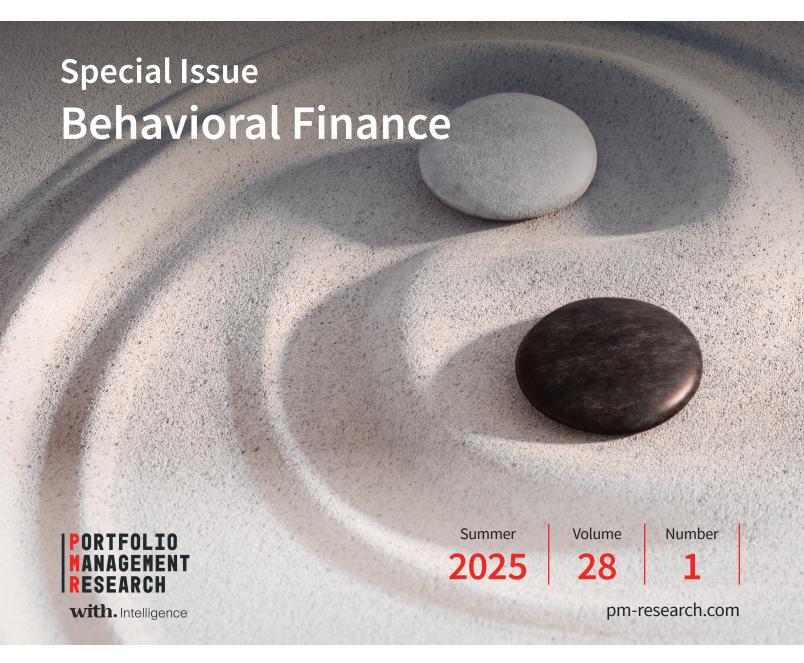
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Blinded by Bias: The Effects of Hindsight and Survivorship Bias in Managed Futures

Joel Handy and Lorent Meksi



pioneer in the Managed Futures industry, Efficient was founded in 1999 to serve institutional investors. Using quantitative finance modeling and analysis, Efficient invests its clients' assets in the global futures markets through its proprietary trading platform. Efficient provides its clients access to Managed Futures products and to Managed Futures Traders across the globe. Investors have come to trust Efficient's experience and research to guide them in designing their Managed Futures investment strategies.



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# **Blinded by Bias:** The Effects of Hindsight and Survivorship Bias in Managed Futures

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# **KEY FINDINGS**

- Selecting CTA (commodity trading advisor) managers and building CTA portfolios based on superior past performance does not result in superior future performance.
- CTA managers and portfolios selected from past performance risks hindsight bias and may underperform in the future.
- Mortality rates with CTAs are substantial, even with the biggest and best managers. Diversifying across a portfolio of CTAs helps reduce the risk of selecting non-surviving managers.

# ABSTRACT

This article examines how likely it is that past superior performance with CTAs can effectively be used to identify future high performers. We have observed that CTA managers and portfolios that excel historically do not guarantee ongoing superior performance in the future. CTA portfolios that have outperformed the index in backtests do not consistently maintain this outperformance in out-of-sample evaluations. Relying on past performance as the main criterion for choosing CTAs risks hindsight bias and appears to be an unsatisfactory manager selection strategy that may lead to underperformance. We also demonstrate the mortality rates of CTAs are significant, even among the largest and best performing managers. This highlights how critical it is to diversify among CTAs in order to reduce the risk of poor manager selection. The goal of this article is to increase awareness among CTA investors about some potential pitfalls and, in turn, help them make better decisions that enhance their experience with the CTA asset class.

he disclaimer found throughout investment marketing materials that "past performance is not necessarily predictive of future results" highlights several challenging issues that face every investor, including those investing in commodity trading advisors (CTAs). This statement calls into question the extent to which previous success can be relied upon as a predictor of the future; the degree to which past performance reflects greater skill, increased alpha, better programs, or superior managers; and the likelihood that past performance will persist and prove useful in manager selection decisions. While past performance cannot be ignored, it is the

<sup>&</sup>lt;sup>1</sup>CTAs are registered with the US Commodity Futures Trading Commission and represent a subset of hedge funds that primarily trade futures markets. CTAs are famous for generating strong performance during periods of market distress, as discussed in Greyserman and Kaminski (2014), and Molyboga and L'Ahelec (2016).

future return on investment that matters to investors, so a thorough understanding of the issues and potential solutions surrounding performance persistence is critical to sound investment decision-making.

This article analyzes the effects of hindsight and survivorship biases on performance persistence. Hindsight bias is a psychological phenomenon that allows people to convince themselves they can predict the future based on the past,<sup>2</sup> while survivorship bias confounds the prediction process by incorporating past successes while discounting past failures.<sup>3</sup> The aim of this article is to demonstrate the propensity for investors to make poor decisions by failing to recognize their own susceptibility to these biases. By making investors aware of these biases, we endeavor to help investors avoid common and costly mistakes when investing in CTAs.

### STUDY DESCRIPTION

The focus of our analysis involves the manager selection process. We use the 20-year history of the SocGen CTA Index<sup>4</sup> to note constituent performance at each point in time, simulate likely manager selection decisions based on past performance leading up to the time of the decision, and evaluate the results of the hypothesized decisions. To conduct the simulation, we determine which managers would have appeared to be winners at each decision point, and note whether the prior outperformance persisted and how a portfolio of past winners would have performed. This exercise can serve as a useful tool to understand the impact of hindsight bias on manager hiring decisions and predictions of future performance. We also present the mortality rates of the SocGen CTA Index constituents to demonstrate the likelihood that a CTA endures for an extended period.

#### METHODOLOGY AND DATA

The universe of managers for this study is limited to the constituents of the SocGen CTA Index, which represents the largest CTAs open for investment at the time of each decision point. We chose this subset as most representative of the "biggest and best" and "most institutional" CTAs available for investment at a given point in time, and therefore the managers most likely for investors to consider for an allocation.

At the beginning of each calendar year in the 20-year history of the index, we created portfolios by choosing the top one, three, and five managers based on the trailing three-year return-to-risk ratio, using returns as reported to Barclayhedge. This way, we used information that would have been available at the time of the investment decision. We then compare the performance of each portfolio over the previous calendar year ("back test") against the performance of each portfolio over the year for which we created the portfolio ("actual"). The portfolios are reconstituted every year, and we combine each of the annual portfolio returns into hypothetical continuous return streams for the entire history of the index to reflect track records of past and future performance.

<sup>&</sup>lt;sup>2</sup>Tversky and Kahneman (1974) identified the availability and representativeness heuristics as important behavioral causes of the hindsight bias.

<sup>&</sup>lt;sup>3</sup>Bhardwaj, Gorton, and Rouwenhorst (2014) carefully investigate the magnitude of survivorship bias and its impact on the performance persistence for CTAs in the Lipper-TASS database.

 $<sup>^4</sup>$ The SocGen CTA Index (Bloomberg code NEIXCTA Index) is commonly used as a proxy for the CTA industry performance. The index is annually reconstituted with the 20 largest CTAs open to new investment.

#### **EXAMPLE: HYPOTHETICAL PORTFOLIOS FOR 2016**

Based on the return-to-risk ratio of the preceding three-year period (January 2013 – December 2015), the following universe in Exhibit 1 would have been available in January 2016 to an investor interested in choosing from among the "biggest and best" CTAs.

At the beginning of 2016, H2O, AQR, Graham, Campbell, and Boronia were large CTAs with strong recent performance. For our study, the "Top 1" portfolio includes H2O; the "Top 3" portfolio consists of H2O, AOR, and Graham; and the "Top 5" portfolio comprises the Top 3 portfolio plus Campbell and Boronia. Assuming an investor chose one of these portfolios, we compare the known results of each of these portfolios in 2015 against the then unknown future results of the same portfolios in 2016.

As illustrated in Exhibit 2, past performance in 2015 is not necessarily predictive of future results in 2016, even for best performing managers.

# FULL PERIOD (2000-2021): OBJECTS IN THE REARVIEW MIRROR PERFORM WORSE THAN THEY APPEAR

We now demonstrate the significant performance impact of hindsight bias in manager selection by repeating the exercise for each year from 2000 to 2021, and combining the results into a continuous time series to compare the backward-looking portfolios against the actual future results. Exhibit 3 below compares the back-tested portfolio returns for the Top 1, Top 3, and Top 5 managers against the actual returns of the SocGen CTA Index and an experienced CTA fund of funds.

**EXHIBIT 1** CTA Universe in 2016

Rank	Constituent Name	Return to Risk 3Yr
1	H20: Force 10	1.92
2	AQR: Managed Futures	1.09
3	Graham: K4D-15V	1.08
4	Campbell: Class A	1.02
5	Boronia: Diversified	0.99
6	Winton: Diversified	0.95
7	SEB: Asset Selection EUR	0.86
8	IPM: Systematic Macro	0.83
9	Aspect: Diversified	0.78
10	Lynx: Lynx Bermuda	0.71
11	Man AHL: Diversified	0.67
12	Millburn: Diversified	0.58
13	Transtrend: Enhanced USD	0.55
14	Crabel: Multi-Product (Class A)	0.40
15	Premium Capital: Currencies Plus	0.26
16	Kaiser: 2X	0.05
17	Cantab: CCP Quant Fund Aristarchus	(0.04)
18	FDO: Emerging Markets	(0.11)
19	Harmonic: Alpha Plus Macro	(0.13)
20	Ortus: Currency	(0.80)

Therefore, the portfolio returns we'll select for 2016 would be:

Top 1: H20

Top 3: H2O, AQR, Graham Top 5: H2O, AQR, Graham, Campbell, Boronia

We will compare the 2015 returns of these managers (ex ante) to the 2016 returns of these same managers (ex post).

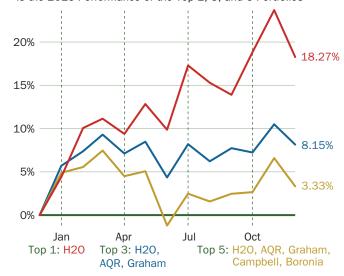
**SOURCE**: Barclayhedge/Backstop CTA database | CTA.

#### **EXHIBIT 2**

# Top 1, 3, and 5 Portfolios in 2015 versus 2016

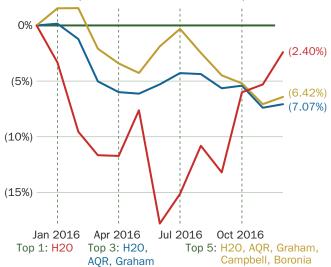
#### **Known Past**

Selecting Managers in Jan 2016 Looking Backwards: below is the 2015 Performance of the Top 1, 3, and 5 Portfolios



#### **Unknown Future**

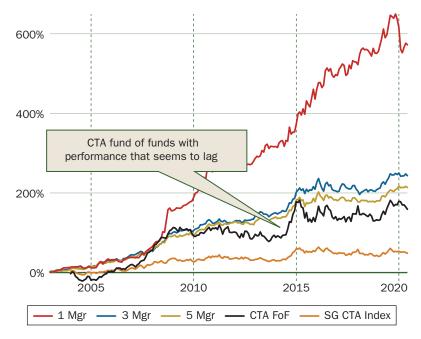
Below is the 2016 Performance of the Exact Same Top 1, 3, and 5 Portfolios: Superior Past Performance is Not Repeated in the Future



SOURCE: Barclayhedge/Backstop CTA database | CTA.

#### **EXHIBIT 3**

Top 1, 3, and 5 Portfolios as a Back Test with Hindsight Bias

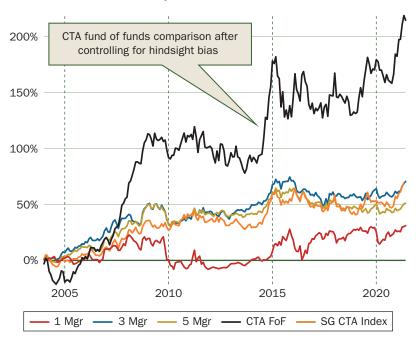


SOURCE: Barclayhedge/Backstop CTA database | CTAs Efficient Capital Management® LLC.

Without accounting for hindsight bias, some investors may be misled into thinking that this type of outperformance of the index or experts in the managed futures space can be achieved simply by assessing past returns and investing with the winners. However, when we roll performance forward from the point of selection, the results

#### **EXHIBIT 4**

Top 1, 3, and 5 Portfolios in "Real Life" Out of Sample



SOURCE: Barclayhedge/Backstop CTA database | CTAs Efficient Capital Management® LLC.

for the portfolios with identical constituents to the back-tested portfolios look vastly different, as illustrated in Exhibit 4.

Here, we can see that the forward-looking returns considerably underperform the index and the CTA fund of funds. This result provides a clear demonstration of single manager risk. Chasing the performance of the best performing manager from the previous year (the Top 1 portfolio) turned out to be the worst performing strategy moving forward. The greater diversification of the Top 3 and Top 5 portfolios allows them to track the benchmark more closely. The main finding here is that, while the selection of winners may seem simple in retrospect, the task is much more difficult than it seems.

# MORTALITY AND SURVIVORSHIP IN CTAS: "TO BE. OR NOT TO BE, THAT IS THE QUESTION"

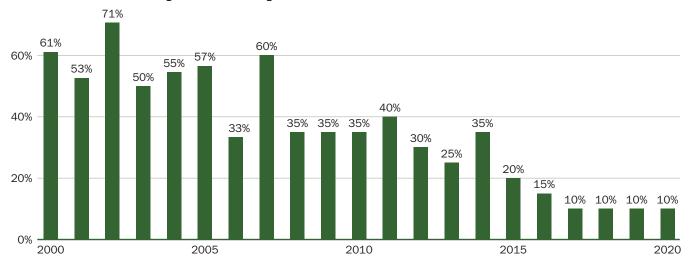
A second focus of our research involves mortality and survivorship among CTAs.<sup>5</sup> If the mortality rate among CTAs is high, then diversification would be critical to protecting investors against the risk that chosen managers abruptly collapse or go out of business. The graph below shows mortality rates among CTAs over time. We examine the constituents in the SocGen CTA Index we have used in our study so far. Recall that these managers have been included in the index because they are the "biggest and best" CTAs. But a key question is to investigate how many of the programs that were in the index at some point in the past subsequently became defunct. In Exhibit 5 below, we show the percentage of former index managers or programs that no longer exist. For instance, 61% of the programs in the SocGen CTA Index in 2000

 $<sup>^{5}</sup>$ While previous research, such as Molyboga, Baek, and Bilson (2014), investigates the mortality of CTAs in publicly available databases, our study focuses on the largest CTAs, which are more likely to be considered by investors.

**EXHIBIT 5** 

#### **CTA Index Manager Mortality**

SG CTA Index Constituent Managers that are No Longer in Business



**NOTES**: This exhibit indicates managers that have gone out of business after being a part of the SG CTA Index. Each bar indicates the percentage of constituents from that year that are out of business.

SOURCE: Barclayhedge/Backstop CTA database | CTAs Efficient Capital Management® LLC.

have not survived. The exhibit suggests that a substantial portion of the largest and most attractive CTAs do not survive more than a decade after their inclusion in the index. In fact, even about 10% of managers that have been in the index as recently as the last couple years are no longer in business.

# CONCLUSION

We have demonstrated in this article that outcomes can be enhanced, and costly mistakes avoided, if investors are cognizant of survivorship and hindsight biases when selecting CTAs. In simulating a common manager-selection process, we demonstrated the lack of return persistence among individual CTAs and the portfolios of which they are constituents. We have also highlighted the high mortality rates among CTAs, even the largest and most accessed ones.

When investors are not aware of hindsight bias and project past performance into the future, they often end up disappointed by underperformance, which may lead to rejecting the space all together and missing out on the substantial benefits of the asset class. While one cannot easily invest in an index, choosing well-diversified CTA portfolios managed by an experienced multi-manager should help investors avoid idiosyncratic manager performance and mortality risks, and experience long-term satisfaction with their CTA investment.

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