in the September/October issue of **Journal of Indexes**. See "Rebalancing Leveraged and Inverse Funds" in the October issue of 2009 **Institutional Investor Journals, 8th Annual ETF Guide.**

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A reminder about risk

- **Investing involves risk, including the possible loss of principal**
- **There is no guarantee that any ETF will achieve its investment objective**
- **The principal risks associated with leveraged and inverse ETFs include the following:**
  - aggressive investment technique risk
  - correlation risk
  - counterparty risk
  - credit risk
  - equity risk
  - leverage risk
  - liquidity risk
  - market price variance risk
  - market risk
  - non-diversification risk
  - repurchase agreement risk
  - volatility risk
- **This information is not meant to be investment advice**