

## Implementing portable alpha

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**Few topics have been the subject of so much debate as portable alpha. Skandia Liv, like many other institutions, has put considerable effort and expertise into developing such a structure. This article highlights the main findings during this process and takes the reader through the steps involved when implementing a portable alpha strategy.**

The article is divided into three sections. The first takes the reader through the general idea and defines what a beta and alpha exposure is. It follows from the definition of a beta source used in this article that hedge funds are not to be considered a separate asset class. The second section is the most important part, since it explains the philosophy behind a portable alpha strategy and further highlights the organizational implications these changes will imply. The final section explains how alpha should be ported, and why especially hedge funds should be considered for this purpose.

### Basic concepts

By necessity, most of the effort devoted to portable alpha strategies must be invested at the strategy stage of the process, since it is vital that the correct logic is used in the implementation phase. If the logic behind the chosen approach is obscure, the investor is likely, at some point, to make a suboptimal implementation.

The essence of portable alpha is the separation of returns into a beta and an alpha component. The beta component represents exposures to different asset classes or risk sources, while the alpha component, loosely speaking, represents a manager's ability to beat her/his benchmark by relying on skill rather than on an increase of risk levels.

The beta sources could be defined with CAPM as a starting point in which case there is only one beta; the exposure to the market portfolio. However, the starting point could also be the liability side, or some other portfolio that defines the neutral long run portfolio. The approach taken in this article is to consider each asset class as a separate beta factor. Regardless of which beta components are used, they should take diversification effects into account

because diversification is the only free lunch offered. Asset weighted factors are consistent with the market portfolio since they could be aggregated by applying the appropriate weights into the optimal market portfolio. Asset weighted factors are therefore to be preferred. Whether or not the investor actually chooses to aggregate the factors by using the optimal weights that result in the market portfolio is another story. The building blocks will, at least, be optimal from a diversification point of view, and any deviation from the optimal weights can easily be assessed and judged against other potential gains (such as closeness to the liability side). Furthermore, the beta factors should not be linear combinations of each other. Derivative instruments represent such an example, since they can be fully decomposed into an exposure to the underlying instrument plus a risk free component. Just like derivatives, hedge funds have been shown to exhibit non-linear exposures to a set of more primitive risk factors such as the equity market or the bond markets (see for instance Mitchell and Pulvino, 2001; Agarwal and Naik, 2004), and should therefore not be represented by a separate beta factor.

A beta source could be thought of as the most primitive, traded source of risk. In this context, «primitive» means that it can not be decomposed into other traded risk sources. For instance, equities and bonds are correlated and therefore share some common risk factor(s). However, since this common factor(s) is most likely related to macro economic variables that most likely are not traded, equities and bonds should be considered as two separate beta sources. On the other hand, a stock option is exposed to the risk inherent from the stock, which is a traded asset, and should therefore not be considered as a beta source.

### Organizational factors

One of the main obstacles for a full transition to a portable alpha framework is the structure of the organization which has to be adopted accordingly. In a traditional asset management division, the teams are structured around each asset class and the strategic decisions, i.e. deviations from the reference portfolio are taken by a committee consisting of the senior employees from each asset class team. The portable alpha approach is best implemented by structuring the asset management division around an alpha and a beta team. The beta team takes over the responsibilities of the above mentioned committee and thereby becomes responsible for all strategic decisions. To emphasize this point in a more stringent fashion, consider the following

decomposition of the return of a portfolio held by the investor into alpha and beta components:

$$R_t^{Port} - r_f = \alpha + \beta_1 (R_t^{Eq} - r_f) + \beta_2 (R_t^{Bond} - r_f) + \beta_3 (R_t^{Credit} - r_f) + \beta_4 R_t^{Curr} + \varepsilon_t$$

The factors used here represent the main asset classes, which should also be complemented by regional factors (e.g. a US and a European Equity index).

The beta team will achieve excess returns by deviating from the reference portfolio either by physical redistribution of funds, or through the use of derivatives. Furthermore, the beta team should work with as many asset classes and regions as possible. As the number of bets grow, the return will converge towards a level that is consistent with the manager's «true» skill, while fewer bets result in a more random return pattern with a very low correlation to skill. This is also called the fundamental law of active management. Furthermore, as the number of asset classes and regions grow, the level of diversification achievable also increases. The work made by the beta team is very similar to that of a global tactical asset allocation manager.

The alpha team, on the other hand, is responsible for generating a positive alpha in the above equation. In a manner similar to that described above, the return of any manager could, naturally, be decomposed into a set of beta factors and an alpha factor. If the manager generates positive alpha, he/she has successfully managed to beat the benchmark. This is why the alpha factor is also referred to as manager skill. The alpha team's main task is to identify skillful managers across all asset classes.

Since the alpha team is involved in identifying and monitoring manager skill, it is important for this team to have a firm understanding of the dynamics of positive alpha generation. The factors behind positive alpha generation are all connected with some form of market inefficiency. A number of causes affecting the degree of market efficiency could be mentioned, but they usually fall into one of the following categories:

- › Structural and Regulatory Inefficiencies. Legal restrictions that, for instance, prevents or restricts some investors from participating, fall into this category.
- › Skill-based or information-based factors. Some managers might have access to information that others do not have. Other managers might have a superior analyzing capacity that enables them to extract additional information from publicly available sources that puts them at an advantage compared their competitors.

- › Market participants. Some market participants might trade for non-profit maximizing reasons, or they might simply be poor traders. Both groups present skilful managers with opportunities.

The alpha team's task is to make decisions as to where these inefficiencies are most pronounced, both with respect to regional as well as asset class, and position themselves accordingly. For instance, the investor might perceive the currency market as being inefficient, since there are many participants in this market, like central banks, investing for non-profit maximizing reasons. This is a type of inefficiency that falls into the market participant category. Rather than scanning the whole universe for potential managers, it is better to first identify potential sources of inefficiency and then try to find managers that adequately address that specific segment.

Since alpha is constantly evolving, an alpha source that was previously perceived as positive might eventually erode. This is indeed the fundamental driving force behind efficient markets. Because of competition, positive alpha sources that are easily exploitable will disappear. Quite a few academics claim that markets are efficient and that there is no room for active management. Indeed, many studies have shown that on average and after fees, mutual funds do not earn excess returns (e.g. Carhart, 1997). Some might erroneously conclude that these results are obvious because alpha on average is zero; inasmuch as someone's gain is somebody else's loss. However, since mutual fund investors only represent a fraction of the market, they could very well be earning money on the expense of other investors. Due to the fact that we are dealing with professional traders, the result is striking because it demonstrates that it is hard to generate positive alpha even for skilled investors.

Considering the difficulties involved in generating positive alpha, an investor should be willing to pay dearly for alpha. Beta, on the other hand, could be bought almost for free. Hence, finding «pure» alpha vehicles becomes the crucial task.

For good reasons, the previous discussion implicitly assumes that external rather than internal managers are relied upon. Firstly, it is unlikely that the investor can find highly skilled traders internally in *all* asset classes across *all* regions. One valid objection is that although this might be true, given the high fees you pay, recruiting a merely decent trader should suffice. On the other hand, since the dispersion in returns among managers is very high, paying high fees to a skilful manager might be worthwhile. More importantly, since

alpha constantly evolves, it erodes in some markets and reappears when new markets are created. It is, therefore, necessary to retain the flexibility to fire a manager. The latter option may present difficulties when relying on an internal team. Indeed, in some countries, such as Sweden, this is virtually impossible.

In the end, an investor might be able to identify a few highly skilled internal traders who are expected to consistently outperform the market over an extended period. However, the bulk of the assets should be managed externally.

The focus of an alpha team will therefore be on manager selection which requires a set of skills that are basically different from those governing the beta team. The strategic decisions made in the beta team are usually based on rigorous macro-economic analysis in combination with a good understanding of how the financial markets at an aggregated level work.

### **Hedge funds: a pure alpha vehicle?**

The next step in the process is to address how alpha should be ported. There are two potential routes to achieve this goal. As mentioned above, the first is to find a «pure» alpha vehicle, i.e. an investment opportunity which represents only alpha. The second is to accept a certain degree of beta in the investment vehicle.

When discussing portable alpha strategies, hedge funds are bound to be considered. From a theoretical point of view there are some good reasons to assess hedge funds in terms of «pure» alpha vehicles. Although there is no widely accepted definition of a hedge fund, most would agree that these funds strive to produce absolute return and at the same time protect the principal from loss.

Producing absolute return and protection from the downside can be achieved by employing strategies that per definition have a zero beta exposure, such as relative value strategies, for example. Alternatively, this could be achieved by varying the beta exposure in such a way that the beta is negative during market down-turns and positive during market up-turns, which on average should produce a beta of approximately zero.

However, in addition to the already mentioned studies, several other articles have shown that hedge funds do indeed take beta bets, and are not to be considered as «pure» alpha vehicles. Referring to the notion addressed in the beginning of this article, hedge funds should not be considered as a separate beta source (i.e. asset class) since they, in addition to alpha, can be decomposed into other primitive

beta sources. Classifying hedge funds as a separate beta source could be likened by classifying long-only products as a separate beta source because they, like hedge funds, can also be divided into an alpha and a more primitive beta component.

Although the long-only products contain a massive beta component they should not be ruled out for portable alpha purposes. As long as the beta exposure can be hedged by using derivatives, the beta exposure should not pose a problem. In the end, the information-ratio after fees is the relevant investment criteria. However, there are reasons to believe that hedge funds are better at producing high information ratios since they are able to articulate negative views better by going short.

Regardless of the investment vehicle chosen, there will always be a beta component to consider that could be hedged by using derivatives. When feasible, the investor could also choose to incorporate the beta exposure into the beta unit's investment decision if possible, since the investor has already paid for the beta after all. The latter alternative is not really a portable alpha strategy, but could nevertheless be considered.

Since some hedge funds attempt to time the market by changing the beta over time, the question arises which beta should be used for portable alpha purposes. This is very much the manner in which CTAs try to generate excess returns, and should therefore be considered as one way to generate alpha. The long run average beta should therefore be used, and any return generated by deviating from the long run beta should be considered as a part of the alpha generation.

### Conclusion & lessons learned

In essence, the separation of alpha from beta enables the investor to:

- › Take alpha and beta bets separately. This is very important because there is no correlation between alpha and beta sources. An allocation regarding the direction of the market (beta bet) is not the same as an allocation with respect to the degree of inefficiency in a market (alpha bet).
- › Allow for considerable expenditures with respect to a return that requires skill (alpha), and buy the return (beta) that does not, at a low cost. This represents a cost efficient form of management.
- › Minimize the risk of confusing alpha and beta sources, and hence also good and bad managers. This is espe-

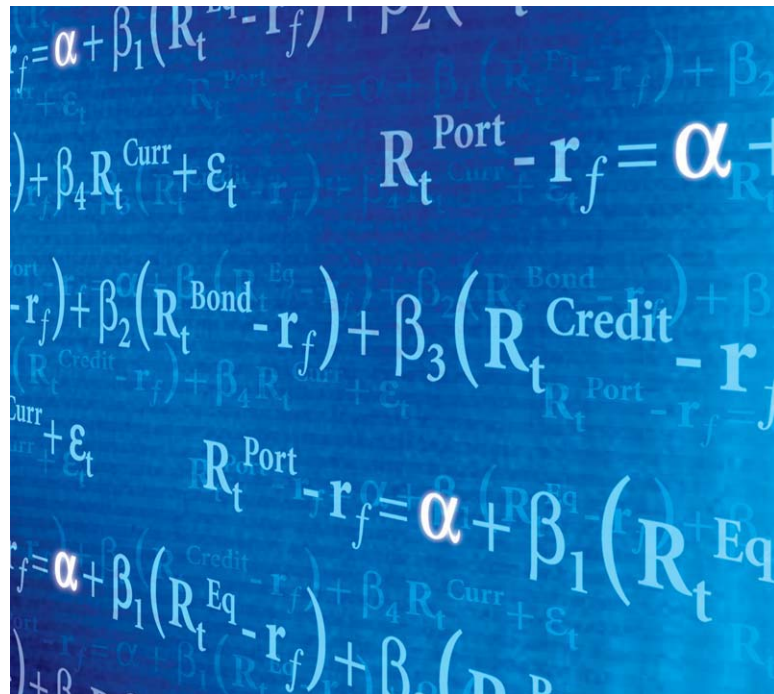
cially true in the hedge fund space where beta and alpha bets are sometimes mixed-up.<sup>1</sup>

In order to achieve these goals, the organization should:

- › Be organized into beta and alpha teams because these two tasks require two different sets of skills.
- › Rely mainly on external managers to generate alpha return.

The vehicles used are:

- › Index or derivatives to gain beta exposure.
- › Mainly hedge funds but potentially also long-only product for the alpha generation.



<sup>1</sup> See Fung, Hsieh, Naik and Ramadorai, 2005, who analyze the funds of hedge funds space showing that FoHFs also take considerable beta bets.

### References

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