With Hedge Funds, Small Is Beautiful

By Pendo S. Löfgren
Head of Research and Development
Arnova Investment Research AG, Zug

Over the last few years there is a growing consensus that hedge funds with less assets under management are consistently outperforming the larger ones. One very exhaustive study of more than 20,000 funds was presented in March this year by a team of researchers at the Risk Management Laboratory at Imperial College in London. The time period studied was limited to the last sixteen years. The team assembled historical performance data from all of the major hedge fund databases, i.e. BarclayHedge, EurekaHedge, Hedge Fund Research, Morningstar and Tass. One of the minor findings – but none the less interesting – was the importance of using data from all the databases, since only 3.7% of the investigated funds or share classes were present in all five of the databases used.

Small is really beautiful

This research concluded that funds with assets under management of less than $10m delivered average annual returns of 9.89%. Funds managing between $250m and $500m averaged 4.84%, while those with more than $1bn averaged 5.45% annually. When adjusted for market performance and looking at the alpha, i.e. excess return, the results were even more interesting: The smallest funds produced alpha returns of 7.25% per year, medium-sized funds 1.59%, the largest funds 1.58%.

One of the co-authors of the study even went as far as to state that “when there is evidence of performance persistence, it seems to be driven by small funds, not large funds”. This is quite a dramatic statement, but one that makes a lot of sense from both a psychological and economic perspective. For a new manager starting out with a small asset base it is a venture with high stakes. If it turns out well, the economic future will be bright. If not, the manager does not frequently get a second chance and normally will go back to a job with a lower status and lower economic possibilities attached to it. A manager who fails will have a tough task to convince investors to give him a second shot. This means that he is likely to only actually take this step when he has a high degree of conviction that his ideas will bear fruit. Normally this would indicate that he has prepared himself mentally and technically for many years and this will further increase his chances to perform well.

But the points raised above are not valid when it comes to a manager who launches a new fund, but with a *large* asset base from the start. There have been many examples of such launches in the past where “star managers” have left their positions at investment banks to launch their own hedge funds. The launches were accompanied with a lot of media attention and the asset base was typically several hundred million dollars to start with. The results however seldom matched the expectations.

From an economic perspective, it is also understandable why a smaller fund might outperform. The importance of the incentive fee (typically 20%) is far higher than for the larger fund. The management fee alone may not be enough to cover all expenses, so there is a very strong incentive to generate a positive absolute performance and not simply stay afloat or perform in line with benchmarks.

Limitation of available investment strategies

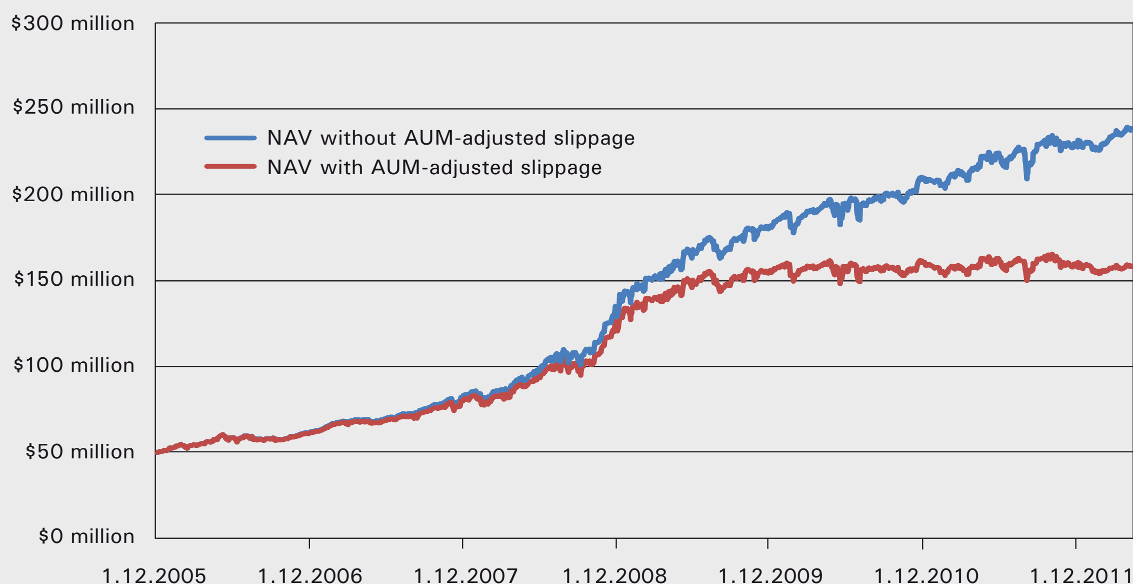
However, the most important explanation for the outperformance of smaller funds is related to the actual investment strategies available to the smaller funds in relation to the larger funds.

In the course of our own research into systematic investment strategies over more than twelve years, one conclusion has reiterated itself time and again: the highest alpha-generating strategies have relatively low capacity limits. Certainly these limits are lower than most people would expect. It is relatively easy to develop a profitable quantitative investment strategy in your personal brokerage account up to a few million dollars. It is an entirely different story to develop a strategy capable of trading hundreds of millions of dollars.

The capacity ceiling of any strategy is a function of the liquidity available in the markets traded and the investment strategy’s trade size and average trade performance.

To generalize, there are two ways to generate high absolute annual returns: The first is to trade frequently with a low average trade result, e.g. 1000 trades per year with an average result of say +0.03% – or as with high-frequency trading even a multiple and fraction of these numbers, respectively. The second is to trade less frequently with higher average trade results, e.g. 100 trades with an average result of say +0.3%. Both should theoretically yield about 30% p.a. However, of the two

The Effect of Slippage



The red line shows the performance of a hedge fund when taking into account the added slippage as the assets grow. The blue line does not take into account AUM-adjusted slippage.

strategies, the high-frequent one is far more sensitive to slippage (slippage is the difference between the last traded price when the system signals a trade and the actual execution price). To some extent a competent execution algorithm can limit slippage, but it can never change the fact that slippage is proportional to the ratio of the trade size and the liquidity. Larger trade size on average translates into larger slippage. Even if the slippage amounts to just 0.01% (per transaction, i.e. 0.02% per completed trade) of the traded stock price (e.g. 0.3 cents on a stock priced at $30), the annual performance of the high-frequency trading strategy is cut by two thirds! The performance of the low-frequency strategy will decrease by only 7%. Why is this important? Because many of the highest alpha-generating strategies tend to be fairly high-frequent in nature. This is certainly not always the case, but in general it holds true.

In the graph we can see a simulation of the effect of slippage and what might happen when a strategy gradually reaches its capacity limit. This particular strategy along with others are actually being used by a quantitative hedge fund. The trading frequency is relatively high and is designed to execute on liquid stocks on the U.S. stock exchanges. The simulation starts in the graph with $50m in December 2005 and ends in April 2012. The red line shows the performance when taking into account the added slippage as the assets grow. The blue line does not take into account AUM (Assets under management) adjusted slippage.

Initially the performance is virtually identical. Around $100m AUM, a clear divergence can be noted. After reaching approximately $150m in mid-2009, the performance of the slippage-adjusted portfolio is essentially flat, while the non-adjusted blue portfolio continues to generate another $80 million in profits.

Does this mean that this is a bad strategy? It depends. As long as less than $100m is invested, it is a very good strategy. It is far outperforming the S&P500 and even profiting handsomely during the financial crisis. For a small successful manager to become a larger successful manager, it will thus be critical to combine a number of such low-AUM strategies. This will not only enable the manager to grow assets, but will – perhaps even more importantly – bring system diversification to the fund that will further smoothen the performance curve and improve the key ratios, such as the Sharpe ratio and the Sortino ratio.

Got ethics?

Each strategy employed needs to be carefully monitored independently from each other to find out where the actual capacity ceiling is. Preparation must be in place to move money over into complementing strategies before this ceiling is hit. Most importantly, if no such strategy is yet completed, the manager must be ethical enough to resist taking on any more money and hard-close the fund to new investors. It may even be necessary to ask some investors to redeem a part of their investment to bring performance in line with expectations. If we reflect on the red portfolio line above once more, we must ask ourselves: How many managers would actually do this in January 2009 when business was great and new investors were heavily knocking on the door?

Thus, in the final analysis, long-term, sustainable hedge fund outperformance is more likely to come from smaller managers, but will not exclusively be a function of the technical competence, but also of the guiding ethical values of the manager itself.

pendo.loefgren@arnova.ch
www.arnova.ch