Return smoothing practices: a potential threat for alternative investment growth

Some of the hedge funds which have been highly impacted by the sub-prime crisis were previously considered, from a naïve point of view, as very unrisky: they exhibited a very high Sharpe ratio, small ex post volatility, no negative months and were de-correlated from all traditional asset classes.

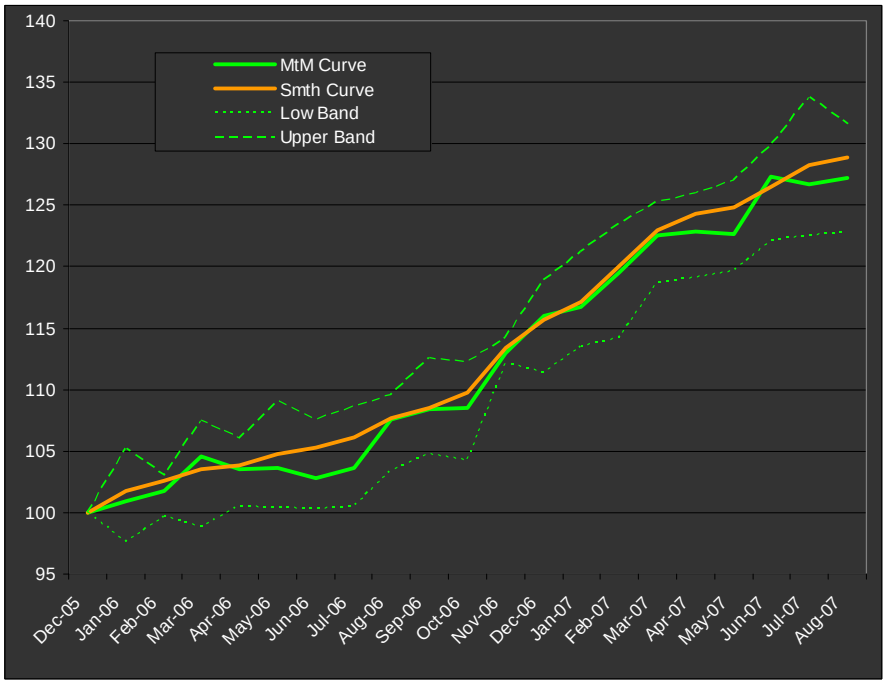
Because of these appealing characteristics, one could have good reasons to be very bullish on these products – to create portable alpha products combining futures and absolute returns funds, to boost the returns of monetary products, or because the national, as well as international regulatory environment were implicitly promoting this type of products.

In fact, if some institutional investors were surprised to burn their fingers during the spring 2007, most of the alternative investment community was expecting this crisis and cautiously stayed away from these funds exhibiting hard-to-believe return characteristics.

These cautious investors feared potential hidden risks behind these appealing return patterns. Returns smoothing enables a fund to hide risk. Because our mission at Riskdata is precisely to promote risk transparency, we decided to test and - if conclusive - to distribute an indicator to warn on potential return smoothing: the Bias Ratio, created by one of our clients, Adil Abdulali, risk manager at Protégé Partners. Our massive tests demonstrated that a substantial fraction of the funds trading very illiquid securities smooth their returns. These practices don't in themselves represent a systemic risk for hedge funds – like in the LTCM crisis – because it represents only a very small faction in terms of asset under management. However, by introducing a serious breach in risk transparency, it introduces a reputation risk for the alternative investments, which could lead investors to walk away. This is why we think it is the interest of the alternative investment community to ban return smoothing practices.

Return Smoothing enables the hiding of risk

Return smoothing practices can be defined as mitigating both good and bad surprises in term of returns. Let's imagine the NAV curve sounds like a shaky landscape (MtM curve in Chart1): high mountains and then deep valleys. Return smoothing just consists in erasing mountains to fill the valleys (Smth Curve in Chart1): with such a practice you end with a smooth landscape.



This type of practice is of course only possible if there is some flexibility on the valuation of the asset traded by the funds. If there is, for instance, a 10% spread between various brokers' quotes, it means that to mitigate a good surprise, the manager will consider the fair price as being the one in the lower range, and to mitigate a bad surprise, the one in the upper range.

This is why return smoothing does not necessarily imply unfair NAV manipulation; it simply means that the value is based on an in-

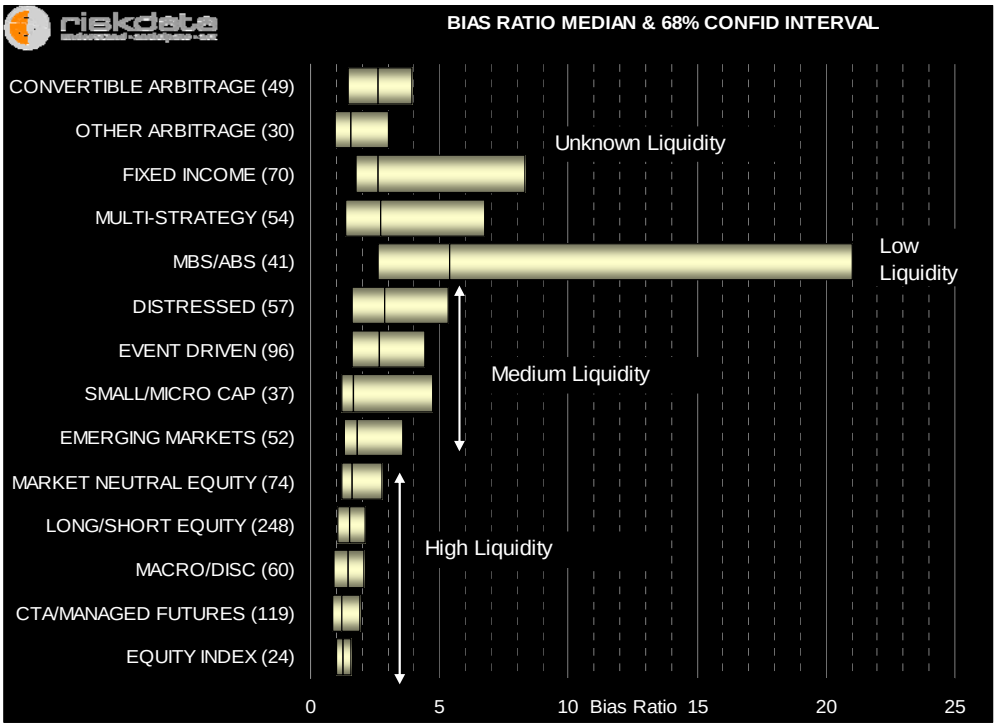
house *subjective* process of valuation, rather than on an *objective* process, for example one based on market prices. In the above example, the smoothed NAV curve always stays in the range of prices based on brokers' quotes. Simply, in MtM curve, the NAV results from the mean of all available quotes, without any subjective change, while in the smooth curve, the manager selects, within the range of quotes, a price that minimizes the volatility of returns, for instance the average of a convenient subset of quotes, while discarding other quotes.

The main consequences of return smoothing is that it apparently mitigates the risks, when taking the naïve view of an investor based on performance indicators, such as the Sharpe ratio or number of negative months: in the above example, the Sharpe ratio shifts from 2 to 4 between the 2 curves, and proportion of negative months shifts down from 20% to 0%.

The Bias Ratio: a quantitative proof of return smoothing practice among hedge fund trading illiquid securities

The Bias Ratio indicator was created by Protégé Partners, a New York based fund of fund, and Adil Abdulali, its risk manager, who developed it through hands-on experience while trading on the sell side, managing a hedge fund and investing with managers (see "The Bias Ratio, Measuring the shape of behaviour" by Adil Abdulali). The Bias Ratio relies on analysing fund returns to measure how far they are from an unbiased distribution. The Bias Ratio of an equity index will typically be close to 1. On the other hand, the Bias Ratio of a fund that smoothes returns is much higher.

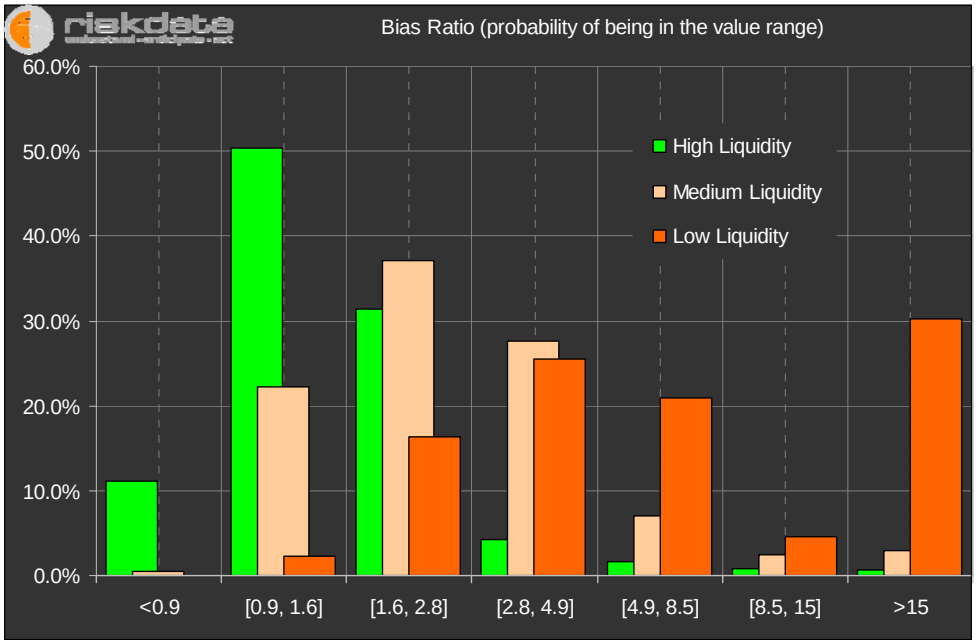
Therefore, typically, one should expect that all funds where valuation is based on market price – i.e. trading *liquid securities* - would have the same range of Bias Ratio (typically close to 1). On the other hand, funds trading highly illiquid securities - where there is high uncertainty on the price - can exhibit very different Bias Ratios, as the manager has some discretion in the valuation process and *bias* can creep in.



To test these assumptions and give clients using Riskdata's FOFiX a benchmark per strategy, Riskdata's research team has conducted a review of the Bias Ratio across a sample of 1,011 funds & market indexes. The results are summarized in the chart above. Unsurprisingly, it confirms that as a group, funds with illiquid strategies (such the example involving MBS and ABS) are more likely to be smoothing their returns.

These results support, from a statistical point of view, the assumption that the Bias Ratio is an indicator of return smoothing. There is a clear statistical relationship between the liquidity of the asset universe of the strategies and their Bias Ratio. It is technically very difficult to smooth the returns for strategies dealing with high liquidity, valuation being set by market prices. However, for low liquidity strategies (for example mortgage-backed or distressed securities) the return has to be set in based on in house models.

Moreover , when looking at the distribution of the Bias Ratio for each liquidity bucket (chart below), one observes a strange satellite for very illiquid buckets: 30% of the funds trading very illiquid assets exhibit a Bias Ratio above 15, while we would only expect less than 2% when extrapolating the distribution.



In other words, the fact that the average Bias Ratio increases when reaching more illiquid assets is not in itself proving return manipulation: by nature, illiquid securities tend to deliver smoother returns, even with an objective process of valuation.

But the orange distribution, with its right hand side satellite, can in no way be produced by natural processes: it proves in itself that a very significant proportion of the funds trading very illiquid securities actively manipulate their returns.

Often, illiquid securities are associated with serial correlation of returns. Smooth returns don't necessarily mean that they are manipulated. For example, systematically marking securities that haven't been traded recently at a conservative price – for instance by strongly discounting uncashed coupons – mechanically produces smooth returns. Therefore by itself, serial correlation or a very high Sharpe ratio can be seen as "orange blinkers" but not necessarily a strict red light. At variance, the Bias Ratio, which is based on abnormalities of the histogram of returns, specifically indicates manipulations. In practice, most of the hedge funds that eventually made headlines in the news were, prior to their blow-up, exhibiting high Bias Ratios.

A reputation risk rather than a systemic risk

Unlike the LTCM crisis, return smoothing should not in itself induce a major systemic crisis in alternative investment. Funds trading very illiquid securities represent less than 6% of the total assets managed in alternative investment. Based on our studies, this would lead to the estimate – in order of magnitude – that only 100 funds out of 10,000, representing 2% of the AUM, smooth their returns. If there is a systemic crisis, it will be more due to an underlying liquidity crisis – hedge funds negative performances being a symptom rather than a cause.

Having said that, even if it only represents in order of magnitude about 1% of the population, hedge funds who smooth their returns represent a risk for the entire community.

First of all, like doping in the Tour de France, it introduces unfair competition between the managers which are using an objective process valuation – like the MtM curve above – and the one which are smoothing their returns, at least in front of investors which are using "naïve" indicators such as the number of negative months or the Sharpe ratio. You have to be a hero to refuse returns smoothing practices in such circumstances, whilst virtue is penalised. Therefore, a practice undertaken by a very small fraction will naturally propagate to a high proportion of the funds who are handling illiquid securities.

Secondly, smoothing introduces a severe breach in risk transparency, with unfortunately no effective work around, even with advanced risk systems like the one Riskdata markets. One way would be position based risk estimation, but it is practically ineffective when handling very illiquid securities: even if one has good models for these instruments, in practice half of the requested information is missing. The other way is to use return

modelling - handling serial correlations and lags with the markets – which is precisely one of the consequences of return smoothing. But beyond a certain level of smoothing, with only a small sample to analyse, even the most powerful statistical model will fail: there are simply no signals to extract from a straight line.

This breach in risk transparency is really problematic from the institutional investor point of view. Superior performances are not sufficient to attract them. They also require full risk transparency, because they need to position their investments in their asset/liability management process.

Recommending that institutional investors walk away from all illiquid strategies is not a solution: it is precisely in these strategies, dealing with highly inefficient markets, that one can potentially find the highest alpha, due to the high number of arbitrage opportunities. At the end of a day, a well diversified alternative investment portfolio combines various levels of liquidity. Walking away from illiquid strategies could quickly be turned into "walking away from alternative investment".

To ban return smoothing?

We don't see any other solution than banning return smoothing to get out of this vicious circle. This raises of course the issue of how this can be banned in practice, including for off-shore unregulated funds. We propose here a series of recommendations to enable investors to better monitor their investments and avoid falling in the trap of manipulators of track records.

First, thorough due diligence should be made on the valuation process, whether it is performed with in house calculations, vendors software or third parties quotes. Not only should valuations be fair and based on appropriate input data, but all available quotes should be considered without discretionary selection. This point is especially important, due to possible conflicts of interest between managers and brokers about fair valuation when dealing with illiquid securities.

Second, a notable progress in the direction of investors mastering their investments is to give them a quantitative means to detect return smoothing practices. The Bias Ratio – along with Riskdata risk profiling techniques – offers one effective way to alert on possible return smoothing. By itself, quantitative analysis is not sufficient and ought to be supplemented by effective control of managers' practice. But conversely, quantitative techniques are a necessary add to due diligence and monitoring of investments, as only them can provide an unbiased alert system of managers unfair behaviour.

Third, a complete alarm system should be put in place, which includes not only regular contact with managers, but also a systematic and regular quantitative analysis of their returns, in order to detect biases – like the Bias Ratio – and style drift, as well as to identify sources of risk and potentially hurting scenarios.

Finally, each fund should not only be analysed by itself, but also in the context of a portfolio. For this purpose, the individual risk of one single fund should not hide the risk of diversification – or rather lack of – at the global portfolio level. In other words, this means identifying market scenarios under which investments become correlated and diversification vanishes.

It is not surprising that managers, who always try to show their most attractive profile, conform to investors' expectations. By only checking too simplistic statistics – namely Sharpe ratio, percentage of positive months and straight correlations – investors harvest what they sow: managers bias, whenever possible, their returns to display their nicest face and produce strongly negatively skewed distributions: most of the time slightly positive and, once in a while, massively negative. Professional investors shouldn't believe in Santa Claus in front of a Sharpe of 5 or above. Sorting out the good seed from the rye grass will be a direct consequence of their responsible attitude.