



## How To Harness Volatility and Gap Risk

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Earlier this year, I attended a Global Macro panel event where leading managers were invited to share their thoughts and views on the global economic and investment landscape and how they look to profit from potentially significant events; and perhaps the next crisis. Although the event was successful, I was most surprised (or rather dismayed) by the absence of two very relevant and important words: **Vega** and **Gamma**. Significant events and crisis episodes, to say the least, are shown to be abundant and fertile of volatility and price gaps.

In an article I previously published (see "Hooked on Alpha: The Failure of Portable Alpha and Absolute Return Mandates, March 2013) made reference to two key determinants to attaining the highest propensity of absolute returns: First, suppressing the destructive behavioral biases (see "Destructive Behavioral Biases: The Obstacles to Absolute Returns", May 2013), and second, to bias explicit or implicit volatility (Vega) and gap risk (Gamma) posture in the expression of ideas and themes in the portfolio.

### Harness Volatility and Gap Risk

It is true that to harness volatility and gap risk in your favor will increase to propensity of generating absolute returns. However, it is most imperative and paramount that one should avoid any elements of explicit and implicit short Vega and short Gamma exposures as well.

"Things aren't always what they seem" and "stay close to your friends and even closer to your enemies" are valuable lessons applied by the skeptics. The very same framework applies to concepts of volatility and gap risk in episodes of market dislocations and crisis. They both could be a friend and a foe in the context of generating absolute returns and protecting precious capital.

And as Mr. Benjamin Ola Akande, economist and Dean of Business School at Webster University wrote "Hope is not a Strategy". One is not allowed the luxury of "hope" that the portfolio will withstand the next market's bout of significant volatility; a concept that has become increasingly recurrent with respect to both frequency and severity.

Things are often not always as plainly disclosed, including in the realm of asset management and risk exposures. The most preoccupying risks are not simply revealed through quantitative or track record analysis. As a matter of fact, and in most cases, when the most important issues are revealed quantitatively, it is already too late.

The following rudimentary example will illustrate simply how things are not always as they seem, and how the embed implicit short Gamma exposure may also apply: An equity portfolio manager who is bound by an investment policy restricting transactions plainly to equities is capable, for example, of expressing currency views. It's easy; all he needs to do is sell a Canadian-US



(for example) inter-listed stock on a Canadian exchange and buy it back in the US if he is bullish the CAD versus the USD. His intentions, although stealth to the investor, may have a significant impact. There is more to this derived currency forward transaction as one can argue that therein lays an implied short gap risk, or short Gamma exposure if the position is passively held. This is explained by the fact that in market crisis investors will generally quickly dispose of risky assets and allocate the proceeds to a higher quality asset. This is otherwise known as "flight to quality" but more recently referred to as "flight to liquidity", given widely held views on the US debt burden. In the case of the CAD versus the USD, for example, it promptly depreciated by about 28% versus the USD in late 2008, and by virtue of the fact that it is viewed as a risky asset.

The lesson was painfully learned by the few Canadian institutional investors who, with the objective of absolute returns, overlaid their Portable Alpha program with a linear USD hedge because much of their hedge fund allocation was in USD and that their liabilities were in another currency. In this case, although with the right intentions, the hedge embedded implied a short Gamma exposure that single-handedly dismantled all hopes of absolute returns, let alone alienating the overall portfolio from the then broad and severe drawdown. These circumstances probably apply to all non-US investors.

### **Linear and Non-Linear Positions**

Things are not as they seem. Essentially, linear positions in plain vanilla instruments can in some cases implicitly generate significant and potentially damaging non-linear relationships such short Vega or short Gamma exposures.

The issue is relevant to the investment committees that institute a ban on the selling of options in the investment policy but allows the inclusion of a strategy that, although at face value does not engage in option transactions, but effectively may replicate a short option pay-off profile. The issue is particularly sensitive to any investor allocating to hedge funds with the objective of absolute returns, protection of capital, and providing a

de-correlation to the broad market drawdown risk already assumed in the traditional long-only asset management mandates.

If there is a certainty about volatility, it is the fact that it is persistent and most of all "volatile". The quest for absolute return is better achieved by keeping volatility on your side, rather than allowing it to work against your portfolio. Volatility is the animal impossible to tame. It is volatile, at times rather violently and will often strike without warning.

The almost ideal absolute return strategy is a perpetual "Straddle" on the market, i.e. long an at-the-money call option and long an at-the-money put option. Consider the hedge fund fee structure as the premium paid, as in options, to hold a perpetual Straddle and reap the benefits of both the upward and downward moves in asset prices.

Unfortunately, the strategy type that usually represents the first step forward in the hedge fund space to institutional investors most often effectively replicate the exact opposite of the above-described ideal absolute return strategy, i.e. replicating a perpetual short Straddle or short Strangle profile. This strategy is the equity market neutral, and most particularly those dwelling on statistical or other quantitative parameters, and including quantitative fundamental data points. Note: a Strangle is constructed similarly to the Straddle but through the use of out-of-the-money options.

Any explicit or explicit exposure to negative Vega or Gamma risk profile should be construed as an alienation or impediment to a higher propensity to deriving absolute returns.

The classic arbitrage and quantitative market neutral strategies, whether deployed in bonds or stocks, are essentially implemented to exploit temporary price divergences described as "market inefficiencies". These opportunities are explained by a wide range of reasons such as uneconomic sellers, supply-demand imbalances, undiscounted information, market structural inefficiencies or temporary illiquidity, to name a few.



These relative price divergences to statistical, fundamental and historical relationships are thus identified and exploited within strategies based on precise and pre-determined rules. As an absolute (its own historical normal range) or relative (versus another similar security) price-divergence crosses a pre-determined threshold, it is identified and implemented into a portfolio. Each portfolio position is justified by a statistical, quantitative, structural or fundamental thesis that, on average, and based on rigorous testing methods, can demonstrate within a defined margin of error that its absolute or relative prices will eventually mean-revert or align to fair market valuation. However, reality dictates that market forces can and will alienate prices much further from fair market valuation. And in a leveraged portfolio, one may be right much longer than solvent.

Diversification allows these strategies to tolerate short Vega and Gamma risk at the position level. However, the strategy (as described) is not able to withstand Gamma at the systemic or overall market level.

As a warning to the hedge fund investor considering some form of leveraged Market Neutral strategies: many are to be considered as potentially riskier than traditional long-only mandates when the increasingly frequent and violent second order volatility episodes arise. In reality, they function relatively well in benign environments but bleed or blow-up in volatile and crisis episodes.

### **Hedge Fund Diagnostics**

Skilled qualitative hedge fund diagnostics should be deployed to properly identify strategies with embedded implied short volatility and gap risks. The Hedge Fund Analyst should also be keenly aware of other strategy elements with embedded relevant concerns. Other potentially "damaging elements" include, for example: carry, mean reversion, options spreads, risk arbitrage, illiquidity, buying or accumulating on weakness and selling on strength, dwelling on longer term parameters in the portfolio and position decision-making process, buy-and-hold style, dogmatic contrarian investing, and

crowded trades.

Although not explicitly disclosed as such, carry positions and strategies undertaken in hedge funds can take many forms in relative value or long-short positions, and depending on how they are deployed. These include dividend plays, relative value currencies, leveraged credit, relative value credit and fixed income, commodity spreads, or other relative value commodities for example. The crowded trades or strategies may also apply at the systemic level such as the omnipresent long small-medium cap versus the short large-cap positioning among the Equity LS strategies.

Not all above-mentioned strategies should generically be construed to embed negatively skewed return profiles. However, when hedge fund managers hint on the potential inclusion of these "damaging elements" in their strategy, the line of questioning and analysis by the skilled analyst should be aimed at finding out (1) if the manager is aware of the existence and extent of these risks and (2) what is being done to override or eliminate their potential devastating effects.

Ignorance is bliss, but only until the harsh realities set-in. Market neutrality can in fact be a misleading term. The investor seeking absolute return and protection of capital should diligently avoid both explicit and implicit short Vega and Gamma risk exposures. Competent initial hedge fund qualitative diagnostics through a deep understanding of relevant and potential risk exposures as well as ongoing analysis and due diligence are key to avoiding these risks.

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