Volatility (And Not Only "the Trend") May Be Your Portfolio's Friend (If You Understand the *True* Meaning of Volatility)-

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The portfolio management industry sometimes breeds illogical risk measurement concepts which, in spite of their illogicality, have the strength to impose themselves as industry standards.

Let's consider, for example, the concept of *tracking error volatility (TEV)*, very popular, a true standard, in the mutual fund industry. This indicator generally is considered a measure of risk because it computes the volatility of a portfolio returns around its benchmark. Since *TEV* represents a measure of relative (*vis a vis* the benchmark) and not of absolute risk, sophisticated investors should carefully avoid this indicator which, in fact, is popular only in the retail fund management industry but also – and this is much more serious – in pension funds.

Said that, the computation itself of this indicator is pretty crazy and absurd and, even accepting a relative measure of risk, a significant improvement could be carried out in its computation. In fact, *TEV* is typically computed as the square root of the sum of squared values of the variances of the portfolio returns from the benchmark returns. Negative and positive variances (against the benchmark), once squared, are always positive numbers so that traditional *TEV* computation does not distinguish between good (positive) and bad (negative) variances in returns. A simple innovation could avoid this major logical pitfall in this indicator: computing *TEV* using only negative variances and attributing a zero value to all positive variances between portfolio and benchmark returns. If a portfolio manager is able to beat his benchmark systematically and significantly ("suffering" – let's say – a positive volatility from the benchmark itself), why should you state that he is *riskier* than another manager who shows systematic small negative variances against the same benchmark? Just because that is what the dogmatic *TEV* formula says? In spite of the evidence of this logical trap, the mutual fund industry, in the name of *"we have always done so"*, so far has not been willing to re-formulate this concept of risk: risk means volatility and volatility computation must be symmetrical. Good luck to your fund subscribers!

A Next Logical Step

We have just seen that positive performances bring to volatility because the value of your portfolio ... changes, even when it changes favourably and the returns can not lay on a straight line: high performances normally bring to higher (more than proportional) volatility because, as we all know, the shape of the portfolio's efficient frontier is concave (curving inward). This can not be avoided and that is why the selection of funds through the Sharpe ratio usually brings to portfolios with low returns. So, it makes me smile a little bit when I encounter a portfolio manager who prides himself on the very low standard deviation of its portfolio: I think about the performance opportunities he misses for this strategic choice.

There is a book which should have changed the traditional way of looking at volatility, *The Mathematics of Money Management,* written by Ralph Vince and published by Wiley in 1992. Unluckily this book is well known only within a small group of portfolio management specialists. Ralph Vince himself is a specialist in computerized trading systems.

A computerized trading system is a group of trading rules, defined through a back-testing process, which – after passing their "examinations" – must be followed rather strictly by traders. Ralph Vince states reasonably that the goal of any trading system should be the maximization of its geometric (compound) return. You can impose some constraints to this major goal (e.g. on maximum acceptable volatility) but this does not change the reasonable assumption that, even under these constraints, the goal of any trading system (and portfolio manager) should be the long term maximization of its geometric return.

Well, Ralph Vince demonstrates mathematically that, if a first trading system of yours is better than a second one, that is to say its historical and perspective geometric returns are higher in the first case, then you should invest more capital on the first system rather than on the second one. This sounds logical even to unexperienced people but Ralph Vince demonstrates this point mathematically and calls the percentage of capital allocated on each system as "fraction f". "Fractional f" is the optimal percentage of capital you have to "bet" on each trade of your system in order to achieve the maximization of your long term geometric return. This "f" is higher in systems with higher growth potentialities. Ralph Vince demonstrates mathematically also that the higher "fractional f" is, the higher the drawdown of the equity must be. You can not do anything against this mathematical law. Ralph Vince comes to his conclusion (page 38):

> "Therefore, the better a system, the higher the f [the weight of any single bet on total equity, *n.o.a.*]. The higher the f, generally the higher the drawdown [because you invest more, *n.o.a.*] since the drawdown (in terms of percentage of the equity) can never be less than the f as a percentage. There is a paradox involved here in that if a system is good enough to generate an optimal f that is a high percentage, then the drawdown for such a good system will also be quite high".

In other words, what does this mean? It simply means that if your goal is the maximization of the geometric growth of your portfolio, you have to accept mathematically a high volatility as a necessary price for the lunch (do you remember? "no lunch is free"). You can impose "political" limits to your portfolio volatility but any limit represents a constraint against the achievement of a higher return. In brief, high volatility is not a positive value in itself but a necessary price to be paid, mathematically, in exchange for higher returns.

So, after learning Vince's lesson, from now onwards, look at a portfolio low volatility not only as an expression of its financial safety but also ask yourself which are the opportunities which go lost under a low volatility philosophy …

The dominant mood in portfolio management so far has brought to a generalized run of management companies towards low volatility products. This generalized run leaves room to alternative marketing strategies speaking more to the intelligence of the sophisticated investors rather than to the irrational fears and beliefs of the unsophisticated ones.

The book of Ralph Vince may be found at this link.