

The Case for Dynamic Allocation in Currency

**Daniel Szor, Managing Director
FX Concepts**



As alternative investment managers continue their never-ending search for alpha it is clear that for most the priority is in generating the smoothest returns possible with the lowest possible volatility. In our business - currency - this is problematic as we operate in a universe of limited choice in terms of instruments: 10 developed currencies and approximately twice that many emerging currencies (with varying liquidity). Just as a fixed income manager will be able to generate smoother returns and lower volatility by managing a portfolio of 100 bonds versus a 10-bond portfolio, currency managers who are able to create diversification in their portfolios will be able to provide their investors with better information ratios over time than those are more concentrated. Once such diversification exists, be it over multiple currency pairs, time horizons, trading styles or all of the above, the next frontier becomes how to allocate effectively.

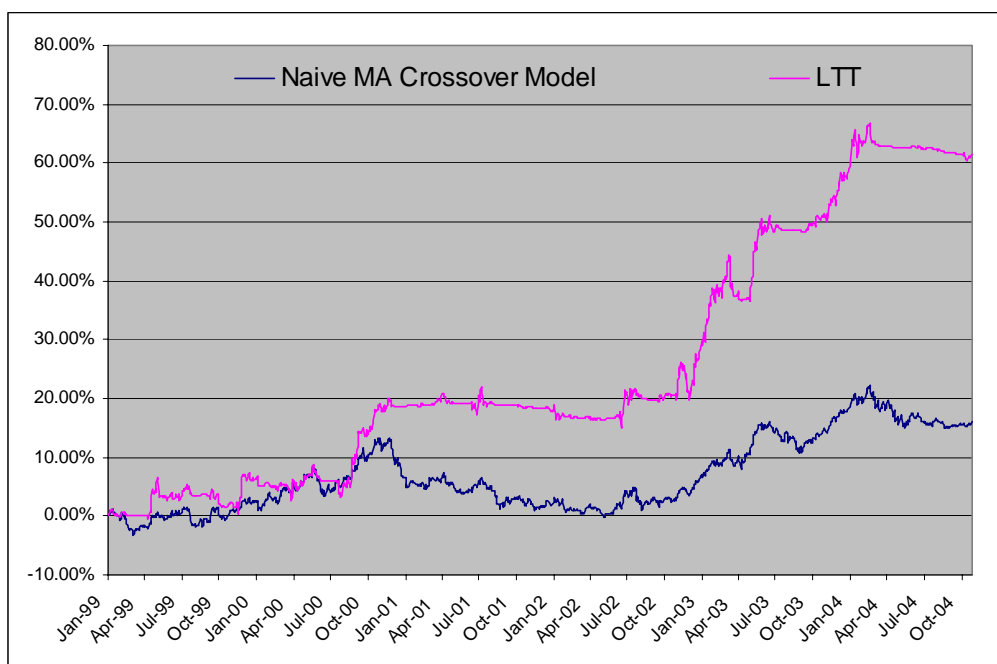
FX Beta vs. FX Alpha

The first step in constructing an effective trading strategy is making certain that it effectively exploits all sources of return available in its given market. Foreign Exchange is unique in that despite its great liquidity it is far from the most efficient market in the world. Whether this is due to the often-remarked upon “lack of non-profit participants” or the fact that currency has never been considered an asset in the “buy and hold” sense is a topic in its own right. Whatever the reason, the existence of a base return – or beta - in currency can be illustrated through the historical performance of naïve rules-based strategies which proxy the returns available by simply exploiting the principle inefficiencies in the FX market. The two most widely-followed strategies are directional trading and carry trading and a third exists in the volatility space - i.e. exploiting various mispricings between implied and realized volatility.

If simple rules-based systems can generate positive returns then it should follow that an intelligent, experienced and disciplined manager should be able to add alpha to the beta described above. The three main forms of such alpha can be summed up as: 1) good model design, 2) intelligent portfolio construction, and 3) sound risk management. What has become clear to us as model-designers is that allocation is front and center in the success of all three of the above alpha components.

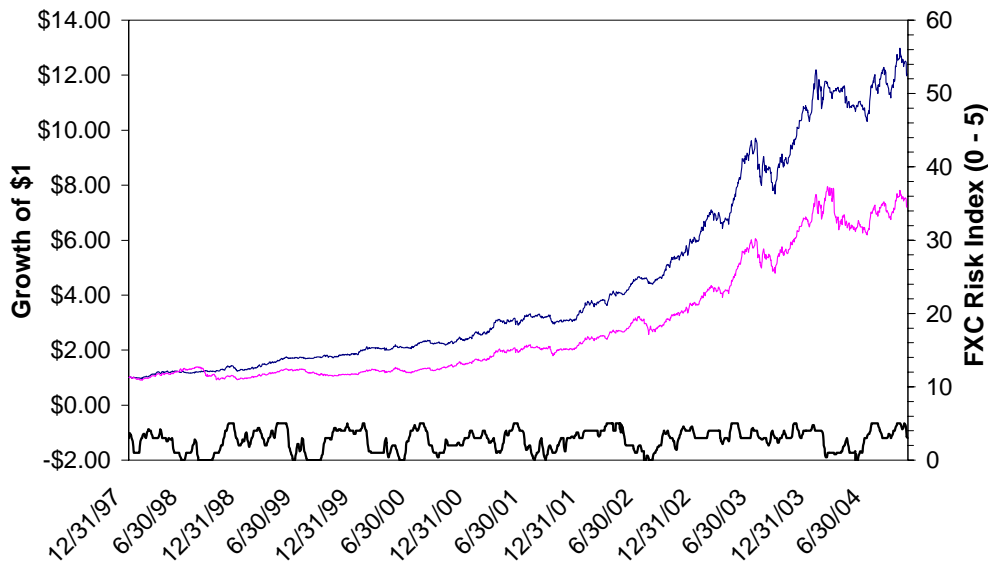
FX Alpha 101 – Designing Smarter Models

Among the first quantitative techniques used to design directional trading models was systematic trend-following. Relying on any number of related signals such as momentum, moving averages, trendline analysis, etc. trend-following relies primarily on a “pairs-based” approach to portfolio construction. It assumes serial correlation, i.e. what went up yesterday will rise again today and tomorrow. The problem with this approach is that, although certain assumptions regarding future performance can be made taking past performance into account (such as “JPY sees more trends vs. the USD whereas GBP/USD tends to mean-revert, resulting in choppier and more difficult dynamics for trend-following”), the process of creating a pairs-based model and running it on a discrete number of currency pairs involves an essentially naïve and static allocation of risk capital. Furthermore, as trend-following is a “long-volatility” strategy one of its main weaknesses is the “lumpiness” of its returns – i.e. it has several instances of strong return in a year separated by long periods of flat or negative performance. Increasingly, in order to smooth this lumpiness and optimally deploy risk capital assigned to trend-following, managers are turning to optimizers which dynamically allocate capital to currency pairs where risk-adjusted return expectations are highest. The chart below shows the difference in performance between a naïve moving average crossover model and one of our optimized trend-following systems employing dynamic asset allocation:

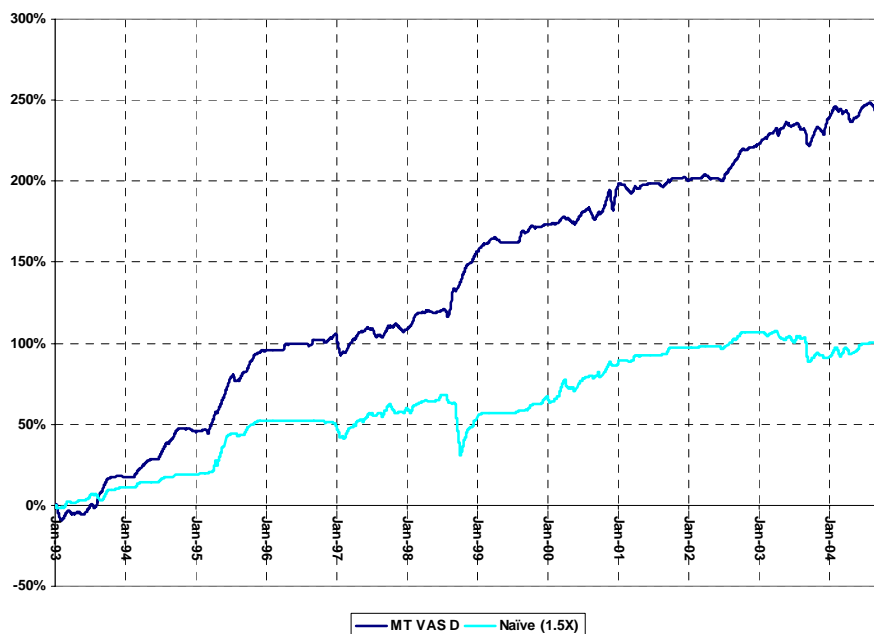


The second-most popular technique used to generate currency alpha is yield-based, or carry, trading. Here once again, naïve strategies were originally used to capture this beta, which is based on the observed phenomenon that over time currencies with high yields tend to outperform those with low-yields. Capturing this beta should therefore be as easy as constructing a portfolio of long positions in high-yielding currencies financed by short positions in low-yielding currencies. While this approach has historically generated positive returns – especially in recent years – the risk has been in the “tails”, i.e. the infrequent but significant losses which can occur when risk appetite (which typically corresponds to positive performance for yield-based

strategies like FX carry) turns to risk aversion. Overcoming this hurdle is what separating beta capture from alpha generation is all about – i.e. the point at which managers become smarter about their risk allocation. The chart below shows the improvement in performance of a basic carry strategy when the risk allocation is dynamically set using a “risk appetite index” (the black line) as we do in several of our carry systems:



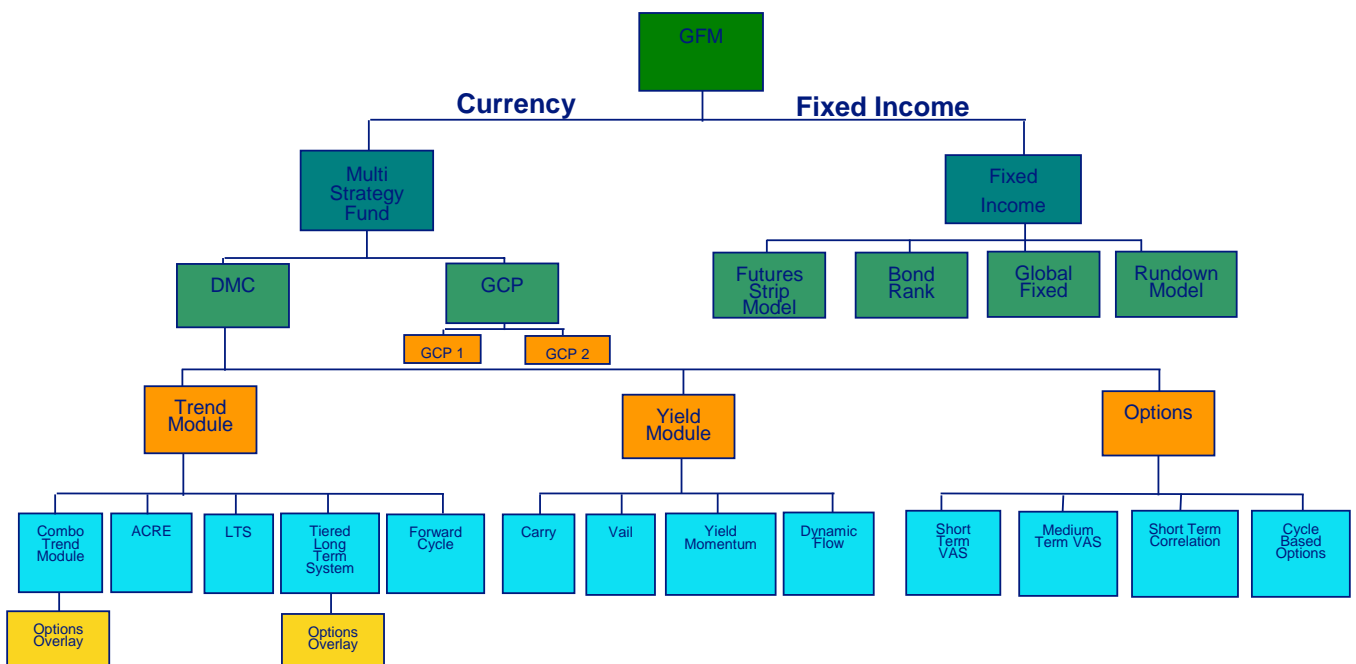
The third beta available is probably the least-exploited, as it is only in the past several years that systematic strategies operating in the volatility space have become practicable. These strategies are based on a number of inefficiencies observed in the past, the principle one being that implied volatilities embedded in currency options tend to be more expensive than realized volatility. It would then follow that even a naïve options-selling system would do well over time – and such is the case. Once again, however, there is a price to pay – which is the “short volatility” risk profile of the strategy. This tends to look the opposite of the “long volatility” trend-following risk profile, which makes it a good complement to any systematic trend-following strategy - but nevertheless it can be improved on by dynamic allocation. The chart below shows the difference in return between a naïve options-selling strategy and one of our own, “smart” systems using dynamic allocation to weight positions based on the favorability of the environment for short-volatility strategies:



FX Alpha 102 – Improving Portfolio Construction

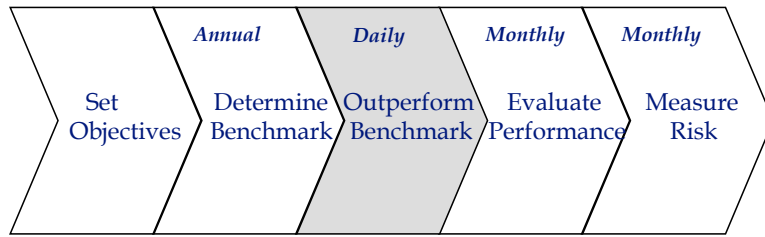
Once a series of individual trading systems has been developed the next step is putting them together in a portfolio with the goal of capitalizing on the benefits of diversification and low correlation between models. Even the most basic portfolio combining systems based on the three “betas” above will probably outperform any single strategy on a risk-adjusted basis, given the low correlation between the three approaches. In the case of many professional currency managers this is only the beginning, however – as a more complex portfolio using multiple systems will probably produce a superior risk-adjusted return than one using only 2 or 3 systems. In the case of FX Concepts, our investment process has evolved over the years to the point at which the very complex investment decision tree below depicts our most sophisticated currency/fixed income strategy – the Global Financial Markets (GFM) Program:

FX Concepts’ Global Financial Markets Fund Decision Tree - : Many Decisions, each a source of value-added



Once the portfolio becomes this complex it is clear that a manager is no longer operating at the level of a basic FX trader but rather in a way more similar to that of a Fund of Funds manager – i.e. with a focus not only on having good strategies but also on getting the allocation between strategies right. This “allocation alpha” becomes more significant with the increasing complexity of the underlying portfolio, to the point at which it can become a more important contributor to the overall return than any one underlying strategy. A correspondingly more intense discipline is therefore required in order to effectively allocate risk capital between various strategies – this discipline can be summed up as follows:

Key to Success – Effective Decisions



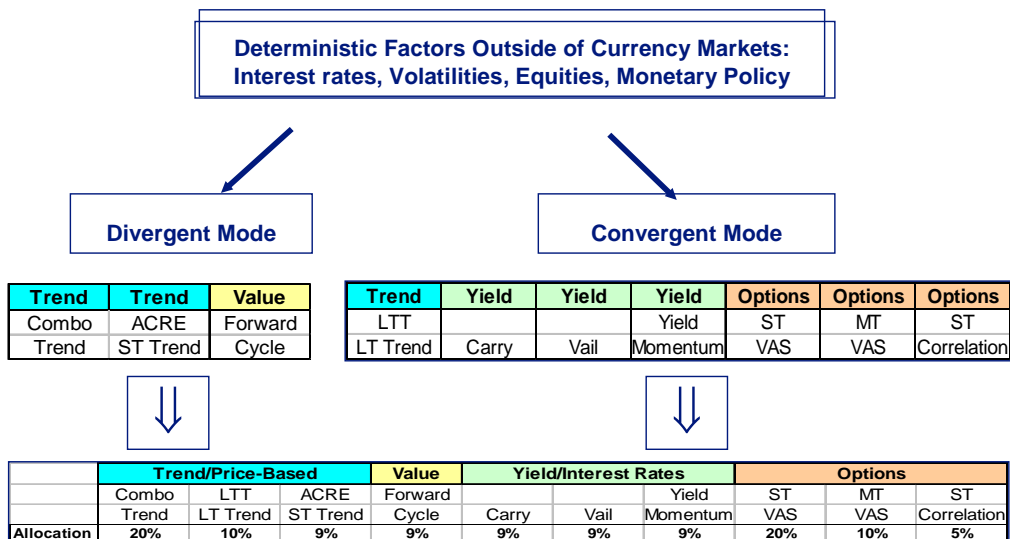
- Transparency and governance are critical

FX Alpha 103 – Creating Allocation Alpha

So the goal becomes outperforming a benchmark “naïve allocation” – easily said, but how to go about it? Just as dynamic allocation was shown above to be a key element in improving the returns of underlying trading models, so also can it be an important element in improving the portfolio construction process. As is the case with underlying models, the key to this is in understanding the drivers of performance in the strategies making up a portfolio – in other words, under what circumstances they are expected to outperform and when they are more likely to underperform. We have grouped our strategies into those that are essentially long volatility in nature and are therefore more likely to outperform during “divergent” periods in the market, versus those that are either short- or neutral-volatility or more likely to outperform during “convergent” periods.

What do these terms - convergent and divergent – mean? Think of it as follows: if there’s a currency headline on the front page of the Financial Times, this would likely be described as a “divergent” period – i.e. one in which significant shifts in parities are occurring – whereas if currency barely makes the back page of the FT, this would probably be described as “convergent” – i.e., “all quiet on the Western Front” – with yield-enhancing trades the order of the day. We have therefore crafted our allocation metric as follows:

Example of Allocation Process: Tilt Function



As mentioned in the illustration above, the portfolio manager’s job becomes one of identifying exogenous variables (just as the model designer does when building dynamic allocation techniques for his systems) which can help determine future performance for a given strategy, or group of strategies. Just as a model designer will want to easily test multiple factors for effectiveness and predictive value, the portfolio manager will want to do the same – therefore, effective technology is required. We have used one such system below, the Alphaengine from Mcube, to illustrate the significance of the return enhancement obtainable through dynamic and systematic strategy allocation.

Strategy Details	
Name	Allocation Strategy
Description	Equally weight the Currency Implied Volatility Allocation Rule with the Equity Market Volatility Rule for Diversification
Date Created	07/01/2005
Strategy Base Currency	U.S. Dollar
Date last evaluated	07/06/2005
Strategy Assigned to	GFM – DMC Portfolio
Start Date	01/30/1998
End Date	02/28/2005

Benchmarks		Constraints	
GFM-Trend	50%	Asset Limit	Not Enabled
GFM-Yield/Interest Rates	50%	Stop Loss	Not Enabled
Rule(s) Assigned			
Trend vs Carry - Implied Vols	50%		
Trend vs Carry - VIX	50%		

In the example above, we have created a very simple allocation model composed of two rules. The first rule is based on the momentum of implied volatilities in the currency options market, and on the premise that high absolute levels of volatility are bad for trend-following as they tend to hamper the effectiveness of trend signals. During these periods the signal therefore shifts the weight from trend-following to carry by an increment of 10%. The second rule uses the VIX index – a proxy for equity market volatility – as a signal to increase or decrease the allocation to trend-following. The premise is that high and rising equity volatility is a pre-cursor to an increase in currency volatility which will render trend-following less effective. It therefore shifts the allocation away from trend-following towards carry during such periods, by an increment of 10%. Each of these rules took 5 minutes to develop and test; the final step was in creating a rule which combines the two. The results – versus a benchmark 50/50 split between trend and carry – are as follows:

PERFORMANCE SUMMARY							
	Annualized Return	Annualized Std Deviation	Annualized Return-Risk Ratio	Cumulative Return	M2 Return	M3 Return	SHARAD Return
Total Period							
Strategy Excess	3.78%	4.84%	0.782	92.92%	4.07%	4.08%	3.64%
Trend vs Carry - Implied Vols Excess	2.74%	6.01%	0.4565	65.58%	1.67%	2.02%	-0.52%
Trend vs Carry - VIX Excess	4.7%	5.72%	0.8209	118.18%	3.28%	3.35%	3%

PERFORMANCE SUMMARY							
	Annualized Return	Annualized Std Deviation	Annualized Return-Risk Ratio	Cumulative Return	M2 Return	M3 Return	SHARAD Return
Total Period							
Static	20.19%	8.36%	2.4159	273.61%	20.19%	20.19%	20.19%
Strategy	23.97%	8.25%	2.9065	366.53%	24.27%	24.27%	23.84%
Excess	3.78%	4.84%	0.782	92.92%	4.07%		

Source: AlphaEngine (www.mcubeit.com)

The power of this sort of allocation alpha becomes evident when analyzing the excess return of 3.78% p.a. vs. the underlying static allocation. The most significant point to note is that the increase in alpha comes with no increase – actually a slight decrease – in the volatility of returns. It will quickly become evident that the strategic allocation process can, and should, be considered to be a significant source of return. Of course, it can also be a significant source of risk as well; but as trading strategies become increasingly sophisticated and widely available it will be dynamic allocation –and the skill with which it is executed – that will separate the men from the boys in the game of currency.