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“FUNDCREATOR”

Reply to the Critics

**Harry M. Kat
Helder P. Palaro**

**Alternative Investment Research Centre
Cass Business School, City University
106 Bunhill Row, London, EC2Y 8TZ
United Kingdom
Tel. +44.(0)20.70408677
E-mail: harry@airc.info
Website: www.cass.city.ac.uk/airc**

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Helder P. Palaro

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Please address all correspondence to:

Harry M. Kat
Professor of Risk Management and
Director Alternative Investment Research Centre
Cass Business School, City University
106 Bunhill Row, London, EC2Y 8TZ
United Kingdom
Tel. +44.(0)20.70408677
E-mail: harry@airc.info

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Introduction

Since the publication of our first paper on hedge fund replication in 2005¹, our FundCreator methodology has met with many positive reactions. There have also been some negative responses though. Until now we have not responded to the criticism launched against FundCreator, other than the occasional remark when asked for comments. However, with a number of high profile conferences on the subject coming up this year and early next year and investors clearly becoming confused as a result of the amount of disinformation that is being circulated, in this short paper we will address the 10 most common points of criticism. We will argue that most of these are largely unjustified and fairly trivial at best and no reason whatsoever to doubt the capability of FundCreator to deliver exactly what it promises: returns with predefined statistical properties. Here we go.

Comment 1

“Due to the dynamic nature of FundCreator-based trading strategies, transaction costs will dramatically erode returns.”

Reply 1

Not true, for a number of reasons. First, the model that we use to derive our trading strategies explicitly accounts for the presence of transaction costs. Higher transaction costs will smoothen the required trades. Second, FundCreator only trades the most liquid futures markets in the world, where bid-ask spreads tend to be extremely narrow. Third, FundCreator trade sizes are typically very modest. Fourth, the timing of the required trades is not critical to the success of a strategy as the trades themselves are not the main return generator. The relatively low time-sensitivity of trades allows for enough time to ‘work’ these trades and (try to) buy on the bid and sell at the offer, instead of the other way around.

¹ See Kat and Palaro (2005).

Obviously, we have done a large number of tests with respect to transaction costs. Table 1 and 2 for example show the sample properties of the returns on synthetic funds replicating the HFRI Equity Market Neutral and the more volatile HFRI Long/Short index for bid-offer spreads of 0bps, 4bps, and 14bps and daily rebalancing over the period March 1999 – October 2006.

	Mean	StDev	Skew	Corr
Synthetic 0bps, daily	6.79%	2.98%	0.22	-0.06
Synthetic 4bps, daily	6.75%	2.98%	0.20	-0.06
Synthetic 14bps, daily	6.65%	2.97%	0.19	-0.06

Table 1: Sample properties synthetic fund replicating HFRI Equity Market Neutral index over the period March 1999 - October 2006.

	Mean	StDev	Skew	Corr
Synthetic 0bps, daily	13.55%	11.26%	1.13	0.61
Synthetic 4bps, daily	13.48%	11.26%	1.13	0.61
Synthetic 14bps, daily	13.18%	11.25%	1.13	0.65

Table 2: Sample properties synthetic fund replicating HFRI Long-Short index over the period March 1999 - October 2006.

From the above tables we can draw two important conclusions. First, the risk profile generated is independent of the level of transaction costs. Second, even for relatively high levels of transaction costs, the impact of transaction costs on the mean return is small.

Comment 2

“When used for hedge fund replication, the returns generated by FundCreator do not match the returns of the target fund or index on a month-to-month basis.”

Reply 2

True, but completely unjustified criticism. At no point have we ever claimed that matching returns on a month-to-month basis is what we are after. On the contrary, FundCreator was born out of the realization that such a form of strict replication is probably just an illusion. Instead, FundCreator (when used for replication purposes) aims for what we refer to as “weak replication”, i.e. the generation of returns with the same statistical properties as a specific fund or index.

The returns generated by FundCreator will have the same properties, but they will typically arrive in a completely different order than the target returns. For most investors this does not present a problem. Unless one needs to actually hedge a specific position, which requires strong correlation between the target and the replica returns, all that matters for investors are the statistical properties of returns, not the precise order in which they arrive.

Comment 3

“Average returns depend on the reserve asset that is chosen by the user.”

Reply 3

True, but again unjustified. FundCreator is not your usual crystal ball investment product. Instead, it is a risk management tool. For a tool, flexibility is a strength, not a weakness. Since the reserve asset, i.e. the core portfolio of a FundCreator strategy, is not fixed in advance, FundCreator has something valuable to offer to many different types of users. Investors with an efficient market-type investment philosophy will choose a reserve asset, which is well diversified over a number of asset classes to minimize uncompensated risk. Tactical allocators on the other hand will opt for a more concentrated reserve asset to capitalize on their specific view. Similarly,

strategic allocators will tend to keep the composition of their reserve asset constant over time, while tactical allocators will vary it in accordance with their market view, which enables them to merge their tactical skills with FundCreator’s risk management technology. Put simply, leaving the choice of the reserve asset to the user guarantees that users get returns which are in line with their investment philosophy and their view on the global capital markets.

Of course, we have thoroughly studied the impact of using different reserve assets. Our research clearly shows that the choice of reserve asset does not affect FundCreator’s risk management capability. Suppose we had two different reserve assets. Reserve Asset 1 consists of 3-month Eurodollar, 5-year note, 10-year note, S&P 500, Russell 2000 and GSCI futures. Reserve Asset 2 is much simpler and consists of an equally weighted portfolio of 1-month Libor, Russell 2000 and crude oil futures. Using both reserve assets, Table 3 shows the sample properties of the replicated returns on the HFRI Equity Market Neutral and HFRI Long/Short index over the period March 1999 – October 2006.

	Reserve Asset 1				Reserve Asset 2			
	Mean	StDev	Skew	Corr	Mean	StDev	Skew	Corr
HFRI EMN Index	6.79%	2.98%	0.22	-0.06	6.54%	2.84%	0.37	-0.09
HFRI L/S Index	13.55%	11.26%	1.13	0.61	11.68%	10.93%	0.93	0.57

Table 3: Sample properties synthetic funds replicating HFRI Equity Market Neutral and Long/Short index over the period March 1999 - October 2006.

Comparing the entries at both sides of the table, it is clear that the differences are minor at best. The risk profiles of both synthetic funds match up extremely well. The mean return under Reserve Asset 2 is somewhat lower. This reflects the fact that Reserve Asset 2 is somewhat under-diversified (and therefore, lacking a specific tactical view, not the ideal reserve asset to start with) as well as some sampling error. Although in the longer run risk and return can be expected to go hand in hand, this need not necessarily be the case over a shorter period of time.

Comment 4

“Over a 2-year period the sample parameters can be significantly different from the target values.”

Alternatively, this point is sometimes also voiced as:

“You cannot expect investors to wait for several years to see whether their returns indeed have the desired properties.”

Reply 4

This is all about sampling error. Forward looking and by construction, the returns generated by FundCreator come from a distribution with the desired properties. That does not guarantee, however, that one will see these properties accurately reflected in a small sample all the time. Consider tossing a coin. Heads and tails both have 50% probability, but that does not mean that after tossing the coin 10 times one will always find 5 heads and 5 tails. As the sample size grows, however, the number of heads and tails will converge to 50/50 and thus become a better reflection of the underlying distribution. With FundCreator things are not different. Over short periods of time the sample parameters may deviate from their target values, but they will tend to converge as time passes by. Since the publication of our 2005 paper, we have introduced an impressive range of (proprietary) improvements to our system. The result is that convergence has been greatly improved and substantial deviations of the sample parameters from their target values over longer periods of time are now extremely unlikely.

In the above context it is also important to note that comment 4 accuses FundCreator of shortcomings, which investors seem more than happy to accept from the fund management industry. The prospectuses of many funds contain explicit statements about the return properties these funds are meant to generate. In the prospectus of a well-known fund of hedge funds, for example, we read that: “The fund aims to provide an annual return of 8-10% with a volatility of 4-5%.” Given that such properties are typically not hard targets, as they are with FundCreator, the time required for investors to be able to meaningfully check whether the targeted properties

are indeed being provided will be significantly longer than for FundCreator-based strategies.

Comment 5

“FundCreator only targets the risk profile, but not the expected return.”

Reply 5

Not true. When setting a target, one always has to leave one parameter open to be determined by the marketplace to make sure that the desired distribution can indeed be obtained. If this were not the case, one would be able to set a target in pure isolation, i.e. without any reference to the market, which is obvious nonsense. The parameter left open is the user’s link to the real world. It ensures that, as a whole, the target is indeed viable.

In the various papers that we have written on the applications of FundCreator² we have concentrated on generating returns with a specific risk profile and left the expected return for the market to determine. This has been a deliberate choice. FundCreator itself allows its users to target any desired parameter, including the expected return. The reason to leave the expected return open is that if one believes that there is a link between risk and expected return, targeting one is synonymous to targeting the other. In our examples, FundCreator takes care of the risk profile, while the market provides the corresponding expected return.

² See Kat and Palaro (2006a, 2006b).

Comment 6

“Although much more complicated, FundCreator is not very different from mean-variance optimization.”

Reply 6

True in certain cases, but that’s exactly how it should be. When returns are normally distributed, mean-variance tells investors what portfolio would be optimal for them. There would be something seriously wrong if FundCreator produced a significantly different result. The strength of FundCreator, however, lies in its ability to deal with higher moments and the explicit incorporation of dynamic trading. Mean-variance only looks at portfolios’ means and variances, while FundCreator routinely looks at the whole distribution. In addition, mean-variance only considers buy-and-hold portfolios, while FundCreator explicitly allows for continuous dynamic trading over the investment horizon. This makes FundCreator a much more versatile and complete risk management tool than mean-variance can ever be.

Comment 7

“The dependence with other assets than the reference portfolio is not targeted.”

Reply 7

True, but why would anyone care? When evaluating a new diversifier, investors should only care about the dependence with one particular portfolio: their own. This is exactly what FundCreator is set up to do. It allows users to fully control the dependence structure between their existing portfolio and the synthetic fund to be created.

Comment 8

“The model of monthly returns that is used to determine the desired payoff function could be incompatible with the Black-Scholes-type model that is used to price it.”

Reply 8

This is very much an academic point. The model for monthly returns that is used to construct the desired payoff function is chosen out of a set of 54 different models, which ensures the highest degree of correspondence between the desired distributional properties and the payoff function embedding those. Subsequently, we price this payoff using a Black-Scholes-type pricing model, which assumes that the reference portfolio and the reserve asset follow a bivariate geometric Brownian motion. Since we treat the construction of the desired payoff function and the subsequent pricing of it separately, we could theoretically end up working with a model for monthly returns that is significantly different from the bivariate normal distribution implied by a Geometric Brownian motion. We clearly indicated this ourselves in our 2005 paper.

There are two questions to be asked here. First, how likely is it in practice for inconsistencies to occur? We would argue that it is not. In a typical FundCreator application, the reference portfolio and reserve asset will both be well-diversified portfolios for which normally distributed daily and monthly returns are very reasonable assumptions. Second, would, if it did arise, a possible inconsistency between the models for monthly and daily returns have any significant impact on the end result? We think that it will not. The reason is straightforward. We are talking about two unrelated operations here. In both instances we simply use the best model for the job at hand.

Although, especially from a practical perspective, comment 8 is very much a non-issue, it has been proposed that it would be better to first model daily returns and then aggregate them into monthly returns to ensure that the models for daily and monthly returns that are used are fully compatible. Apart from its academic nature, there are at least two serious problems with such an approach, however.

- (1) The number of suitable models for daily returns is limited. This precludes a number of potentially useful models for monthly returns, which could thereby handicap the mapping of the desired return distribution into a payoff function; undoubtedly the most important step in the whole structuring process.
- (2) With a different model than geometric Brownian motion, the derivation of a hedging strategy for the desired payoff function becomes much more difficult, if not impossible. The same is true for the explicit incorporation of transaction costs.

Given these conceptual and practical problems and the complete lack of evidence of any superior performance of the proposed alternative, especially in a real-world setting, we feel there is no good reason to make any modifications to our procedures to accommodate comment 8.

Comment 9

“Due to the non-normal return distribution of the assets traded, the use of Black-Scholes type hedge ratios is inappropriate.”

Reply 9

Not true. As mentioned earlier, both the reference portfolio and reserve asset will typically be well-diversified portfolios, for which normally distributed returns and geometric Brownian motion are very reasonable assumptions.

As mentioned before, it is important not to accuse FundCreator of shortcomings that one is more than happy to accept elsewhere. We are not the first ones to price options. Over the last 30 years the use of derivatives has shown tremendous growth in many different areas. This has only been possible thanks to the development and practical implementation of models, which are based on exactly the same processes as we are assuming. When pricing our payoffs, we are not reinventing the wheel. We use tried and tested technology, which has served the industry extremely well for over 30 years and which during that time has become the global industry standard.

It is also worth noting that although FundCreator strategies are essentially option hedging strategies, we are not really hedging options. Hedging errors, i.e. deviations of the actual from the required payoff, are much less of a worry for investors than for investment banks that have taken on the legal obligation to make a certain payoff. For investment banks hedging errors present a genuine source of risk. For investors on the other hand, they do little more than slightly raise the volatility of the returns that are being generated.

Comment 10

“You will never be able to replicate the best hedge funds.”

Reply 10

True. Special skills cannot be replicated. One has to distinguish between pre-fee and after-fee alpha though. Synthetic funds derive their return from market risk premiums. By construction therefore, synthetic funds produce no pre-fee alpha. Given that they do not cost an arm and a leg to manage and offer highly improved liquidity, after fees synthetic funds could very well produce alpha, however. It takes an awful lot of pre-fee alpha to make up for a hedge funds manager charging ‘2+20’.

Concluding Remarks

To be acceptable, criticism needs to satisfy a few straightforward criteria:

- (1) Insight – The critic must have in-depth knowledge of what is being criticised.
- (2) Justification – Only (lack of) legitimate features should be criticised.
- (3) Substance – Criticism should not be trivial.
- (4) Significant Alternative – Wherever possible, the critic should offer a viable alternative, which is significantly different from and a significant improvement on the original.

Most of the comments 1-10 break one or more of the above rules. Some critics make incorrect claims about the workings of FundCreator and the research behind it. Some criticism is simply unjustified, while other comments are without much or even any substance. In sum, *FundCreator is an efficient, powerful and user-friendly risk management tool and the various ‘critical’ comments made to date are no reason to doubt that in any way whatsoever.*

References

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