

The Individual Investor And Risk Management

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March 17, 2009

Everyone who has had money in the stock market over the past 18 – 24 months has witnessed a tremendous amount of wealth destruction not seen perhaps since the Great Depression. Market capitalization of large banks have been slashed by 50% – 80% or more since the market peaked in October 2007 relative to the recent market lows in early March 2009. Investors in hedge funds, private equity firms and on Wall Street have suffered similar losses. International bond fund managers, municipal bond managers, corporate bond managers have seen their credit rates reach near junk bond status. Runs on banks have lead to the collapse of some of the largest investment management firms on Wall Street such as Lehman Brothers, Bear Stearns and Merrill Lynch. Perhaps the least who could afford wealth destruction have been retirees living on fixed-income and those who are about to retire only to see the value of their 401(K)'s & IRA's drop like a rock.

What is the individual investor to do?

What are individual investors, whether they manage their own money or not, to do in an environment like this? One option is to liquidate everything to cash and earn maybe a 2% APR in a CD. Another option is to do nothing and hope values return soon to levels before the market down turn. A third option is to re-evaluate their investment goals and objectives and re-allocate some of their funds into low risk alternative asset classes that hedge their portfolio against adverse

market conditions. Money managers on Wall Street have used commodities, precious metals and even various types of arbitrage techniques to take advantage of temporary mis-pricing of equities, bonds and derivatives. Generally these arbitrage techniques have not been accessible to retail investors due to cost reasons and the lack of necessary tools to minimize risk.

What are your options?

Huge interest in options trading has provided a critical first step for retail investors to hedge their investments. Option trading involves the purchase and sale of contracts called puts and calls. A put contract is an option to sell equities at a lower price than the underlying equity is currently priced. Puts enable traders an opportunity to make gains if they believe the price of the equity will go down. A call contract is an option to buy equities at a higher price at a discount. Calls enable traders to make gains when the price of the underlying equity goes up. Puts are characterized as going short and calls are characterized as going long. Shorts are bearish and calls are bullish on equities.

Since predicting the direction of the stock market is a difficult task even for professionals, they trade options to provide a hedge or "insurance" on their portfolio to minimize losses. However, when markets become as volatile as in recent months, trading options to hedge becomes a vary time consuming task. You may have heard traders covering their puts or covering their calls. Covered positions are an extra step options traders must take when market direction unpredictably changes midstream before realizing their original options

goals. Soon traders are sometimes forced to start making intraday trades consecutively for days or weeks. An investor caught in this position is on the verge of becoming a full-time day trader, which was never their intent in the first place.

Keeping your shorts covered

Then along came a new class of ETFs (Exchange Traded Funds) about 2 years ago that not only tracked a particular index but also traded inverse to the index or short the index. For example, the ProShares Group began offering ETFs that traded in the opposite direction of the Dow 30, S&P 500 and Nasdaq 100 indexes. Inverse ETFs trade down when the index they track trades up. If the Dow 30 finished up 1% on the day, ProShares has an ETFs that will finish down 1% on the day. Then Proshares released ETFs that trade at a multiple of 2X to the index they track, both up and down. The 2X levered up ETF is called "ultralong" and 2X levered ETFs that trade down are called "ultrashort". These ultra ETFs have since become very popular with individual investors because the ETF managers trade various derivatives for the holder of the ETF to achieve 2X up or 2X down. Individual investor then have a cost effective advantage and frees up the investor to concentrate on investment objectives instead of getting caught up in options trading strategies.

As with most trading and investment vehicles, there are advantages and disadvantages to the Proshare levered ETFs. These levered ETFs are designed to only return 2X up or 2X down for each trading day. As a result, over the longterm, these ETFs will not "track" the same index

rates of change due to mathematical compounding effects. The following articles posted on the web describe this behavior very well.

<http://seekingalpha.com/article/119901-beware-short-and-ultrashort-etfs>

<http://seekingalpha.com/article/120678-more-on-the-dangers-of-leveraged-etfs>

<http://www.morningstar.com/cover/videocenter.html?bctid=9952874001&t1=1237391260>

<http://seekingalpha.com/article/126321-leveraged-etf-performance-ytd>

Bubbles, bubbles, toils and troubles

Therefore I decided to explore the concept of holding 2X long and 2X short ETFs in tandem to minimize the behavior described above. The first thing I began to notice was holding 50% of the long and 50% of the short ETF tracking the same index did not maintain a neutral position. My goal was to study whether holding these ETFs in a neutral fashion would be a perfect low risk hedge. I expected compounding would cancel since the ETFs tracked the same index. Instead the value of the pair began drifting uncontrollably in one direction or another. I soon found that during extended periods of market direction, up or down, daily changes of one ETF would consistently be more or less than changes in the other ETF in the pair.

Therefore the pair would have to be re-weighted at some point if balance was to be restored. "But by how much", I asked myself.

After toiling with plotting and analyzing the data I recognized the objective to re-balancing could be illustrated as a mechanical model similar to the suspension of an automobile. The purpose of a vehicle suspension is to provide as smooth a ride as possible for the occupants regardless of potholes, ruts or gravel in the road. A smooth ride would be defined by small amplitudes of vibration up and down inside the vehicle versus large amplitudes in vibration up and down experienced by all 4 wheels of the vehicle. Now, I felt I had a chance to solve my dilemma to maintain equilibrium in the portfolio. Using my background in mechanical engineering, I created a free body diagram to work with. Then I could solve for optimizing the weights of the ETFs in the portfolio using classical dynamical methods first developed by Hamilton and Lagrange back in the 1880s. See the following web links for reference.

http://en.wikipedia.org/wiki/Lagrangian_mechanics

http://en.wikipedia.org/wiki/Hamiltonian_mechanics

Portfolios on steroids or is it all hype?

Since I gained a mathematical footing, I was able to get neutral using leveraged ETFs without suffering from index tracking errors or long-term compounding effects. The individual investor still needs to take risk in order to benefit from the reward. The old adage is still true which says no risk, no reward. The point here is providing the individual investor with a sound means to monitor and control their

risk in a highly volatile market. Whether the individual investor has a 401(k), an IRA separately managed by a certified financial adviser or a capital management firm, he or she must start asking themselves: Am I doing all I can do to protect my hard earn assets? If not, save up some money, talk with your financial advisor, open up a retail investment account and prove to yourself that you can manage your money better than anyone else can.

The final piece of the puzzle in my quest to minimize risk was to establish trading best practices (methodologies) based on the new model and a system for developing a benchmark to compare relative trading performance. In a separate paper I will describe these methodologies and show step-by-step how I obtained my results.

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