

Leveraged and Inverse ETFs

Understanding the Returns and Potential Uses

Featuring

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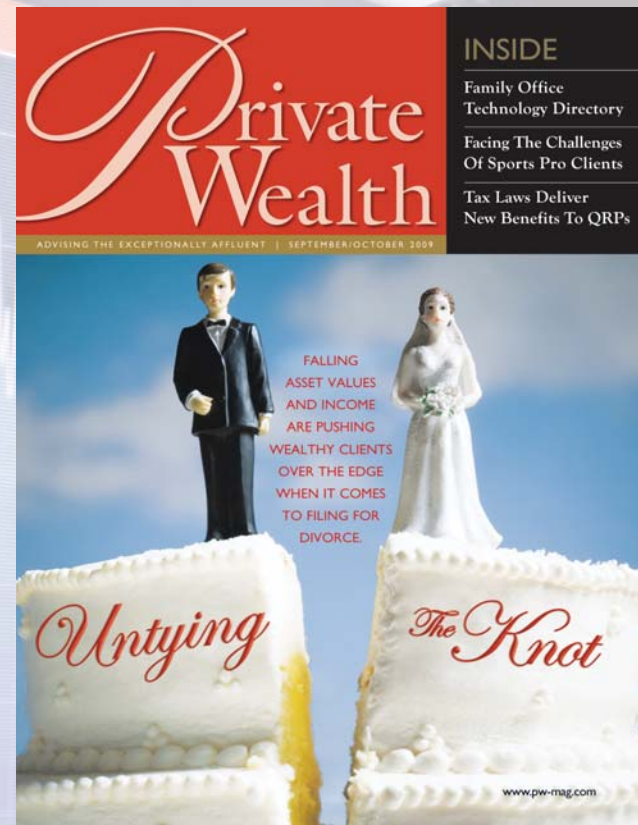
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- Joined ProFund Advisors LLC in 2009
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Understanding Leveraged and Inverse Exchange Traded Funds

Joanne M. Hill, Ph.D, Head of Investment Strategy

Agenda

- Background on the ETFs
- History of leveraged and inverse ETFs
- Understanding performance over time
 - Compounding
 - Putting volatility in perspective
 - Historical study
 - Monitoring and rebalancing

Background on ETF industry

- 1993 – Began as basic tools providing exposure to broad indexes
- Recently have become more specialized
- Now over 800 exchange traded products (ETPs) with more than \$700 billion in assets¹
- Short-term trading tools
 - Approaching 30-40% of overall U.S. equity volumes¹
 - Average holding period of 8 days¹
- Appeal to institutions, advisers and individual investors
 - Estimated that 40-50% of assets held by institutions²

Source: ¹ Bloomberg

² 2009 Strategic Insight report

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What are leveraged & inverse ETFs

Conventional Index Funds*

Seek to match the index return

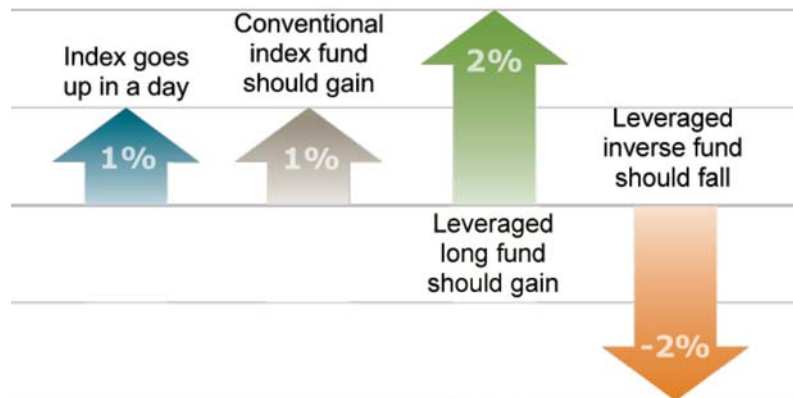
Leveraged Long Funds*

Seek a multiple of the index return on a daily basis

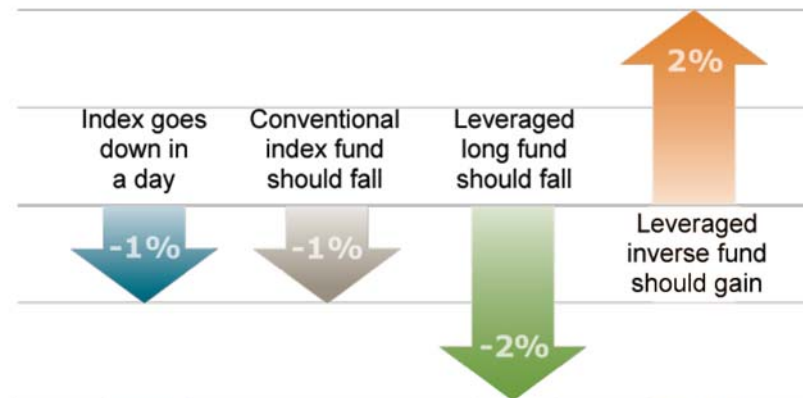
Leveraged Inverse Funds*

Seek a multiple of the inverse return of the index on a daily basis

Up Day



Down Day



- Conventional index fund
- Leveraged index fund
- Leveraged inverse index fund

* Before fees and expenses.

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History of leveraged and inverse ETFs

- 1993 – First leveraged and inverse mutual funds were introduced
 - Grew to over 100 funds with \$10 billion in assets
- 2006 – First leveraged and inverse ETFs introduced in the U.S.
- Today
 - More than 150 leveraged and inverse ETPs in U.S.
 - Leveraged and inverse ETF assets over \$29 billion
 - Volume of about \$18 billion/day

Source: Bloomberg as of 9/30/09

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Why they are valued

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

How they are used

- Short-term trading vehicle like other ETFs
- Component of overall portfolio strategy
 - Target exposure with less cash
 - Overweight/underweight exposure
 - Seek to hedge
 - Myriad of other strategies

Why funds are rebalanced daily

- Consistent leverage each trading day helps investors by preventing leverage from becoming too excessive
- An open-end fund that provides a specified, constant leverage level for all investors is not possible

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**Compounding's effect on
leveraged and inverse
index returns**

Example of compounding on indexes and leveraged funds

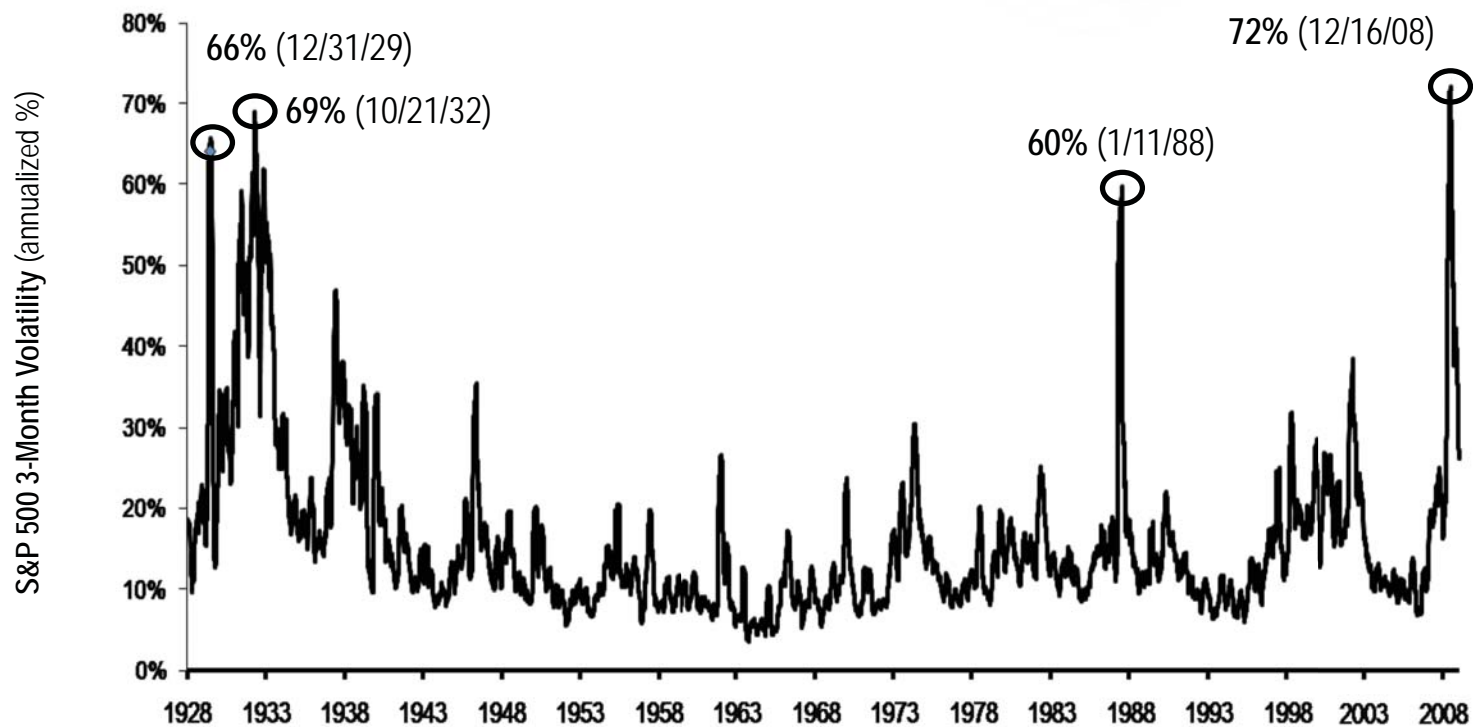
	INDEX	2x FUND
	Daily Return	Daily Return
UPWARD TREND		
Day 1 Return	+10%	+20%
Day 2 Return	+10%	+20%
Compounded 2-day Return	+21%	+44%
DOWNWARD TREND		
Day 1 Return	-10%	-20%
Day 2 Return	-10%	-20%
Compounded 2-day Return	-19%	-36%
VOLATILE MARKET		
Day 1 Return	+10%	+20%
Day 2 Return	-10%	-20%
Compounded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

Universal effects of compounding on investment returns

- Compounding affects all investments over time
 - Upward trending periods enhances returns
 - Downward trending periods reduces losses
- Volatile periods reduce returns and may increase losses
- Positive and negative effects of compounding are magnified in leveraged and inverse funds
 - The impact of compounding on a 2x leveraged fund is greater than 2x
- Investors should monitor for these results and possibly rebalance as needed

Leveraged and inverse funds affected by record volatility

Highest short-term volatility levels for U.S. equities in 80 years affected all investments, including leveraged funds



Source: Journal of Indexes , August 2009. Past performance is no guarantee of future results. For illustrative purposes only.

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Historical Analysis of Leveraged and Inverse Strategies

The study is for hypothetical purposes only and is not intended as an investment recommendation. Results are for the S&P 500 Index only; results with respect to other indexes will vary.

Historical analysis of leveraged & inverse index returns

- Research study published in *The Journal of Indexes*
- Studied 50 years 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

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Journal of Indexes Study Conclusions

- The impact of compounding over long run was almost neutral for broad indexes
- Historically, there was a high incidence of achieving returns close to the fund multiple times the index returns
 - The shorter the period and lower the index volatility, the higher the likelihood
- Frequency of the direction of returns being “flipped” was low
- Rebalancing can be effective for longer horizon investors who want returns closer to the fund multiple times the index returns

Rebalancing can be an effective tool for longer horizon investors

- Some investors want returns closer to the fund multiple times the index returns over longer periods
- Monitoring fund value vs. index returns
 - Add or reduce position in fund based on the gap in value versus an unleveraged (1x) index return
- Similar concept as rebalancing asset allocations
- 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

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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**

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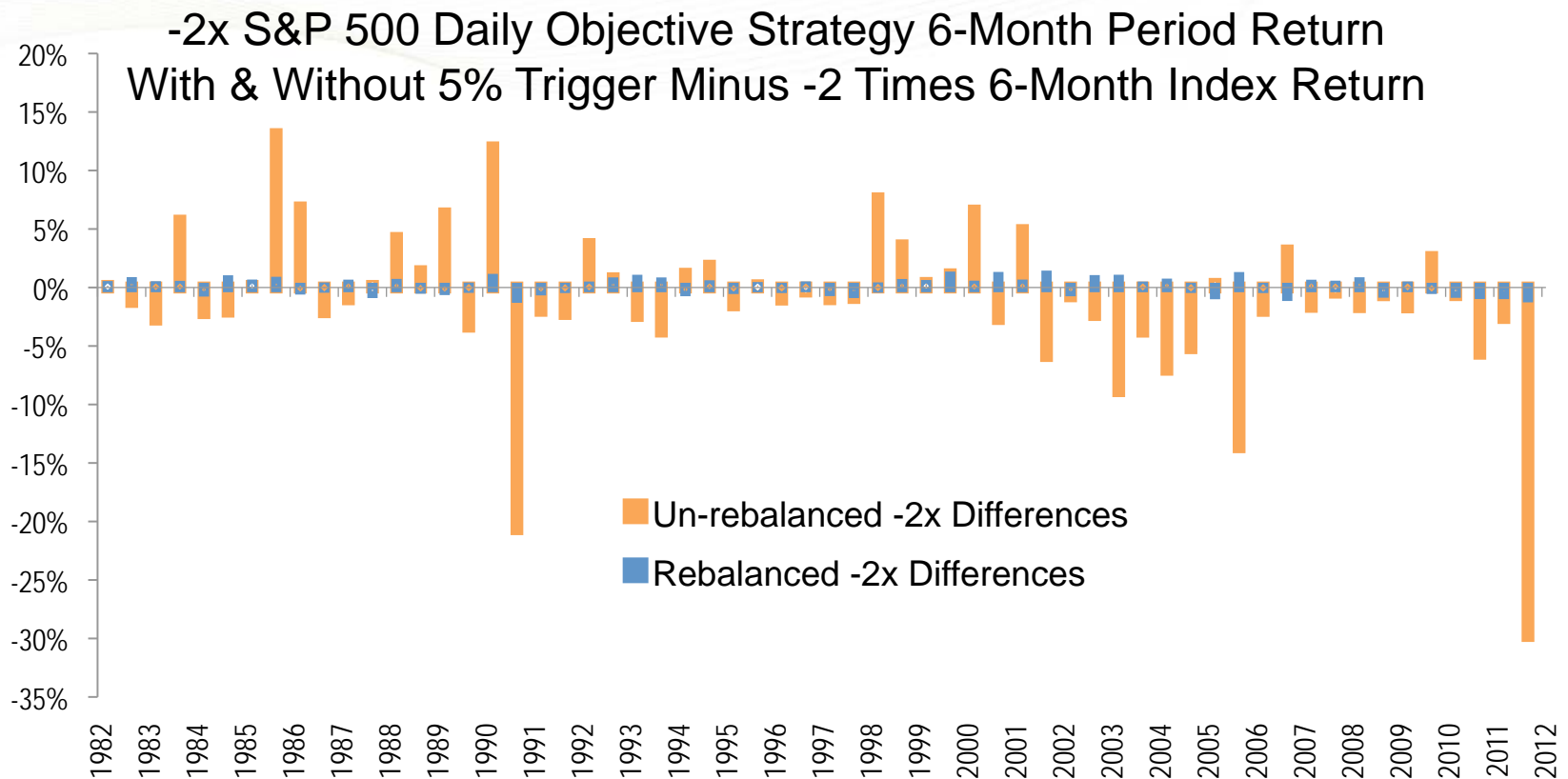
Historical analysis of rebalancing leveraged and inverse funds

- Study published in *Institutional Investor Annual Guide to ETFs*
- Examined trigger rebalancing scenarios using a 5% trigger across a variety of market conditions
- Index return history studied included S&P 500, Barclays 20+ Year Treasury, NASDAQ-100, 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

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Rebalancing reduced differences for S&P 500 inverse strategies

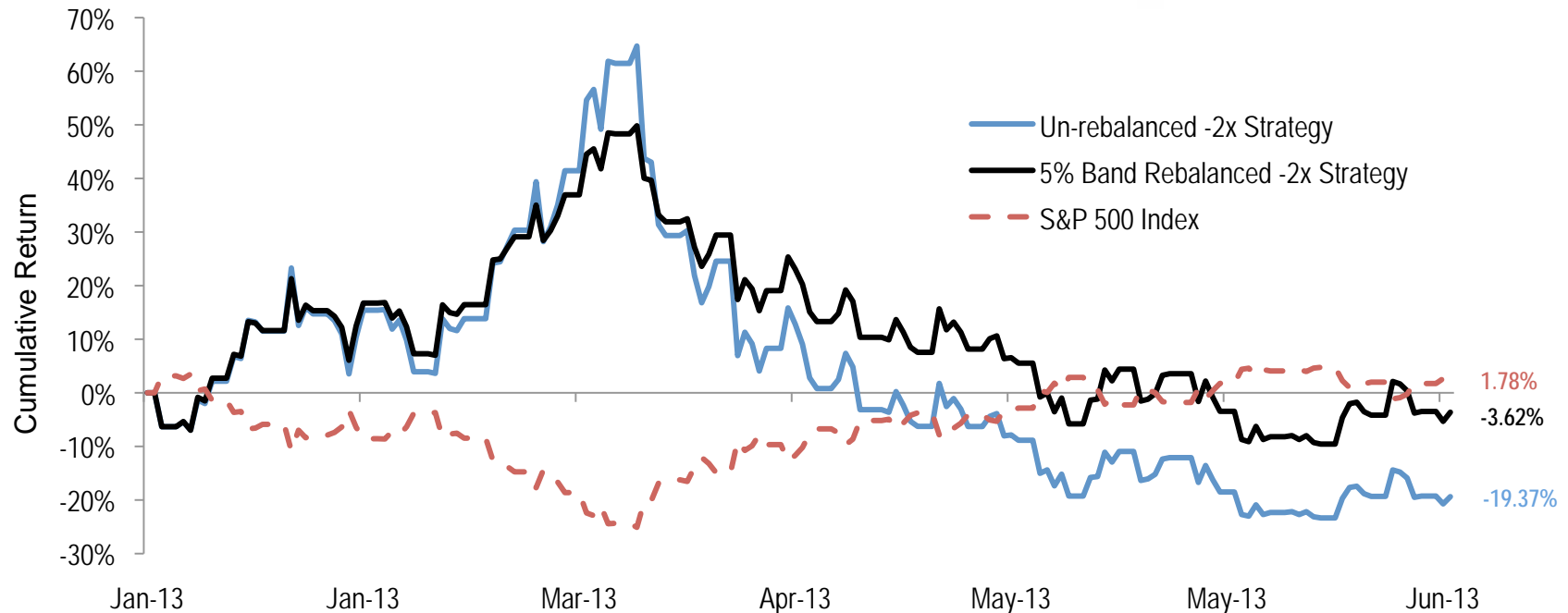


Source: Bloomberg. Note: Differences between -2x Daily Objective Strategy and -2 times index period return (with and without 5% rebalancing gap) over consecutive (non-overlapping) 6-month periods between 12/31/1978 and 12/31/2008.

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A 5% trigger helped narrow the gap in a volatile, non-trending market

A 5% Rebalancing Band Significantly Tightened Performance Difference for -2x S&P 500 Daily Objective Strategy Between January – June 2009



*Cumulative Return on S&P 500 Index, un-rebalanced and rebalanced -2x Daily Objective Strategies (using 5% rebalanced bands) for period from 12/31/08 – 6/30/09

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Highlights from rebalancing study

- Performance of leveraged and inverse ETFs is affected by compounding
 - May be greater or less than the fund's multiple times the index return over time
- Generally for holding periods up to about 30 days, leveraged and inverse Daily Objective Strategies based on broad indexes had a high incidence of achieving returns close to the fund multiple
- The shorter the period and the lower the index volatility, the greater the returns fell within a tight range to the fund multiple
 - Frequencies were lower for funds with inverse leverage ratios than those with positive leverage ratios
- Rebalancing can be an effective tool to help investors pursue returns closer to the fund multiple
- Frequency of rebalancing varies depending on the amount of volatility or trending nature in the market and the volatility of the index on which the fund is based

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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Inverse and Leveraged ETFs

- In light of all the warnings lately by regulators, clients will be seeking the expertise of advisors that can properly use these powerful tools. Advisors can differentiate themselves from others by using these tools to protect clients from market declines even in retirement accounts
- Inverse ETFs are essential to our practice for a number of reasons:
 - The inverse ETFs are easy to buy and sell and can provide portfolio protection without the hassles of actually having to locate shares to borrow and sell short
 - No unlimited losses
 - Provide an opportunity to profit not only in bull markets, but also in bear markets
 - Provide a tool to get short exposure in accounts that do not have margin privilege such as 401(k)s and IRAs
- Can be held profitably for days at a time if following good trading strategy as compounding math works in your favor if you capture a trend
- With proper risk management and an investment strategy, these ETFs give advisors the ability to implement their own alternative strategy without the illiquidity and lock-up concerns associated with hedge funds

Trade in Direction of Trend

- We prefer to apply technical analysis on the ETF directly vs. the corresponding benchmark
- You can use a simple moving average to determine trend direction
- As you get more proficient you can use moving average crossovers, moving averages in different time frames for confirmation of a shorter time frame signal, and so forth
- The next chart helps illustrate a simple strategy that was used on actual trades in the managed accounts of our clients recently

Actual RWM Trade

Short Russell 2000

- Using a 7 dma (day moving average), RWM was purchased at \$46.08 on 10/26
- RWM was then sold on 11/3 at \$50.10 when it hit resistance of the 80 ema (exponential moving average)
- Another option would have been to hold off selling until it drops below the 7 dma and/or triggers the stop

RWM (Short Russell 2000 Fund) NYSE
12-Nov-2009

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Open 47.14 High 48.17 Low 46.81 Close 48.08 Volume 527.3K Chg +0.93 (+1.97%)

RWM (Daily) 48.08
MA(7) 48.02
EMA(80) 49.60
Volume 527,291



Trend Detection

- As you can see on the chart, a moving average can help form a line to give mechanical buy and sell signals
- The ETF is a buy if it crosses above the line and a sell if below
- To aid in managing the risk and sizing a position, we need to have an initial stop in place
- However, in order to determine where to place that stop, we first need to find a simple way to measure the volatility for that specific ETF

Volatility

- To measure volatility of the ETF, we can use the average true range or ATR
- ATR isn't simply the difference between the day's low and high, but an average of the daily range of the stock from the previous day's close to that day's high and low
- This was plotted on the previous chart, and a number of charting programs will calculate it for you for the number of days you specify (we used 7 days on the RWM trade example)

Initial Stop

- In terms of setting a stop, you can use a multiple of the ATR depending on how wide you want the stop and subtract this from the moving average (MA)
- This is a simple calculation you may want to consider using:

$$\text{stop} = \text{MA} - 0.85 * \text{ATR}$$

- This will give you an initial stop to use when opening a position to determine what your risk will be (a good rule of thumb is to not risk more than 1% of the total portfolio on any one trade)

Trending Stop

- As long as the position is open, it is in your best interest to periodically adjust the stop based on the current value of the MA using the same calculation
- You want to be long the ETF when the moving average is flat or slopes up, that way the stop moves up with the ETF and your risk decreases -- a moving average sloping down will result in the stop getting wider, obviously not ideal
- This way as the MA rises, your initial risk is reduced and eventually you will have profits that are protected
- Continue readjusting the stop and locking in any gains until either the ETF closes below the MA at the end of the day or the stop is hit

Actual SKF Trade

ProShares UltraShort Financials

- Using a 7 dma (day moving average), SKF was purchased at \$23.43 on 10/21
- SKF was then sold on 10/29 at \$25 when it closed below the 7 dma
- However, the following day it surged higher and could have been purchased near the 7 dma the day after that, and would have been stopped 11/5 for either a slight gain or loss depending on entry price

SKF (ProShares UltraShort Financials) NYSE

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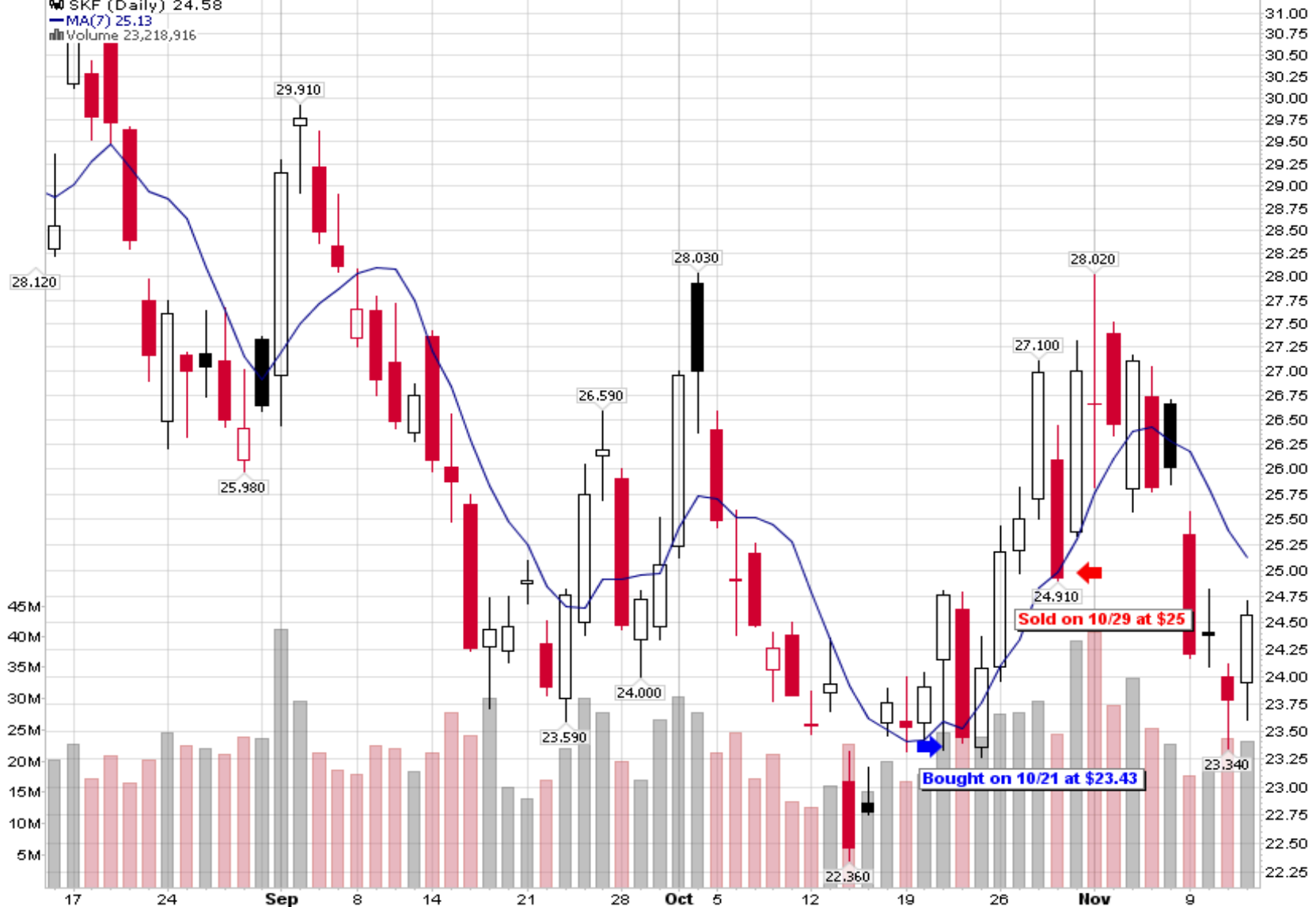
12-Nov-2009

Open 23.94 High 24.71 Low 23.60 Close 24.58 Volume 23.2M Chg +0.79 (+3.32%)▲

SKF (Daily) 24.58

MA(7) 25.13

Volume 23,218,916



SRS Trade

ProShares UltraShort Real Estate

- Using a 7 dma (day moving average), SRS was purchased at \$10.19 on 11/6
- SRS was then stopped on 11/9 at \$9.72 when it violated the stop below the 7 dma for a loss

SRS (ProShares Ultrashort RealEstate) NYSE

12-Nov-2009

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Open 8.99 High 9.23 Low 8.86 Close 9.20 Volume 24.4M Chg +0.21 (+2.35%) ▲

▲ SRS (Daily) 9.20
— MA(7) 9.60
— EMA(80) 12.91
■ Volume 24,374,180



Moving Average Criteria

- In the previous 3 trade examples we used a 7 dma to profit on the short side and step aside as the market rallied higher – clearly when a trend is caught these can be held profitably for longer than a day
- A shorter duration moving average will usually get you in a trade earlier and out earlier to capture more of the move – but can also lead to more whipsaws or small losses
- For leveraged inverse ETFs, the 21 dma is the longest we use – but you can experiment with what works best for you
- The following chart shows that in down-trending markets something as long as a 50 day or an 80 ema can be used

SSG Trade

ProShares UltraShort Semiconductors

- As another example, the following chart shows that in market declines such as what we witnessed in 2008, a 50 dma can be used with far less whipsaws
- Furthermore, more positions can be added each time SSG approaches or touches the moving average as the risk/reward would be highly favorable since the stop would be in close proximity

SSG (ProShares UltraShort Semiconductors) NYSE

31-Dec-2008

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Open 77.94 High 79.76 Low 75.80 Close 77.89 Volume 29.9K Chg -0.96 (-1.22%)

SSG (Daily) 77.89
MA(50) 93.12
Volume 29,928



Weekly Moving Averages

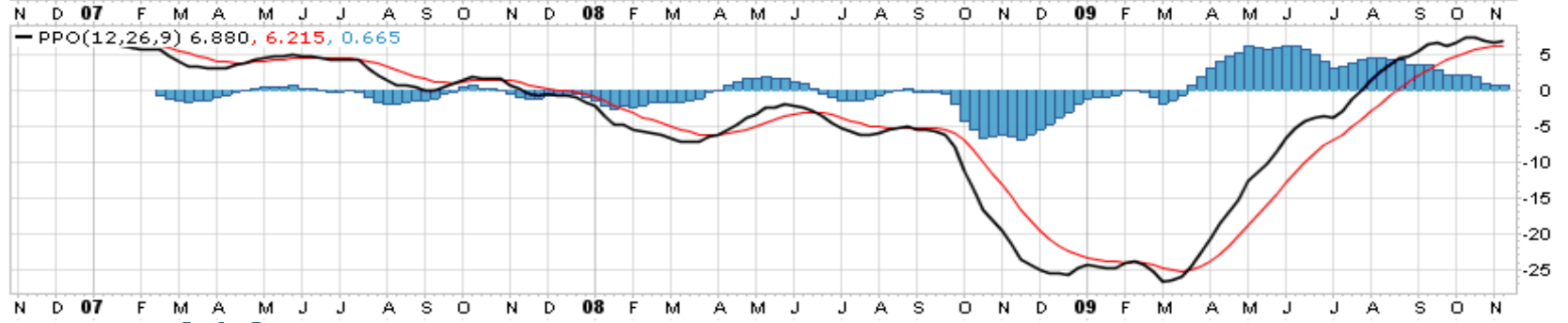
- To further show how these ETFs can be held for even longer time frames – here is a chart covering SSO ProShares Ultra S&P 500
- A 42-week moving average (blue line) kept you out of a bulk of the declines and back in when the market rallied
- Also illustrated is the 13-week ema (red line) which would have whipsawed a bit more than a longer moving average, but would get you back in SSO a few months earlier

SSO (ProShares Ultra S&P 500 Fund) NYSE

12-Nov-2009

Open 35.65 High 37.54 Low 35.59 Close 36.33 Volume 100.2M Chg +1.23 (+3.50%) ▲

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Conclusion

- As shown, even a simple trading strategy utilizing just one moving average can be used to trade the leveraged/inverse ETFs
- Obviously, there are far more trading strategies that can be utilized to profitably trade these ETFs than what has been covered here – but this should get you thinking about what works for you and your clients
- It is very important to not only have an entry signal but to always have a predetermined exit to manage the risk
- With most of these ETFs available with their inverse counterpart – you have increased the odds of catching a trend and profiting regardless of market direction

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Questions and Answers

Q & A

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