Achieving alpha through the best dynamic beta selection.

Betalphing allows investors to outperform a traditional allocation with a markedly lower volatility and a lower maximum drawdown, through a disciplined, smart and dynamic asset allocation.

INTRODUCTION

Betalphing is a two-steps investment methodology that aims to generate outperformance over the benchmark (also called "Alpha") through an optimized asset allocation model. In other words, to get "Alpha" through the best "Beta" Allocation. The methodology thus differentiates itself from both "Active" investment style such as stock-picking and the "Passive" investment style such as Index Funds. The methodology uses a tried-and-tested dynamic allocation approach in order to mitigate drawdowns and enhance performance. It is implemented using liquid UCITS ETFs and futures contracts.

Of course, purists will say this is not how "true Alpha" works (as in, an idiosyncratic source of uncorrelated excess returns). However it is well documented that "true Alpha" is proving to be, if not a wild goose chase, at least an elusive quest. While some skilled managers can demonstrate uncorrelated, consistent performance over time, the overwhelming majority of funds repeatedly fail to beat their benchmarks. What masquerades as Alpha is often just luck and not skill! (As reported by Fama and French among others[1])

According to Standard & Poor's Indices Versus Active Funds Scorecard (SPIVA) 2015 Year End report, the majority of European Equity Funds underperformed their benchmarks over the 3-, 5-, and 10-year periods. The picture is even worse in the U.S., where over 84% of U.S. active funds

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[1] "Luck Versus Skill in the Cross-Section of Mutual Fund Returns." Eugene F. Fama and Kenneth R. French. *Journal of Finance*, October 2010.

underperformed the S&P 500® over the past one-year period. This poor performance continued over the longer term, as over 98% of active funds trailed the benchmark over the past 10 years. The picture that the S&P reports paint is devastating for the mutual-fund business. If active mutual funds have consistently proved to underperform their benchmarks year after year, there is little reason to think that this is about to improve any time soon.

On the other side, Passive Investment, for all its beauties (low-cost, liquid benchmark replication) is not in itself the answer to all the mishaps of active managers. Benchmarks can and do often perform poorly over time. Take stock indices for instance, in the long run they can return up to five or six per cent per year (assuming you chose the right index). For that yield, you will have to stomach drawdowns of over half your capital and have to wait many years to recover your money. And, the disturbing reality is that a sufficiently disciplined investor can, on paper and given enough time, easily outperform an Index Fund. Adding to that, studies demonstrate that Investors tend to have shorter holding periods in ETFs than in mutual funds and that the improvement in security selection is often frittered away by bad market timing and excessive turnover.[2]

So the Betalphing methodology is just that: a rigorous and disciplined approach to asset allocation that generates enhanced returns while reducing volatility and drawdowns.

This paper describes how the model works in practice and evaluates the result:

1ST STEP: STRATEGIC ASSET ALLOCATION

The 1st layer is the strategic asset allocation between 3 Asset Classes: Equity, Bonds and Cash. The strategy aims to outperform a patrimonial allocation following a global portfolio. Hence the benchmark universe is defined as follows: International equities in local currencies, with weights as defined in the MSCI All Country World Index. International Government Bonds in local currencies, with weights as defined in the Barclays Aggregate Global Treasury Bond Index[3], and cash or money market securities.

The model uses two different sub-models S: Stock/Bond allocation, and B: Bond/Cash allocation.

The inputs to the S model are quantitative signals collected monthly, (the model is updated on the first trading day of the month) from economic and financial indicators. You will find a summary description of the signals used and their description in Annex 1. For each of these signals a threshold function converts the signal into an output of either one (1), zero (0) or (-1). 1 if the signal is above the high threshold, 0 if between the high and low threshold function and -1 if below. More formally

$$f_{l,h}(s) = \begin{cases} 1; s \geq h \\ 0; l \leq s < h \\ -1; s < l \end{cases}$$ for each signal s and its associated threshold values l and h.

Then the sum S of the N signals is computed for the date t and scaled to be between 0 and 100.

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[2] "The Dark side of ETFs". Utpal Bhattacharya, Benjamin Loos, Steffen Meyer. Andreas Hackethal and Simon Kaesler. Kelley School of Business Research Paper No. 2014-46

[3] All legacy Lehman Brothers benchmark indices were rebranded as Barclays Capital Indices in November 2008

$$S_t = \frac{100}{N} \sum_{s=1}^{N} f_{l,h}(s_t)$$

S is the "unsmoothed" model reading for that month.

The smoothed version is calculated by averaging with the previous model reading, to obtain a 2 month moving average of the reading:

$$\overline{S}_t = \frac{S_t + S_{t-1}}{2}$$

The Bond/Cash model uses the same methodology with different Indicators (you can find the summary description in Annex1)

Once the two readings for the S and B Model are obtained they are used to obtain the optimal asset allocation as follows where S and B are the Stock/Bond and Bond/Cash allocation:

	Benchmark Allocation	Model Allocation
Stocks	55%	S
Bonds	35%	(1-S)*B
Cash	10%	(1-S)*(1-B)

We now have completed the 1st layer and have got a precise and rigorous asset allocation framework. This is critical and in itself already enables the portfolio to outperform both in annual return and standard deviation terms the static 55/35/10 benchmark.

2ND STEP: TACTICAL ASSET ALLOCATION

That said, the model is still incomplete as it doesn't specify how to express these views. And the end results can differ vastly depending on what is meant by Equity, Bonds (think Greek Government Bonds) or Cash. So once we have come up with the recommended asset allocation is, the next step is to figure out the best possible implementation given the constraints of the universe. Fortunately we can also use our 1/ Geographical Outlooks and 2/ Sectorial Views to tilt our implementation in the good direction. This is the 2nd crucial layer where the Betalphing methodology delivers outperformance through a smart asset allocation.

The Bond/Cash Tactical Asset Allocation

The Cash allocation is made through Cash, Deposits and UCITS compliant Money Market ETFs

For the Bond part, the methodology invests in government bond markets futures and ETFs with duration comprised between 3y and 30y (for an average duration of circa 7y). Depending on the shape of the yield curve and views about the future shape of the curve (curve flattening, or curve steepening), instruments of different duration are chosen. For example, in line with expectations of a future flattening of the yield curve, instruments with longer duration will be selected.

The geographical asset allocation is made by using the same methodology as in the first layer. The Geographical benchmark is set using the weights in the Barclays Global Treasury Index. The allocation is then tilted towards specific zones in accordance with the monthly views compiled from the quantitative and macro-economic research. The methodology allows an allocation to the Emerging Bond Market Index, outside the benchmark.

Example of Bond Allocation:

	Strategy Allocation	Benchmark	Under/Over
U.S.	43%	48.1%	Under
EUROPE	24%	26.8%	Under
JAPAN	25%	19%	Over
U.K.	5%	6.1%	Over
E.M Bond Index	3%	0%	Over

The Equity Tactical Asset Allocation

Geographical allocation

In the Equity World the allocation is tilted in 2 ways, via deviations in geographical weights and via deviations in sectorial weights: the geographical weights are chosen exactly in the same way as for the bond allocation, using as a benchmark the weight in the MSCI All Country World Index. Below is an example of such an allocation.

	Strategy Allocation	Benchmark	Under/Over
U.S.	55%	52.6%	Over
EUROPE ex UK	14%	15.6%	Market
Emerging Markets	9%	10%	Market
Pacific ex. Japan	8%	3.9%	Over
Japan	7%	7.9%	Market
Canada	4%	3.1%	Market
U.K.	3%	6.9%	Under

Sectorial Allocation

There are several benefits to a dynamic sector allocation as opposed to only a geographical one. By making comparisons across sectorial categories, the methodology strives to deliver outperformance for investors through categories rotation, where possible (i.e. whereas in the US and in Europe it is possible to find economical ways to invest into sectors, it is not the same story in China, in the UK or in Japan for example). Therefore, in the US and in Europe, most of the allocation is made through

sectorial ETFs, and is tilted towards specific sectors to comply with the research view. The sectors considered are as defined in the GICS (Global Industry Classification Sectors).

Energy/Materials/Industrials/Consumer Discretionary/Consumer Staples/Health Care/Financials/Information Technology/Telecommunication Services/Utilities

The intuition behind the sectorial allocation is the recognition that, although highly correlated each sector behaves differently during market upturns and declines. Therefore it is of paramount importance to categorize sectors between "defensive" and "cyclical" sectors. "Cyclical" tend to outperform during bull markets, while "Defensive" tend to outperform during bear markets. A statistical method called k-means clustering is employed to classify sectors as defensive or cyclical.[4] Therefore, during bull markets, more weight is assigned to cyclical sectors, and during bear or flat markets more weight is assigned to defensive sectors.

3RD STEP: ETFS VEHICLE & CURRENCY HEDGING OVERLAY

Choice of Vehicles: With the portfolio now defined up to the sectorial and geographical level. The only thing lacking is the choice of the implementation and the currency hedging. UCITS Compliant ETFs and Future Contracts are used to implement the strategy. ETFs for their low cost and ease of access to zones or sector. And futures contracts for their deep liquidity and as they provide a tight bid-offer spread which is useful for making small adjustments. Here is a list of the criteria used when selecting the ETFs:

-Total Expense Ratio
-Underlying Index Composition to ensure the best match to the investment objectives
-Bid-Offer Spread to ensure the lowest drag of execution costs on the strategy
-Tracking Error
-Counterparty Risk
-Tax Regime

Currency Hedging Overlay: The last step is to hedge the portfolio so that the returns are provided in the desired currency and are not impacted negatively by adverse FX movements. For example if the investor home currency is EUR, then he will be affected by changes in the EUR/USD exchange rate on the portion of the investments denominated in USD made by the model. Instead of hedging daily so that the changes in FX rates do not impact at all the strategy, the Betalphing model tactically leaves portion of the FX exposure unhedged at times by using a trend following model, in order to profit from long lasting FX trends (for example, the strength of the dollar in 2014)

The currency trend following model uses a technical-based momentum indicator called the moving average cross-over to identify trends. Buy signals are generated when the data crosses above the moving average or does so by a specified percentage and sell signals are generated when the data crosses below the moving average or does so by a specified percentage. The aim is to identify long-lasting trends in FX movements, while filtering out short term noise.

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[4] Benefits of Sector Investing, Daniel Chin, Trey Johnson. NDR Solutions Quarterly Dec 2015

The Betalphing methodology is used since 2009 by the Fund Flab Core. The comparison between the fund performance and the benchmark allocation can be found in the table and graph below.

The Benchmark is constituted of 55% allocation to the total return of the iShares MSCI ACWI (MSCI All World Country Index) UCITS ETF (ticker ACWI US), 35% to the total return of iShares International Treasury Bond ETF Total Return (ticker IGLO US), and 10% to the total return of the SPDR Barclays 1-3 Month T-Bill ETF Total Return for the cash portion (ticker BIL US). The benchmark this represents the performance attained by a theoretical investor rebalancing monthly to the 55%/35%/10% allocation.

Note, that the theoretical benchmark is very much an idealised one as 1) it assumes the investor is able to invest in the vehicles chosen above, which he might not be able to due to tax, legal or currency considerations 2) it doesn´t include any transaction costs for the initial allocation nor the on-going rebalancing of the benchmark to keep the allocation constant at 55%/35%/10%.
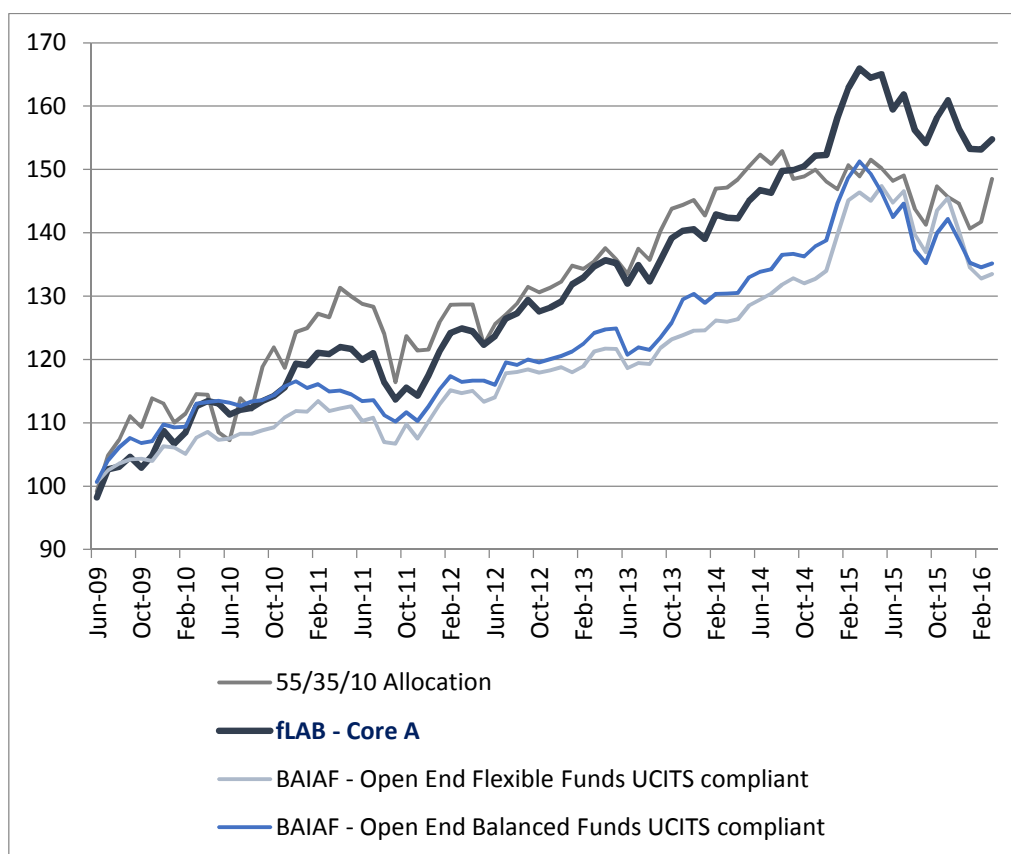

Key Statistics (June 2009 to March 2016)

	55/35/10 Allocation	fLAB Core A	BAIAF - Open End Flexible Funds UCITS compliant	BAIAF - Open End Balanced Funds UCITS compliant
Annualised Return	5,96%	**6,60%**	4,32%	4,51%
Maximum Drawdown	14,94	**12,8**	14,60	16,72
Monthly Returns Vol	8,84%	**6,26%**	5,82%	5,51%

CONCLUSION:

The Betalphing methodology allows investors to outperform a traditional allocation on all 3 measures, with a markedly lower volatility and a lower maximum drawdown, through a disciplined, smart and dynamic asset allocation. This has led industry professionals like Morningstar and Lipper to recognize the excellence of the fund.

Annex I: Description of Quantitative Signals used by the Model

The Model uses a "fusion" of technical, macro-economic, valuations metrics, sentiment and market indicators, Example of the signals are provided below.
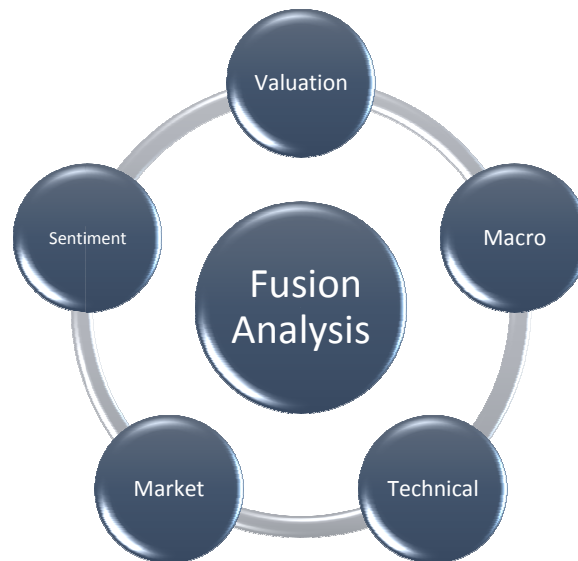
Technical Signals

Trend Model: Moving Average Crosses (as described in the currency hedging overlay paragraph)

Overbought/Oversold Indicator: is a measure to compare whether or not an asset price recent movement might be caused by overbuying or overselling by measuring the average of "up" movement versus the average of down movements

%of Stocks/Bonds/Markets above Moving Averages: used to identify the direction of the cycle (Bull/Bear)

Momentum Indicators: it measures the rate of the rise or fall in asset prices

Macro-Economic Signals

OECD GDP figures: published monthly, country by country

Employment Figures: the report estimates the number of people employed and unemployed, the number of hours being worked

OECD G7 Leading Indicator Index: this indicator provided by the OECD is designed to provide early signals of turning points in business cycles

Sentiment Signals

Purchasing Managers Index (PMIs): Purchasing Managers' Indexes are economic indicators derived from monthly surveys of private sector companies.

IMM Positioning Data & CFTC commitment of trades: These two weekly reports shows the holdings of participants in various future markets, ranked by categories (money managers, speculators etc..).

VIX Term structure: the volatility index VIX is also called Wall Street Fear Gauge. Its term structure reveals the volatility expected in the future by market participants

Valuation Signals

Average Price/Earnings Ratio: is a ratio for valuing a company that measures its current share price relative to its per-share earnings. It is then averaged across all the companies of the relevant market to provide an indicator of how cheap, or expensive the market might be compared to average

Bond Yields versus Stocks Earnings Yield: Indicates levels of perceived risk in the bond market and the stock market.

Bond Yield Spreads: "High Yield" Bonds Yield –"Investment Grade" Bond yields. Higher spreads indicate a higher default risk in junk bonds and can be a reflection of the weakening of macroeconomic conditions.

Market Signals

Inflation Expectations: the 5y5y breakeven rate is the market expectation of the average level of inflation over 5 years 5 years from now.

Yield Curve Indicator: the slope of the yield curve (difference between long term rates and short term rates) is used as a predictor of future real economic activity