UBS Global Asset Management

# Global Investment Solutions
## Dynamic Alpha Strategy

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**White Paper Series**

## UBS Global Asset Management White Paper Series

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## Dynamic Alpha Strategy

The last few decades have seen a decline in the importance placed on the management of total risk in building a portfolio. A secular bull market in equities contributed heavily to this outcome. Portfolio management was reduced to rebalancing market exposures to long-term policy settings, when it was deemed market[1] exposures had drifted too far from policy[2] settings due to performance differentials, and to the selection and monitoring of active[3] managers within markets. The last five years have exposed the weakness of this strategy. Long-term policy settings proved grossly inefficient, resulting in a significant deterioration of portfolio returns. This left many pension plans, endowments, foundations and personal portfolios in a difficult position to meet future obligations. Total portfolio risk, ignored in the great equity bull market, came back to haunt investors.

The reaction to this development by some in the fund management industry has been to question the role and even the relevancy of the policy portfolio. In our recent white paper "An Asset Allocation Revival," we contributed to this debate. Our conclusion was that policy portfolios are not obsolete; rather they have been misused in a manner that inappropriately constrains the management of market risk. We also concluded that the relegation of market risk to the sole purpose of hedging or defeasing of the liability stream, as suggested by some, leads to suboptimal investment performance. Instead, we believe dynamic[4] management of market risk should be an integral part of portfolio management. We agree that active risk and market risk should be thought of, and treated, separately wherever possible.

This paper builds on "An Asset Allocation Revival" by fleshing out some of the arguments presented in that paper and by providing an example of the solution, the Dynamic Alpha Strategy (DAS), toward which we believe some clients should be heading. The main conclusions that lead to the DAS solution are:

- The traditional investment paradigm inappropriately constrains the management of market risk by measuring return and risk relative to a benchmark.
- A total absolute return target can relieve these constraints.
- Long-run risk and return assumptions underlying the construction of a traditional benchmark remain useful.
- Active risk and market risk should be separated.
- Both active risk and market risk should be managed dynamically.

## The traditional paradigm

In the traditional paradigm, there is usually a benchmark comprising a combination of market exposures. The magnitude of the exposures is determined by the long-run risk and return assumptions for each market and by the risk and return objectives of the investor. This benchmark is expected to meet the objectives of the investor over the long run. The rationale for establishing this combination of market risks is that market risk is easily identifiable and, since it is not diversifiable, is compensated. A portfolio should take advantage of this potentially very powerful and efficient source of return by simply having exposure to market risk.

There is often also a strategy for enhancing the return of the actual portfolio relative to the benchmark. The first avenue for enhancement is dynamic market and currency allocation. Market and currency exposures are shifted around benchmark settings to take advantage of changes in the expected compensation for taking risk in these dimensions. The second avenue for enhancement is active management within markets. Superior returns are sought through the selection of securities within a market that provide a better return than the market itself. The rationale for these two enhancements is that if value can be added to the benchmark over the long run, the amount of funding needed to meet long-run obligations can be reduced.

Finally, risk management is usually implemented in this paradigm by specifying a risk mandate map.[5] Although use of dynamic market and currency allocation and of active management within markets are intended to enhance returns over the long run, they also alter the risk profile of a portfolio. The risk mandate map spells out the degree to which the risk of the portfolio is intended to be altered by market, currency and active risk positioning, usually depending on the perceived skill of the manager in each dimension. The rationale for this is to control the extent to which the actual

1 *Market* risk, exposure and return refer to the risk of, exposure to and return of an asset class. *Market* is also commonly referred to as systematic.

2 *Policy* refers to static market exposures against which the risk and return of the portfolio are typically measured. These exposures are designed to provide a certain risk and return profile over the long run. This is also commonly called a benchmark. After the introductory section, we will use benchmark to mean policy, policy portfolio, etc. Though policy could be more broadly defined, we use the more narrow interpretation.

3 *Active* risk, exposure, and return refer to the risk of, exposure to and return of an investment capability within an asset class. *Active* is also commonly referred to as non-systematic or idiosyncratic.

4 *Dynamic* refers to the variation of market or active exposure. We use this term in place of active to avoid confusion with the meaning of active given in footnote 3. For example, what is commonly called *active* asset allocation, we refer to as *dynamic* market allocation.

5 The risk mandate map specifies the expected amount of risk coming from various sources in a portfolio, as well as the total risk of the portfolio. The risk mandate map is set with the return objectives of the portfolio in mind and is the result of using long-run risk and return assumptions to deduce what level of risk is required, on average, through various sources, to reasonably expect to meet return objectives. The risk mandate map is not a risk control, but a risk guide. Traditional risk budgets are a particular application of the risk mandate map.

portfolio may underperform the benchmark in the short run. Even skilled managers have periods where markets fail to validate their strategies.

## Adding flexibility to the traditional paradigm

It is easy to question the traditional paradigm given what we know happened to the equity market from early 2000 through early 2003, and the resultant negative impact on many types of portfolios. It is instructive, however, to focus on some of the rigidities of the paradigm to better understand the improvements that can be made by simply adding some flexibility.[6] This will also help demonstrate that the changes to the traditional paradigm advocated here and embodied in DAS are not just a reaction to one sustained run of weak equity market performance. In summary, flexibility is added by:

- moving to a total risk and return framework;
- considering active risk and market risk separately where possible; and
- managing both active and market risk dynamically.

### Total risk and return

In the traditional paradigm, the manager is measured in terms of both performance and risk relative to the performance and risk of the benchmark. Therefore, the manager's incentive is to only consider the return and risk of the portfolio relative to the return and risk of the benchmark, not the total return and risk of the portfolio itself. This raises a question about the risk of the benchmark itself: What if the benchmark is grossly misvalued? In the traditional paradigm, this issue is neglected or glossed over. The benchmark is assumed to provide an adequate mix of market risks broadly appropriate at all points in time. This misplaced assumption can lead to grossly inefficient market allocations from a total risk and total return perspective. The incentives built into the traditional paradigm may dissuade a manager from moving too far from the benchmark. This results in the manager taking too much or too little market risk, and hence too much or too little total risk in light of the prospective total return compensation for that risk. In our view, an absolute total return objective, with an associated risk mandate map, better aligns the incentive of the manager with keeping an eye on total risk and total return.

### Separation of active risk from market risk

In the traditional paradigm, sources of active risk and return are tied to sources of market risk and return. If a particular active manager is very good, then to get the active return the investor needs to take the market risk of the asset class within which the manager operates. This creates a difficult situation when the asset class in question is overvalued. Avoidance of an asset class from a market risk perspective necessitates avoidance of the active return opportunity. In other words, in the traditional paradigm market risk and active risk are not separable. In a DAS framework, however, the use of financial derivatives can alleviate this difficulty. Buying the active portfolio and selling market index futures to mitigate all of the market risk captures only the active return.

By allowing for this separation of market and active risk, a portfolio may be concentrated in higher active return activities without taking the market risk associated with those activities. This is important because higher active return activities tend to be those associated with higher market risk asset classes, such as equities. The DAS approach allows for sources of active return to be thought of as a portfolio separate from sources of market return, with its own portfolio construction process.

### Dynamic market and active allocation

One feature of the traditional paradigm that evolved in practice, as opposed to being a fundamental precept, was the abandonment of dynamic market allocation. As the equity bull market progressed, it became less and less clear that dynamic market allocation was a useful or practical avenue for enhancing the portfolio return. Users of dynamic market allocation became disenchanted as underweight positions in overvalued equities led to persistent underperformance in the late 1990s. Risk mandate maps in the area began to reflect this view. They either allowed relatively little latitude in deviations of exposures from benchmark weightings, or did not allow deviations at all. Dynamic market allocation was seen as delivering inconsistent returns (due to lack of demonstrable manager skill) at best and impossible to execute at worst.

We disagree with this assessment of dynamic market allocation. There are periodic misvaluations of entire asset classes that should be exploited when they arise. Taking advantage of such opportunities by adjusting market exposure is not only important from a return enhancement perspective, but also from a risk management perspective (recall that most of the total risk in a traditional portfolio is market risk). Hence, we believe a disciplined process of dynamic market allocation that only takes risk when compensated will pro-

6 There were other errors in practice that we will not address here, such as breakdown of rebalancing discipline and gross mismatch of benchmark with future liabilities that contributed to sub-optimal performance.

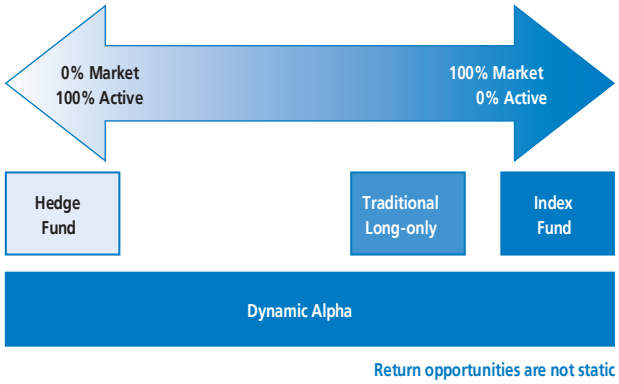
vide superior risk-adjusted returns over the long run.[7] In DAS, the same skills that were used to dynamically manage market allocation relative to a benchmark in the traditional paradigm are used in an absolute total return environment.

We also advocate the dynamic management of active risk. The opportunity set within various markets fluctuates through time just as the compensation for risk provided by markets themselves fluctuates. The markets chosen within which to take active risk should be adjusted through time accordingly.

## Putting it all together

Chart 1 illustrates the concept of DAS versus the traditional paradigm vis-à-vis active and market risks and returns. Moving from left to right the proportion of total risk of the portfolio that is coming from market risk increases. At the far left there is no market risk, as represented by market-neutral hedge funds. At the far right—represented by index funds—there is nothing but market risk. Risk and return go hand-in-hand. As market risk increases as a proportion of total risk, market return grows as a proportion of total return. As we move from left to right, the proportion of total return coming from the market increases because market risk is becoming a greater proportion of the total risk. At the far left, with a market neutral hedge fund, there is no market risk and hence there is no market return. At the far right, with an index fund, there is no active return whatsoever since there is no active risk, so all of the return is market return.

**Chart 1 – Diversifying sources of risk key to greater consistency**




The traditional paradigm, with its benchmark orientation (even if it allows for market allocation to differ somewhat from long-term policy settings), severely constrains the ability to actively allocate between market risk and active risk in terms of the total risk of the portfolio.[8] The total risk is always skewed toward market risk. However, there are clear instances where the ability to shift the reliance even further away from market risk and toward active risk is of great use from both a total absolute return and total risk perspective. These are instances where the benchmark settings for market exposures are grossly inefficient and force too much uncompensated market risk into the portfolio. This is where we advocate full flexibility to move market risk to close to zero if necessary. Conversely, in instances when investors appear likely to be rewarded for embracing market risk, this flexibility would suggest that market risk be a large part of the total risk of the portfolio.

The conceptual framework for DAS should be intuitive. If a manager has skill in any dimension, then by releasing constraints, the manager should be better able to demonstrate that skill. With DAS, a manager skilled at gauging market risk should be able to improve performance when not forced to take uncompensated market risk. By not having a benchmark against which return and risk are measured, and by separating the active risk from the market risk decision, the investor is free of constraints that resulted in suboptimal allocation of total risk.[9] The circumstances that tended to skew too much of the total risk to market risk are removed. Next, we turn to the actual framework for and implementation of a DAS strategy.

### The DAS neutral

The first step is to create a "neutral" positioning. The neutral positioning is the combination of risk exposures that would be taken if there were no views on markets other than that returns and risks are the long-run returns and risks, and that sources of active return would produce their long-run average in terms of returns and risks. Reflecting the separation of active risk and market risk, the DAS neutral has two elements: a "neutral market allocation" and a "neutral active allocation." Together, these are expected to efficiently and effectively meet the investor's objectives.

In the example here, we will assume that the investor's objective is an annualized 6% real absolute return (after fees) over a full market cycle. For DAS in general, there can be other return targets, depending on the particular circumstances of the investor. The benchmark from our traditional

7 For more on market allocation, see Gary Brinson's paper titled "Asset allocation versus market timing," published by the *Investment Management Review*, 1988. For a further discussion of currency allocation see Tom Clarke and Jonathan Davies, "Active currency management, mean reversion and trading rules," published June 2004 as part of UBS Global Asset Management's White Paper Series.

8 Other critics of the traditional paradigm have suggested a paradigm similar to the one we advocate, except that sources of active risk and market risk are held statically, hence the split between active and market risk within total risk remains fixed.

9 Another aspect of the flexibility advocated here is the ability to be net short markets, currencies and securities.

global balanced portfolios provides a reasonable starting point for developing a neutral market allocation, since our long-run asset class assumptions imply about a 6% real absolute return (after fees) from the market allocation of the traditional balanced portfolio benchmark.[10] Table 1 below shows the market exposure weights of this starting point.

**Table 1 - Traditional balanced portfolio asset class weights**

| Asset class | Market weight |
|---|---|
| Global Equity | 58% |
| US Small Cap Equity | 4 |
| Emerging Markets Equity | 3 |
| US Bonds | 21 |
| Non-US Bonds | 9 |
| Emerging Markets Debt | 2 |
| High Yield Bonds | 3 |
| TIPS | 0 |
| Cash | 0 |

This only provides for the preferred combination of market exposures based on long-run market risk and return assumptions, without consideration of the long-run risk and return characteristics of active management across and within markets. In DAS, the sources of active risk and return are not tied to the sources of market risk and return. Active management within certain markets tends to have higher information ratios[11] than active management within others, so sources of active risk should be skewed toward those markets. Again, think of a separate portfolio construction process for a portfolio of active risk. The favored markets in which to take active risk are those offering the highest information ratios—equities, emerging markets debt and US high yield, for example.

In addition to the intuition that we want to skew sources of active return to high information ratio (IR) active capabilities are three other considerations. First, using just one fund/process as the only source of active return probably concentrates risk too much. Some basic level of diversification of sources of active return is prudent. Second, some markets are not easy to hedge with cost-efficient financial derivatives,[12] so market risk and active risk may not be separable in those cases. Finally, if we can concentrate our active risk in higher IR strategies, then we need to take less market risk over time to achieve the same return objective. This means we can "de-lever" the market risk from the amount taken in the traditional global balanced benchmark into cash. Table 2 shows an example of a neutral for a DAS with 6% real return objective.

**Table 2 - Example DAS neutral, 6% real return objective**

| Asset class | Neutral active weight | Neutral market weight |
|---|---|---|
| Global Equity | 45% | 35% |
| US Small Cap Equity | 10 | 5 |
| Emerging Markets Equity | 10 | 10 |
| US Bonds | 7 | 7 |
| Non-US Bonds | 2 | 4 |
| Emerging Markets Debt | 4 | 4 |
| High Yield Bonds | 4 | 4 |
| TIPS | 16 | 16 |
| Cash | 2 | 15 |

A description of how these weightings were arrived at (versus the allocations presented in Table 1) is instructive in understanding many of the theoretical and practical issues involved in the implementation of DAS:

- First, we sought diversified sources of high IR active return, which means spreading active risk over a number of high IR activities. This results in larger weights on high IR activities like emerging markets equity, small-cap equity, emerging markets debt and high yield and smaller weights on low IR activities like US and non-US bonds. It also results in a smaller weight on global equity, not for IR reasons, but simply for the sake of diversification.[13]
- Second, the inability to hedge some market risk requires that we take on the associated market exposure to get the desired active exposure. Emerging markets equity is an example of this. Because its market risk and currency exposure cannot easily be hedged, we are unable to separate the risks as much as we would like.
- Third, we de-leveraged market risk since we do not need to take as much overall market risk, so there is a market weight to cash of 15% versus none in Table 1.
- Finally, in this particular example, TIPS have ideal risk/return characteristics given the real return orientation of the portfolio, so there is a large allocation in TIPS in the neutral.

The neutral strategy is not to be interpreted as a benchmark. There is an absolute real return objective, but there are many ways of achieving it. The neutral provides an anchor for thinking about how much market risk and how much active risk to include in the portfolio, given the opportunities available for taking market and active risk. Again, the neutral strategy answers the question: What would we

10 Note that this particular global balanced benchmark is US home-biased, but the approach is also applicable on a global basis or can be home-biased for other countries or regions.

11 Information ratio is defined as excess return divided by the standard deviation of the excess return.

12 Because we dynamically manage both active and market risk, entering into fixed-length swap contracts for the purposes of accessing market risk is not an efficient solution to the lack of established futures and forwards markets and exchange-traded index funds in certain markets.

13 An active weight of 58%, which is the global equity weighting in Table 1, is too high for any single source of active return from a diversification perspective.

do to meet our objective if all sources of market risk were exactly fairly compensated and all sources of active risk were expected to return their long-term average? It serves as a starting point for formulating strategy.

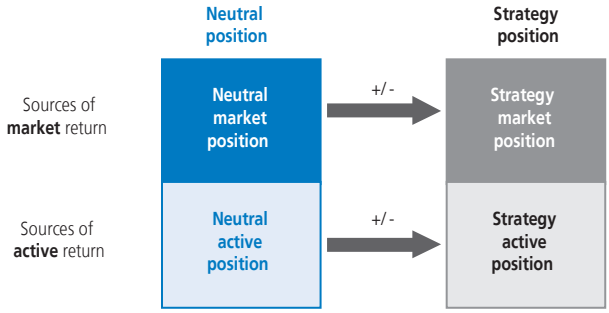
### Formulating DAS market strategy

Market strategy is determined by gauging whether the risks of each market are over- or undercompensated by the expected returns, based on our notions of current market valuation. We seek to take market risk as a function of its compensation based on price relative to value. Hence the total risk and return are relevant. Gauging market risk involves the use of our market valuation models with our long-run fundamental assumptions. This highlights another way (along with establishment of the neutral) in which long run assumptions on market returns and risks and economic fundamentals remain very important to the process.

### Formulating DAS active strategy

With the sources of active risk separated from market risk, we are free to focus on higher IR strategies for this source of return, without having to concern ourselves with incurring the associated market risk. This means concentration in equity portfolios and in riskier fixed income portfolios, as they tend to have higher average active return abilities than cash or sovereign bond portfolios. The space is not limited to traditional asset class categorizations, however.[14] Another important consideration is the assessment of the magnitude of active opportunities. We can look at the current active risk that active strategies are taking versus their benchmarks in relation to the normal level at which active risk would be taken. The presumption is that more active risk implies more perceived opportunity.

**Chart 2 – Market and active exposure treated separately in DAS**




### DAS strategy

We construct portfolios that only take market risks that are compensated in absolute terms, and rely more heavily on sources of active return for achieving the overall risk/return objectives of a particular DAS. To achieve this many existing capabilities are exploited to provide a less constrained approach to achieving the investment objective. Chart 2 illustrates how the separate treatment of active and market risk, and the neutral and actual strategy are related.

Table 3 shows an example of a DAS portfolio with a 6% real return objective based on 1) the neutral from Table 2, and, 2) the views on markets from a market risk perspective, and, 3) the assessment of active opportunity within markets, all as of August 12, 2004.

The strategy expresses an overall higher-than-neutral exposure to both equity market risk and to active equity risk. The equity market exposure is actually even higher in risk terms. This is because within the equity market exposure there is a skew toward emerging markets equity, which has higher risk than small cap or global equity. The overall equity market exposure reflects the fact that we see equities as a bit

**Table 3 - Active and market weights vs. neutral weights, DAS example**

| Asset class | Neutral active weight | Neutral market weight | Current active weight | (+/-) | Current market weight | (+/-) |
|---|---|---|---|---|---|---|
| Global Equity | 45% | 35% | 56% | 11% | 30% | -5% |
| US Small Cap Equity | 10 | 5 | 10 | 0 | 2 | -3 |
| Emerging Markets Equity | 10 | 10 | 20 | 10 | 20 | 10 |
| US Bonds | 7 | 7 | 0 | -7 | 0 | -7 |
| Non-US Bonds | 2 | 4 | 0 | -2 | 5 | 1 |
| Emerging Markets Debt | 4 | 4 | 0 | -4 | 0 | -4 |
| High Yield Bonds | 4 | 4 | 2 | -2 | 2 | -2 |
| TIPS | 16 | 16 | 8 | -8 | 8 | -8 |
| Cash | 2 | 15 | 4 | 2 | 33 | 18 |

14 Market neutral hedge funds could be considered in this area as well as more specialized areas of traditional fixed income, like mortgage security selection. Hybrid asset classes like convertible bonds could be considered as well.

on the cheap side, and hence the risk of holding them at slightly above neutral exposure is compensated. Emerging markets equities are seen as more attractive than developed market equities, so the portfolio is tilted toward them in market terms. The overweight to equities in active terms acknowledges a reasonable amount of active opportunity coming from the bottom up within equity. We see very little value in fixed income overall, both from an active and market perspective, as the positions clearly indicate.

The risk posture of the portfolio is shown in Table 4. Total risk is separated into the three sources: market exposure, currency exposure and active exposure. Next to the risk posture of the portfolio is the risk mandate map for the portfolio. The risk mandate map indicates our long-term average expected risk exposures. The current total risk of the portfolio is lower than what is specified by the mandate map, as are the active and currency risks. The market risk of the portfolio is above the mandate map because we believe that the global capital market is undervalued from a fundamental perspective, and that the risk of taking on general market exposure is well compensated for at this time. The market risk exposures of the portfolio are skewed toward equity and cash, reflecting a preference for equity over fixed income. The currency risk is low, by design, reflecting a smaller than usual opportunity set. Finally, active risk is low despite the concentration of active exposure in higher IR strategies because active portfolios are in general running lower-than-usual active risk. Note that this is just a snapshot in time. The actual strategy changes through time as market return and active return opportunities evolve.

**Table 4 - Risk posture of DAS**

| | Strategy | Risk mandate map |
|---|---|---|
| Total risk | 8.5% | 9% |
| Market risk | 8.3 | 8 |
| Currency risk | 0.6 | 2 |
| Active risk | 1.9 | 3 |

## Summary

DAS strategies release the constraints that have hitherto motivated a portfolio to take more market risk than is necessary over time to achieve return objectives, and to hold inefficient market allocations at certain points in time. These constraints include managing relative to a benchmark rather than to absolute total return and total risk objectives, not allowing separation of market and active risk, and shunning of dynamic market and active allocation. With these constraints released, the portfolio has a greater chance of meeting return objectives over time while experiencing less volatility. We believe more judicious and unconstrained management of the mix of market and active risk will lead to a more satisfying result than the traditional balanced portfolio management approach.

**Previously published papers in the White Paper Series include:**

Tom Clarke. "Market Behavior Analysis." UBS Global Asset Management, August 2004.

Tom Clarke and Jonathan Davies. "Active Currency Management, Mean Reversion and Trading Rules." UBS Global Asset Management, June 2004.

Brian Singer. "Asset Allocation Revival." UBS Global Asset Management, March 2004.

Brian Singer, Renato Staub and Kevin Terhaar. "An Appropriate Policy Allocation for Alternative Investments." *Journal of Portfolio Management*, Spring 2003.

Renato Staub and Jeffrey Diermeier. "Segmentation, Illiquidity and Returns." *Journal of Investment Management*, First Quarter 2003.

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