

# CAIA Association Virtual Chapter:

## Panel discussion on new trends for institutional investment in CTAs

IN PARTNERSHIP WITH EFFICIENT CAPITAL MANAGEMENT AND CME GROUP



### SPEAKER KEY

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*Associate Director of Financial Research*

**Keith Black (KB), Ph.D., CAIA, CFA**

*Virtual Chapter Head*

**Chris Solarz (CS), CFA, CPA, CAIA**

*Managing Director, Cliffwater LLC*

**Christophe L'Ahelec (CL), CFA**

*Senior Principal, Ontario Teachers' Pension Plan*

**Jeremy Rosenberg (JR), CFA**

*Portfolio Manager, YMCA Retirement Fund*

**Adam Duncan (AD)**

*Managing Director, Cambridge Associates*

**CA:** My name is Charles Alvarez and I'm the Associate Director of Financial Research as well as the Virtual Chapter Head at the CAIA association. I'm also joined today by Dr Keith Black, Managing Director of Curriculum And Exams, and Joel Handy from Efficient Capital, who will be moderating today's event.

**JH:** We've got a great response from people in the audience and we've got a really great panel and content to bring to you today. Each one of the panelists will quickly introduce themselves and their role at their firm, and share about five minutes on an individual topic. Then we will go into a panel discussion and that will be followed by audience Q&A.

**INDIVIDUAL TOPICS FROM EACH SPEAKER**

**CS:** Thank you, Joel, and thank you, Charles and the CME Group for having me. Today we are talking about the case for CTAs.

CTAs are a liquid, systematic hedge fund strategy that have historically been uncorrelated to other hedge fund strategies and therefore offer nice portfolio-level diversification benefits. If we look at Fig.2, this chart plots the leading CTA index against equities, bonds, real estate, and hedge funds for five, ten, 15, and 20 years. You'll see that CTAs have been slightly negatively correlated over ten, 15, 20 years to equities, which is why CTAs are so complementary in a value equity portfolio. CTAs have been modestly positively correlated to fixed income, but that's not a bad thing considering fixed income has been in a 30-year bull market. Most institutional investors are underweight CTAs or systematic global macro funds and (nearly sight unseen) I would bet that a 10% or 15% allocation to CTAs would improve the Sharpe ratio of just about any institutional portfolio.

(As a point of clarification, there are four different terms – CTAs, managed futures, trend-following, and systematic global macro – that will likely be used interchangeably).

I love this chart (Fig.3), for two reasons: first, because it's an optical illusion – that is actually a straight line – but second because it shows CTAs were profitable in each of the S&P 500's six largest down years since 1980. Even in 2001 when the S&P fell 13%, CTAs were up about 1%.

So, I like to think of CTAs as a synthetically long volatility or quasi-tail risk product. This does not mean that you're guaranteed to make money when markets fall but just that they're uncorrelated and that's exactly what you want in a portfolio: a collection of uncorrelated investments that each has a positive expected return. If we look at Fig.4, I charted the top six calendar years for the S&P since 1980.

**Fig.1 Case for CTAs**



**Chris Solarz, CFA, CPA, CAIA**  
Managing Director, Cliffwater LLC



- CTAs are uncorrelated to other asset classes and have a positive expected return
- CTAs boost the Sharpe Ratio and reduce the drawdowns of client portfolios
- CTAs exhibit positive convexity and often perform well when market volatility increases
- CTAs are diversified across liquid futures markets; they do not gate clients

**Fig.2 CTA correlation with overall market**

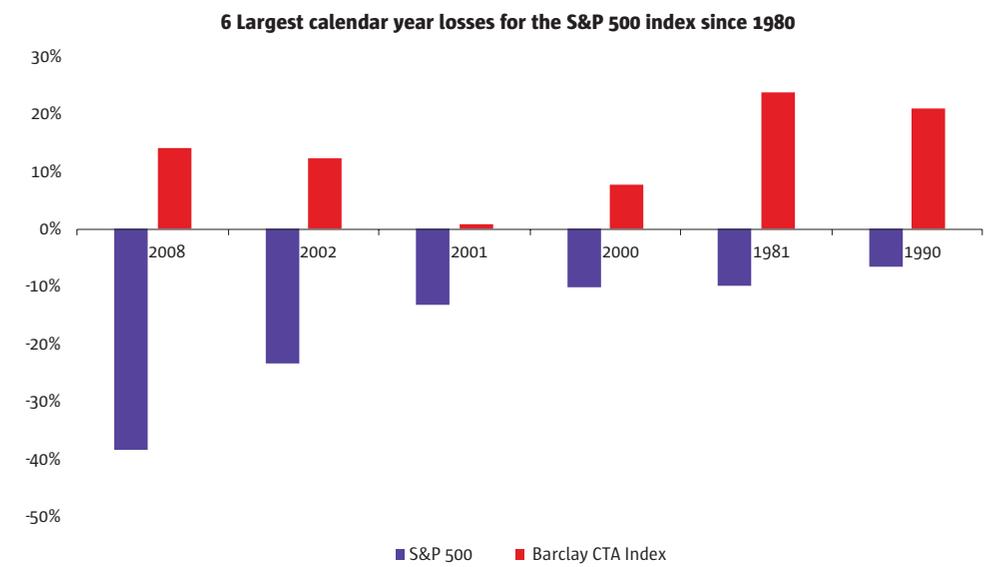
Source: Barclay Hedge, Bloomberg Barclays, S&P, FTSE NAREIT and HFR

Barclay CTA Index	Equities*	Fixed Income*	Real Estate*	Hedge Funds*
20 Years	-0.14	0.26	-0.01	0.04
15 Years	-0.04	0.24	0.01	0.23
10 Year	-0.07	0.21	-0.07	0.16
5 Years	0.07	0.41	0.31	0.14

\* Correlations based on monthly data through 7/31/17 to the S&P 500 Index (Equities), Bloomberg Barclays U.S. Aggregate Index (Fixed Income), FTSE NAREIT All Equity REIT (Real Estate), and the HFRI Fund Weighted Composite Index (Hedge Funds)

**Fig.3 CTA vs. S&P 500 calendar year performance**

Source: S&P 500 Index, Barclay Hedge



Since 1980, the S&P 500 Index has only had 6 total return calendar year losses.

On average the S&P has gained 29%. On average CTAs gained 7% over this time. So, it's certainly not a bad hedge for your portfolio when your hedge makes money in the good times as well.

If we turn to Fig.5, I think this is probably the most important chart because it tells us something about the return distribution of the performance of CTAs.

The X-axis is the S&P 500 and the Y-axis is the dependent variable, the monthly returns of HFRI indices. If you look simply at the scatter plot, you'll see most dots are clustered in quadrants one and three, which is the top-right and the bottom-left, and that's because most hedge funds strategies live and die by the equity risk premia. They make money when equities go up and they lose money when

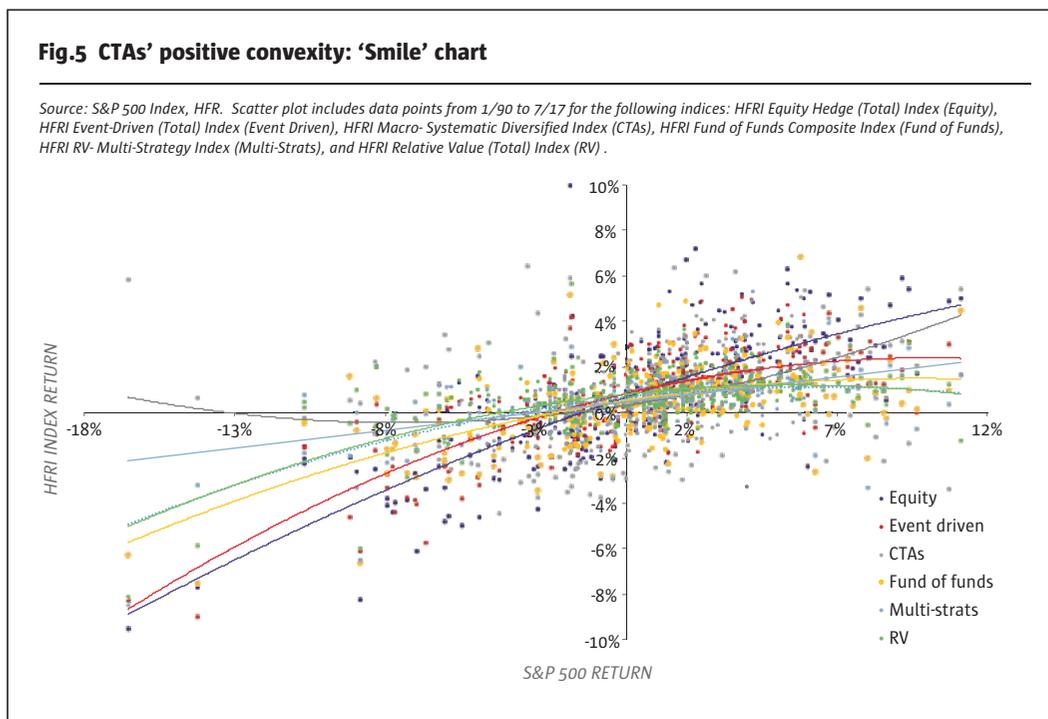
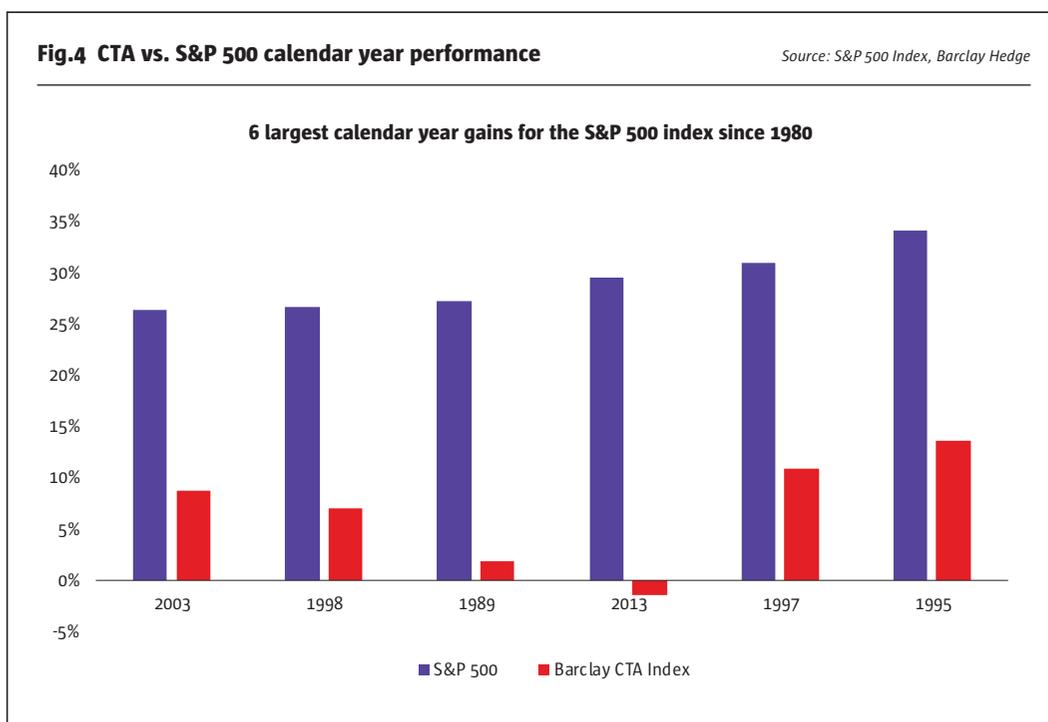
equities go down. However, you'll notice that nice polynomial trend line of the CTAs, (the grey line that curves up into the upper-left quadrant, quadrant two), but you see on the top-right it's also getting almost all the upside. (The blue line is long-short equity hedge funds. It's the second-best of the six). The CTA (grey line) smile distribution means it has positive convexity, so you can make money when S&P is up and down.

So, I presented you with four wildly bullish slides and that certainly is the bold case for CTAs, but the strategy is not without risks and we are going to discuss some of the shortcomings of CTAs as well.

**JH:** Thank you, Chris. We are lucky to have on this panel two great consultants and two great investors. Christophe L'Ahelec from Ontario Teachers' is going to share a little bit of the history Ontario has had in almost two decades investing in CTAs.

**CL:** I'm a Senior Principal at Ontario Teachers' and I work within the alternative investment group. We are managing the external manager programme of the capital markets department and within the group I'm in charge of portfolio construction and risk management. I will briefly talk about the story of Ontario Teachers' in the managed futures space.

We started researching trend-following strategies in 1999 as a way to hedge our hedge fund managers' portfolio following the drawdowns that hedge fund strategies experienced in the summer of 1998. We made our first allocations to medium and long-term trend-followers in the year 2000 and I believe we were one of the first pension plans to do so. We then expanded to other managed futures strategies in 2003 for their diversification benefits. But in 2004, 2005, and 2006 CTA strategies – whilst delivering positive performance – underperformed significantly the other hedge fund strategies on a risk-adjusted basis and we made the decision to reduce our allocation to this space. The allocation went from 13% of our hedge fund portfolio, at the peak, to close to zero, on the eve of the global financial crisis. So, as you can guess, this proved to be a very bad decision in retrospect as we couldn't benefit from the divergent nature of trend-following strategies' performance in 2008. We went back into the space in 2010, focusing on the statistical hedging characteristic of CTA strategies and selecting managers based on the substantiality and the consistency of that protection, looking also for diversification across asset classes and timeframes. But the sizing of the managers we ultimately allocated to was not optimal given the goal of this kind of exposure in our external managers' program, i.e. statistical hedge, and we therefore experienced losses in 2011 and 2012 larger than



what they should have been if we had sized it according to our needs. Nowadays, we are much more opportunistic in the way we allocate to that part of the portfolio. We do so based on the market beta exposure we have in the rest of the portfolio as well as our perception of the risk environment. And finally, on top of the statistical hedge use of managed futures strategies, we implemented an alpha future portfolio allocated to much shorter-term managers that bring risk-return drivers accretive to the rest of the portfolio. That's the

story, in a nutshell, of Ontario Teachers' investing in the managed futures space.

**JH:** I think anyone who's had close to two decades of investing in any strategy will have had some times when they're really happy with what they did and other times where they had some mistakes. I appreciate your humility in sharing some of that and I hope that comforts all of us in the audience to know that even the smartest people in the world, like Ontario Teachers,' can sometimes have

situations like that. I certainly know it's a comfort to us here at Efficient, and so now we'll turn it over to Jeremy Rosenberg at the YMCA, who has just started getting into CTAs for the first time.

**JR:** I'm a Portfolio Manager at the YMCA. I help manage essentially all of our liquid strategies here: a variety of long-only and hedge fund strategies. We've had, over time, exposure to some CTAs but not to the extent that we've more recently increased. That's largely due to some asset allocation shifts we've made over the years. For background, our portfolio is heavily equity-oriented with a lot of long-only equity exposure because we have a very long-term time horizon. However, as valuations have increased and we've been seeking to help mitigate volatility and drawdown of the fund, we've increased what we term as 'a diversifying strategies pool'. Hence, we've increased our exposure for CTAs (and we include a variety of other strategies in that pool as well).

We like CTAs for some of the reasons I list on Fig.7.

Chris had already walked through some of the attractive diversification benefits, but again, a lot of our risk is in equity beta, so, over long periods of time CTAs have tended to exhibit attractive diversification benefits. Over shorter periods they can be positively correlated to equities, but again, over most longer periods of time they tend to exhibit attractive diversification benefits. This has to do with the positively skewed return distribution that Chris went into.

Crisis alpha is another consideration. CTAs are not biased to be long or short their markets, so they tend to be able to react more quickly than a lot of fundamentally oriented managers or managers that might not even be able to react if they're constrained to be only long equities or other asset classes. So, during periods of crisis when a variety of markets are

exhibiting strong trends, CTAs can react quickly to capture these trends.

We like CTAs for the robustness of the momentum factor. You've probably seen research going back decades on the persistence of momentum. I've seen a bunch of different back-tested research reports that show CTA strategies going back 100 years or whatever it might be. Obviously, the risk-adjusted returns vary from decade to decade, but it is a persistent factor and there are behavioural reasons why it should persist in the future.

We like CTAs because they are liquid. Again, this is in our diversifying strategies portfolio, so, during periods of crisis, or when this is performing well and the rest of our portfolio is performing poorly, we should be able to rebalance and allocate to some of our private equity managers or long-only equity managers that might be suffering.

And it is a transparent strategy. So, depending on your size, you can typically get separately managed accounts and see the exposures. It's not as black-box as some other quantitatively oriented strategies. We target equity-like returns over a long-term time horizon at the fund, so we have this bar for our diversifiers as well. We don't want them to be just dampening returns and over longer-term periods CTAs have generated equity-like Sharpe ratios. You tend to need a crisis for that and returns can be lumpy, but the returns have still been there.

CTAs are scalable, so you can customise based on your risk tolerance.

They are cash-efficient vehicles and we've seen fee pressure across most hedge fund strategies, but I think even more so across CTAs. So there has been lower fees relative to a lot of other hedge funds and fees have been coming down recently. So, those are some of the considerations we had when deciding to upsize our allocation to CTAs and trend-following.

**Trend following as a complement to value**

**AD:** I'll expand on some of the things that my colleagues have put forth here into a case for trend-following. It's important to think about what we're trying to do to portfolios when we add trend-following to them. Typical portfolios and typical strategies that end up in investment portfolios tend to have negatively skewed return distributions. A theoretical negatively skewed distribution is shown in Fig.9.

If you now look at Fig.10, this is the actual stock market distribution, going back to 1970, overlaid against this theoretical negatively skewed distribution. You can see there's a fairly good match there.

**Fig.6 History of OTTP in CTAs**



**Christophe L'Ahelec, CFA**  
Senior Principal, Ontario Teachers' Pension Plan

- First allocations to the space made in 2000
- Started disinvesting in 2006 based on performance consideration
- Rebuilt the CTA portfolio in 2010 with a focus on statistical hedge profile
- Separately also setup a 'alpha' portfolio to harvest diversifying risk/return profiles

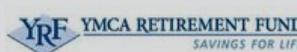


**Fig.7 Reasons for Investing in CTAs**



**Jeremy Rosenberg, CFA**  
Portfolio Manager, YMCA Retirement Fund

- Attractive diversification benefits
- Potential for crisis alpha
- Robustness/persistence of momentum factor
- Liquid and transparent
- Potential for equity-like Sharpe ratios over time
- Scalable targeted volatility
- Generally lower fees relative to other hedge funds



**Fig.8 Trend Following as a Complement to Value**



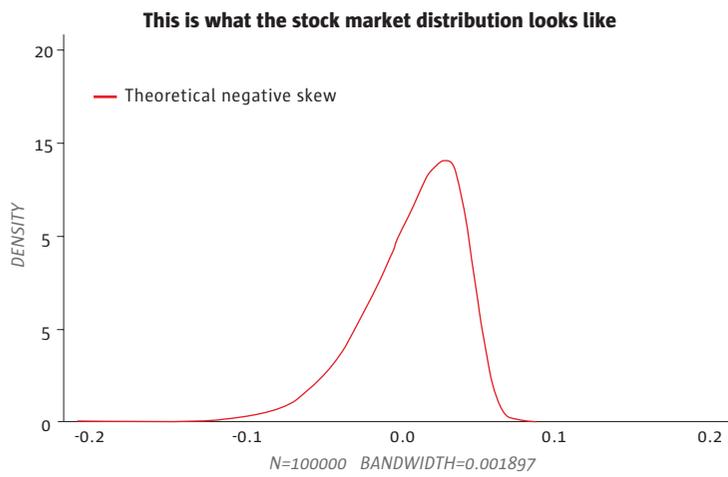
**Adam Duncan**  
Managing Director, Cambridge Associates

- Typical portfolios tend to have negatively skewed return distributions
- Trend Following tends to have a positively skewed return distribution
- A blend of a negatively skewed return distribution and a positively skewed return distribution leads to a more symmetric return distribution
- A more symmetric return distribution is better in terms of minimizing drawdowns and maximizing long-run wealth



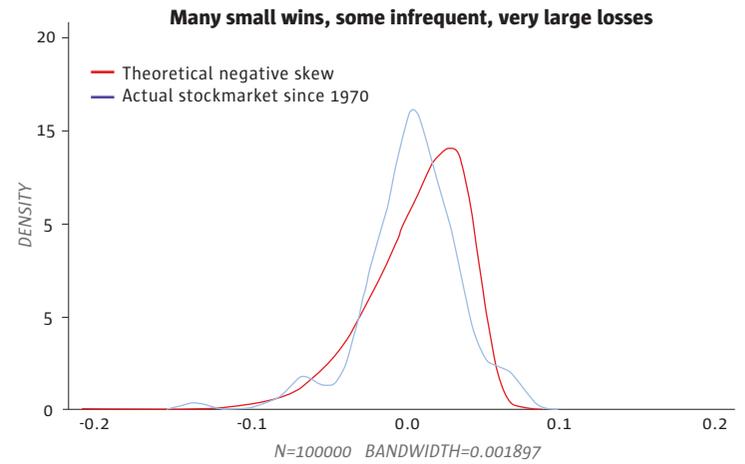
**Fig.9 What does negative skew look like**

Source: Cambridge Associates LLC



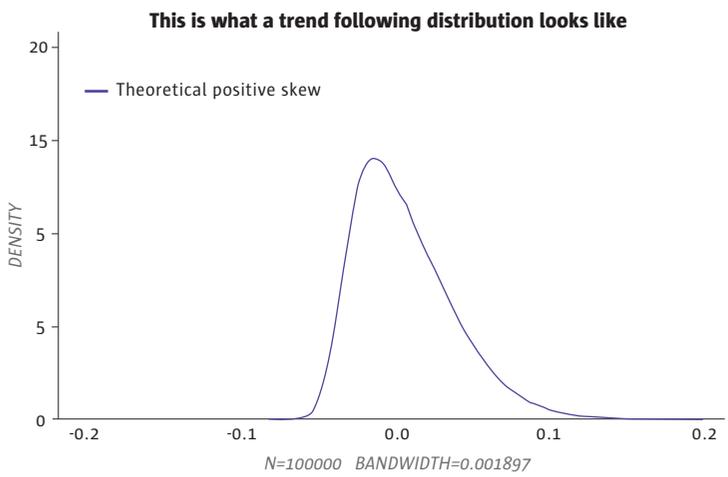
**Fig.10 Negative skew with actual stock market overlay**

Source: Cambridge Associates LLC



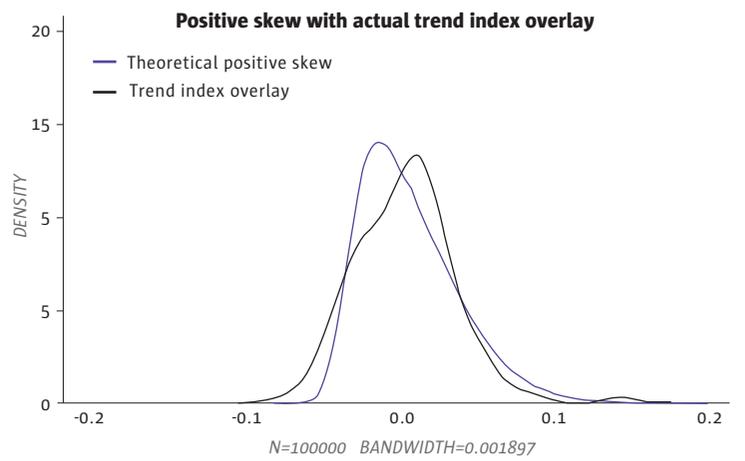
**Fig.11 What does positive skew look like?**

Source: Cambridge Associates LLC



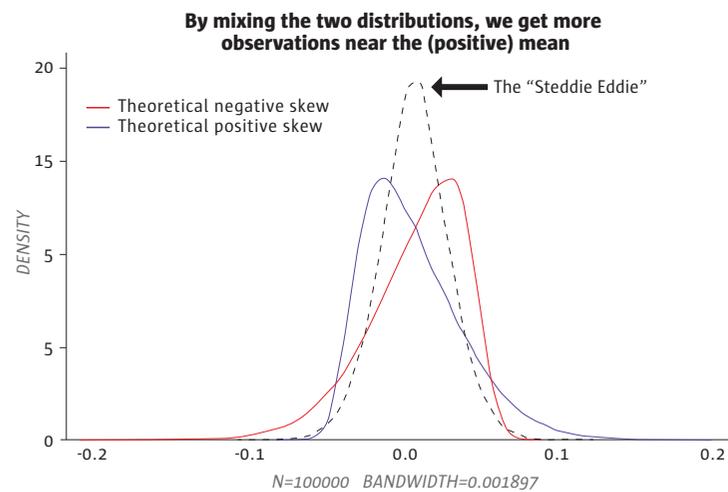
**Fig.12 Positive skew with actual trend index overlay**

Source: Cambridge Associates LLC



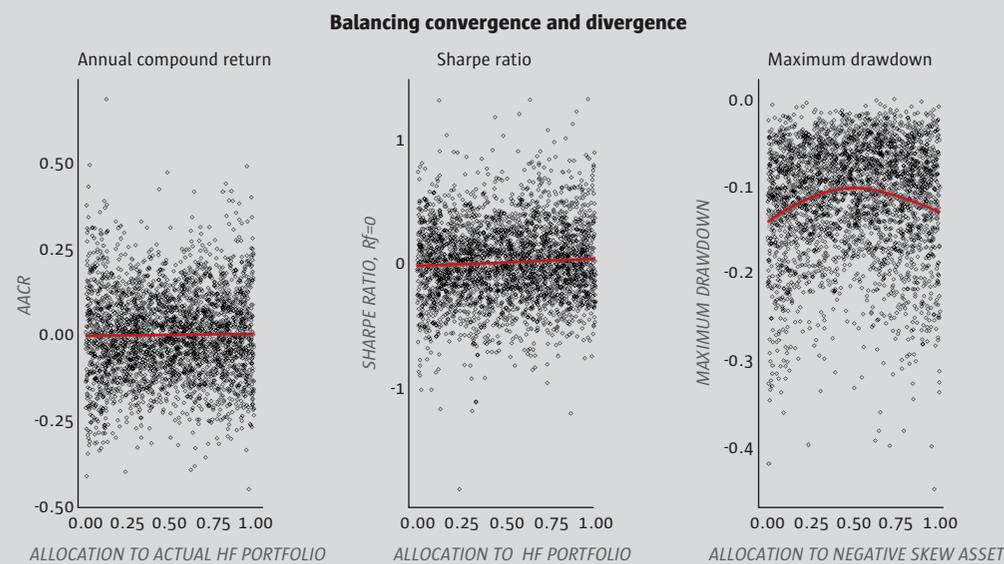
**Fig.13 A mixture is a better idea for wealth compounding**

Source: Cambridge Associates LLC



**Fig.14 Convergent portfolios are not optimal for drawdown mitigation**

Source: Cambridge Associates LLC



Suppose we have a negative skew asset and a positive skew asset. (the S&P 500 and the Newedge Trend Indicator, for example.)  
 Let's randomly allocate X% to the negative skew asset and (1-X%) to the positively skewed asset.  
 Let's set the mean return and volatility of the assets to be exactly the same, so there is no preference of one over the other in terms of return or Sharpe.  
 Do that thousands of times and plot the maximum drawdown that occurred over the next 10 years.  
 Look at where max drawdown is minimised ... it's close to 45%!

**Fig.15 How much should you own?**

Sources: Alex Greyserman (ISAM), J.P. Morgan Securities, Inc., MSCI Inc., and Newedge. MSCI data provided "as is" without any express or implied warranties.

Even if the expected returns to Momentum were zero, you would still have a positive allocation given empirical correlations

**Optimal portfolio allocation to momentum strategies given various return and correlation assumptions**  
 As of December 31, 2014

		Expected Correlation of Momentum Strategy to 60/40 Bond/Equity Portfolio											
		-25%	-20%	-15%	-10%	-5%	0%	5%	10%	15%	20%	25%	
Expected Returns of Momentum Strategy	-2%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
	-1%	10%	6%	3%	0%	0%	0%	0%	0%	0%	0%	0%	
	0%	15%	13%	10%	7%	3%	0%	0%	0%	0%	0%	0%	
	1%	20%	18%	15%	13%	10%	7%	4%	1%	0%	0%	0%	
	2%	24%	22%	20%	18%	16%	13%	11%	8%	5%	1%	0%	
	3%	28%	26%	23%	21%	21%	19%	17%	14%	12%	9%	5%	
	4%	31%	29%	27%	27%	25%	24%	22%	20%	18%	15%	13%	
	5%	33%	32%	30%	30%	29%	28%	26%	25%	23%	21%	19%	
	6%	36%	35%	34%	33%	33%	32%	31%	30%	28%	27%	25%	
			60/40 Bond/Equity					Time-Series Momentum					
		Assumed Return					Variable						
		Assumed Volatility					13.8%						

Notes: The returns and volatility for the 60/40 portfolio are based on the MSCI World Index and the J.P. Morgan Bond Index. The volatility of time-series momentum comes from the long-term volatility of the Newedge Trend Index.

If we now look at Fig.11, this is a theoretical positively skewed distribution (and I've set it up here to have similar mean).

This is a distribution that's characterised by perhaps frequent small losses but some infrequent very

large gains, which is just the opposite of how the stock market and other strategies like that work. The stock market is a distribution where you have many frequent small gains and occasionally some fantastically large losses and trend-following is the opposite of that. If you overlay the long-run history

of the US trend index, which you can see in Fig.12, you can see that there's a fairly good match to the returns from a collection of CTAs and this theoretical positively skewed distribution.

If you now look at Fig.13, an interesting question would be: what happens if we blend this negatively skewed distribution and this positively skewed distribution?

Just setting all the means to be the same, you get what I call the Steady Eddie, (which is the dotted line). You'll notice a few things about that distribution. It seems to be symmetric and you can see that its variance has shrunk. As some of the previous slides show, the long-run returns from trend-following are positive. The long-run returns from the stock market and other insurance-led strategies are also positive so there's every reason to believe here that by blending these things we can create a Steady Eddie-type distribution around the positive mean and this is critical.

The whole reason for doing this is because, for long-run wealth, compounding the negatively skewed distribution is not optimal. It's much better to have a symmetric distribution and the reason for that is so that we don't spend long periods of time digging ourselves out of these big drawdown holes.

So, if we look at Fig.14, one of the big questions that comes up is, how much of this should I do? My stylised example, the Steady Eddie distribution was a 50-50 blend. Surely, I'm not suggesting that we do 50% of our portfolio in trend and 50% in the stock market and similar strategies. That would be ridiculous, right?

Well, actually, no, it's not that ridiculous. If you take two assets – let's say the S&P 500 and the Newedge [now called Societe Generale Prime Services] trend index – and set up a simulation as follows: invest x% of your wealth in the stock market and one-minus-x in the trend index, hold that investment for five years, measure the maximum drawdown, then just repeat that thousands and thousands and thousands of times, and then look at where these drawdowns are minimised (or at what allocation). It's close to 45% allocation to trend that minimises the drawdown.

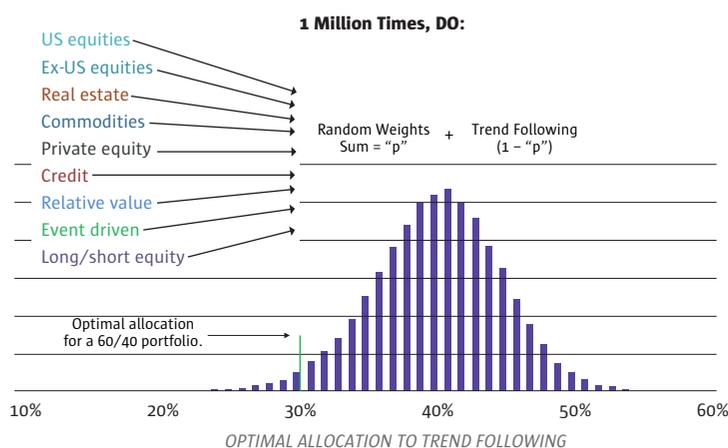
So, 'all stocks' is not great for drawdowns and 'all trend' is not great either. A portfolio that is 100% stocks or 100% trend is not great for your drawdown experience, so the computer tries to blend these things in roughly equal proportions in order to minimise drawdowns.

So, we can look at this experiment in another context on Fig.15. Here's an example of what would

**Fig.16 Portfolios need divergence**

Sources: "All Portfolios Need Trend," ISAM working paper, May 2015

The rest of the world is even more convergent than a 60/40 portfolio—note the minimum



way, if you're trying to maximise risk-adjusted returns, to end up with zero allocation.

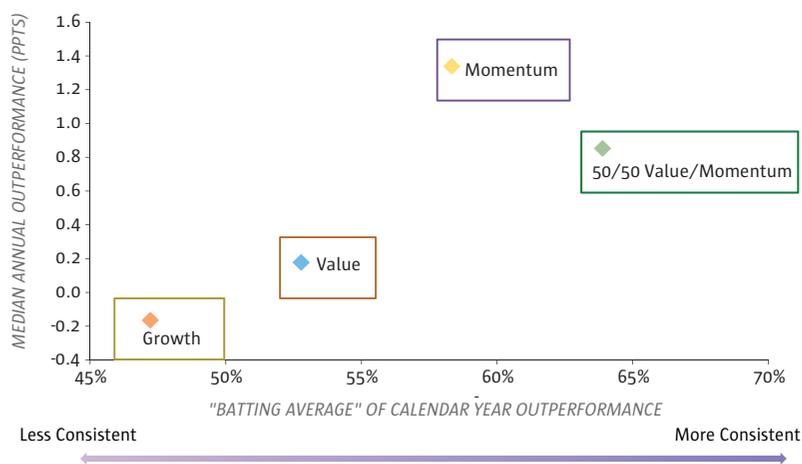
If we now look at Fig.16, we can actually repeat this experiment by taking out the 40% bonds and replacing it with a bunch of other strategies like US equities, international equities, real estate, commodities, private equity, credit, relative value strategies, all these other common things that we see in investment portfolios.

If we do the same exact experiment and just plot out the allocations you'll notice here that the optimal allocation to trend is there at 43%. If you're building a portfolio that has most of these strategies in it, the optimal allocation to trend is quite high. When people ask me, "how much of this should I do?" I always smile a little bit because, you're never going to put 45% of your portfolio in trend most likely. Any amount that you can do is going to be beneficial. The reason that a 60-40 portfolio has less need of trend is because it has 40% of its allocation in bonds, which tend to be zero skew.

**Fig.17 It's about team players, not super stars**

Sources: "MSCI Inc. and Frank Russell Company. MSCI data provided "as is" without any express or implied warranties

**Characteristics of annual outperformance of equity strategies vs Russell 1000® index**  
Calendar years 1979 - 2014



**Value and momentum**

Our clients tend to be very value-oriented investors and they think that it feels very weird to buy assets when they're going up and sell assets when they're going down. That seems like exactly the opposite of what you'd want to be doing as a value investor. The whole pitch around momentum is not value or momentum. It's more value and momentum. They tend to operate on very different timescales and they tend to have little correlation to one another. Fig.17 is just showing your hit rate or batting average on calendar year performance from the different equity styles from growth allocations versus value allocations versus momentum versus a 50-50 blend of value and momentum and you can see that the 50-50 blend is what gives the best batting average.

On Fig.18, here's an example. If you took a value and growth lens and gave yourself 100 basis points of alpha, you would achieve the orange line, which outperformed the Russell 2000. But if you took a 50-50 blend of value and momentum you would have outperformed by much more. So, the benefits of incorporating momentum alongside growth or value solutions are really strong.

**PANEL DISCUSSION**

**JH:** I think that was a really nice introduction to a lot of different aspects of the CTA space and gave the audience a really good start on your conviction and reasons for and the case for CTAs. So, the topic of our webinar today was new trends for institutional investments in CTAs and we want to talk about the future of managed futures and some of the big

happen if we started with a 60-40 equity-bond portfolio and let's say we put P amount of our wealth in the 60-40 and we did one-minus-P of our wealth in the trend asset. Given our assumptions about prospective returns and the correlation between the trend asset and the 60-40, how much would we allocate if we were maximising the risk-adjusted return?

The heatmap figure shows the allocations to the trend asset that maximise the Sharpe ratio of the portfolio. If you look at the circled numbers along the top column – the minus-5% – (that's the long-run historical correlation of trend to the 60-40 split from earlier). The long-run expected empirical

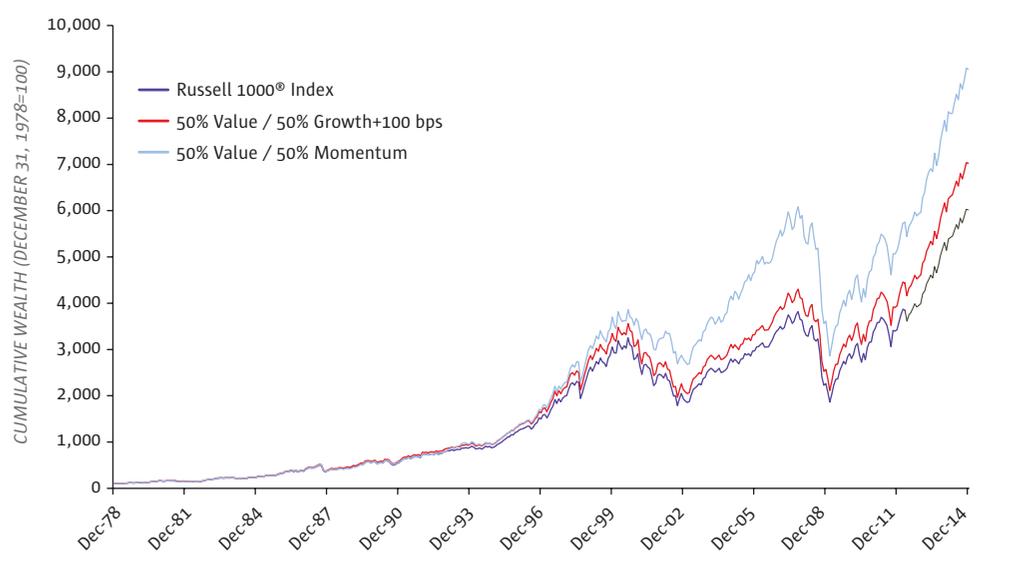
returns on an annual basis are about 6%. If you look at the intersection of 6% expected return and -5% correlation, the optimal allocation is 33%.

One interesting thing is that when we looked at this three or four years ago and we observed that investors had almost no trend in their portfolio, we asked: "What must you believe about the expected returns of trend and its correlation to the 60-40 portfolios, to end up with zero allocation in your portfolio?". Those are all the red squares. The red zeroes show that, to hold zero trend, you must believe that it either has a zero or negative expected return or that it's very positively correlated with the 60-40. There's really no other

**Fig.18 Momentum and value are a strong combination**

Sources: Frank Russell Company. MSCI data provided "as is" without any express or implied warranties

Momentum even compares well to a consistently strong growth-oriented manager

**Cumulative Wealth of US Equity Strategies**  
December 31, 1978 - December 31, 2014 • US Dollar

trends that are going on in a panel discussion. You guys all did a really good job giving a well-rounded pitch on the CTA space, but let's just ask one more little orientation question here. How are CTAs different from other hedge fund strategies?

### What differentiates CTAs?

**CL:** CTA stands for Commodity Trading Advisor. Basically a CTA manager trades futures contracts, FX forwards, and sometimes options on futures, and swaps, so one characteristic is the set of instruments and the set of markets that they trade. Secondly, CTA or managed futures managers are often running systematically implemented strategies, but it has to be mentioned that there are also discretionary managers, especially in the commodity and currency space.

**CS:** I think the big difference for me in CTAs is that they're fully systematic. I think it's the minority of managers that I see that are not systematic. Because it's fully systematised, they can be completely emotionless and have no bias to be long or short, which is very rare in the hedge fund space. You'll see that 95% of managers are biased to be long. But the biggest difference of course is that all other strategies are convergent and CTAs are divergent, so every single manager is looking for value, for the most part, right? You've got long-short managers that are trying to pick winners. You've got distressed debt managers that are trying to buy low. Merger arb, long-short credit, everything however, trend-

following is divergent. They're actually buying the high, and hoping it will go higher, which is exactly why, in the portfolio context, CTAs zig when everyone else zags. It can be a very nice complement to a diversified hedge fund portfolio.

**JH:** Great. I agree with both of you guys of course. One of the things that Efficient has always utilised are some of the strategies that Christophe was referring to as well. We try to find strategies — even if they are discretionary and sector specialist — that can exhibit some of those crisis alpha tendencies, but of course you're right, Chris, that that systematic character is what makes CTAs so unique.

**JR:** The path of the return stream is different. It's traditionally not a very comfortable strategy because a lot of the time, you're taking small losses whereas most, value-oriented, equity-oriented strategies are the opposite, where you have many small gains over time so you feel good along the way and then you get the proverbial black swan and it really hurts. CTAs are the opposite here where you get small loss, small loss, small loss, big gain, so over time it's probably one of the more uncomfortable strategies that you might have in the portfolio, but the hope is that you're blending a variety of strategies. Everything else might be doing well while CTAs are trading water and then you get the diversification benefit, when you need it most when everything else might be suffering. So, the path of returns and the nature of returns tend to be very different.

### Major trends in the CTA space

**JH:** As many in the audience may be well aware, the CTA space has evolved quite a bit over the last 30 years. One of the big trends that's emerged over the last five to seven years or so is this 'trend-alpha' versus 'trend-beta' type of managers, managers who are doing a low-cost version of trend-following CTA programmes versus other managers who claim to be able to add some sort of alpha on top of these simple implementations.

**AD:** If one is done smartly versus the one that's done more basically, you'd prefer the one done smartly. For our purposes, we're generally trying to get the divergent returns that have been talked about. That's what we're looking for in CTAs and trend-followers, and we aren't really framing it in an alpha context. So, whether or not you're providing alpha relative to some trend index or something like that, is very much less relevant to us because the point here is about changing the shape of the return distribution; not moving it to the right. So, we tend not to over-focus on trying to regress CTA returns against trend indices and seeing who has the most alpha. What we're basically looking for are things that have good, divergent properties and stick to their knitting — because you'll find that many times the things that people do to trend systems to try to improve them tend to take away from those divergent properties.

**JH:** Chris, I know that there's been a ton of AUM growth in some of these low-cost trend-following programmes. What do you think about those at Cliffwater?

**CS:** I think that all hedge fund strategies are coming under pressure for lower fees. I think the lower fee is a symptom of the disease because the real disease is that hedge funds have been underperforming since 2008. Nearly every single hedge fund is being beaten by every mutual fund as equities and fixed income are at all-time highs. So, the one variable that investors do have is fees, which is why we push back and we want lower fees so that we can share better in the GP-LP split. CTAs are, just like all other strategies, coming under fee pressure, but what we've seen is this kind of fork in the road between some of the larger CTAs. Do they offer a low-fee CTA and in one sense dilute their two-and-20 product because they're offering some of the same R&D and systems? They're offering basically a very highly correlated strategy to their main fund. Almost but all the top three CTAs have done it, or they're interested in doing it. There has also been this rise in risk premia, so a lot of the big sell-side banks are offering CTAs trend-following at low fees. There is a lot of money in the space. The Sharpe ratios have come down in CTAs, so I think it's a natural evolution of that we're seeing

being offered for a lower fee. However, you do get what you pay for and it is worth considering the firms that have been around for 20 or 30 years and put lots of R&D into the entry and exit points, and all the tiny little things that make their system better. But we've had a lot of clients who want lower fees and it's understandable. I think both options are correct. We're doing a blend of low-fee CTAs and also 'alpha CTAs' where they're charging performance fees.

### Differences between trend programmes

**JH:** Are different trend programmes different from each other even if they're highly correlated to each other? Are all trend programmes the same? What do you think about diversifying across a number of CTA programmes?

**CL:** It's true that when you look at time series correlation of trend-following managers they tend to be very highly correlated – around 70% – but they are not all the same and significant cross sectional dispersion can be observed at times. This dispersion can be explained by different factors. First, managers are not all trading the same markets: some have developed capabilities and models to trade more esoteric markets than the usual 60 most liquid ones. Also risk management and portfolio construction approaches can significantly differ. It's therefore very critical for an investor to really understand what the manager is doing, the different models she is running, the different markets she is trading before selecting her. And I believe it's also very important to construct a portfolio that is diversified across these parameters.

Lastly, we have been mainly focusing on trend-following so far in the discussion, but there is also a lot of other strategies that can be traded in the CTA space across all timeframes, very short term – intraday to a few days – or much longer term, strategies like mean reversion, countertrend, range breakout, volatility-based signals, pattern recognition... There is thus a plethora of strategies outside of trend-following that you can get exposure to, that can be very accretive to your overall investment portfolio.

### The future of managed futures

**JH:** What are your expectations for CTAs going forward?

**CS:** CTAs have had a rough nine years. 2008 was great. A lot of money came into the space. 2010 was okay, maybe up barely high single digits; about 10%. Then we had a [five]-year lull until the second half of 2014. In 2014 CTAs were the best-performing hedge fund strategy thanks to two quarters, but we've basically given that all back and we've been flat now for three years. So, there are long

periods when it's difficult. There's a University of Pennsylvania paper called 200 Years of Trend-Following and other books look at long histories of trend-following, cobbling together all of the histories of the markets. And there can be ten-year periods when CTAs have underperformed or trend-following has underperformed. I think this kind of gets back to some of the earlier things we've talked about where a lot of the managers over the past eight years have diluted their trend-following signals with some of the strategies that Christophe talked about – short-term trading, countertrend, pattern recognition, mean reversion – and it's less of a pure play. So, to summarise, we're at an inflection point. The one thing I can say for sure is, fees are coming down, but where we are in the world today... we're one tweet away from a nuclear war. We are at all-time highs with equity markets and fixed income markets and credit markets. CTAs have been able to provide a very good hedge in times of crisis and if the S&P is down 10% or 20% in a calendar year, I think this can really put the strategy back on the map because it's been too long without returns. Investors have said "CTAs have not performed very well", which is very disappointing, but I think there's still hope for the strategy in the medium term.

**JR:** I agree with the points Chris made. It's important to really understand what's under the hood of strategies you might be looking at. As he mentioned, the past few years, particularly for pure trend-following, has been very tough. So, if you see strategies that performed very well, it's probably not pure trend-following, so you just have to set your expectations because a lot of those might be carry, short volatility: things that, during a crisis will likely suffer, but in the meantime, they improve the risk-adjusted return. So, again, it depends on your goals for an allocation. Usually, CTA AUM has been pretty cyclical. The odds of a recession or a crisis increase, every year that the S&P and markets continue to go upward, so we're probably closer to one than we were a few years back, and then these strategies are likely to outperform. Investors might flood in after and might have missed the best part of the returns. So, again, it's setting expectations, building conviction, sticking with it when it's performing poorly and hopefully you have a diversified portfolio so you capture some of the upside in your other, more convergent strategies.

**AD:** I would agree with all of those comments. I'm not going to add much more other than to say you really have to commit to this as part of your portfolio construction and not focus so much on the short-term results. To Chris's point, there are many examples throughout the long history of trend where you have multiple years of underperformance.

**CL:** Let me try to take another angle to answer your question. I think that futures markets will develop; there's going to be new markets to trade for managers, there's going to be new sets of data available for managers to trade futures markets and here I'm even thinking social media or satellite data. Also new techniques will emerge to create strategies that will extract value from futures markets in a different manner than currently done, like machine learning techniques for example.

### AUDIENCE Q&A

**KB:** That was a great panel Joel, and you asked a lot of questions, but no one asked any questions of you. I believe Efficient has multi-manager products in this CTA space. So, what do you look at when you build portfolios? Because we talked about the long term versus the short term and the trend-following versus the countertrend. And then do you have a comment on large versus small managers? Do your largest managers focus on euros and oil and treasuries and only the smaller managers can trade cocoa and lumber? So, what are the considerations you put into a multi-CTA programme?

**JH:** That was not prompted, by the way, to anyone in the audience who thinks it might have been. So, Efficient has been investing in CTAs for almost 20 years and – like Ontario – we have made some mistakes along the way as I think all of us have, but what we have strong conviction in is both long and medium-term trend-following combined with short-term trend-following. One of the main reasons for that is, if you have really long-term trends – say it's 90-day or 180-day or whatever – and if there's a long bull run in equities, like there has been, then all those trend-following programmes are going to be long equities in that portion of their portfolio. If you have a 30-day snapback by the equity markets, CTAs are going to lose money in that part of their trading and short-term trend-followers who are more in the three-to-five-day range or whatever can quickly move and get short and profit during those periods, and enhance the crisis alpha characteristics (as long as that pullback in equity markets persists long enough for them to start profiting from switching on that position).

Also – as Christophe talked about – Efficient has high conviction in lots of other types of strategies; some of which can be discretionary, others that can be technical and systematic. We have quant macro CTAs that use fundamental data instead of the price data that you typically see with systematic strategies. We have some sector specialists who might get into some of those esoteric markets that you mentioned and might have some real specialty in those areas. The bottom line for us is that we believe that diversifying across a large number of CTA strategies can produce optimal Sharpe ratios

and then – like Jeremy talked about – you use the cash efficiency of those instruments to leverage up the exposure to whatever your desired volatility is on the portfolio. With the managed account infrastructure you can do that. That's Efficient's view in a nutshell.

**KB:** Well, let's talk about that cash efficiency. At least in the US we moved from 12% bond rates down to 2% bond rates over 20 to 30 years. The mechanics of this strategy are that you have a core allocation to short-term or long-term government securities and then you put the futures on top of that. So, not only were you earning this high yield from those markets, you also had a nice tailwind that you could be long bond markets during this time of decline in yields. So, what's the future of CTAs in a low-yield environment where you don't earn that interest rate? And if rates start to rise, is that going to hurt the tailwind relative to that historical performance?

**JH:** I know Adam has done a whole research project on how CTAs may perform in a rising-rate environment, which is a pretty common question from investors. You're absolutely right, Keith, that because futures are so cash-efficient, whenever you invest in a CTA programme, the vast majority of the money you invest stays in cash and only a portion of it is used for margin on the futures contracts, and whatever is in cash earns whatever the cash yield is, depending on how it gets invested.

So, if interest rates are high, that is a nice tailwind. When you're looking at long-term expectations for CTAs, it's really important to regress out whatever the cash return is so you can see what the actual trading gains are and that is what's stable over time, or at least that's the active part of the strategy over time. We do a lot of looking at that to try to understand what CTAs can look like regardless of the interest rate environment. Of course, if interest rates go up in the future, which they may do, that will provide additional tailwind to CTA strategies. And I believe there's a lot of evidence that suggests that in rising-rate environments CTAs can provide the same type of crisis alpha benefits. It's not at all true that the vast majority of CTA returns have just been from staying long bonds and they've ridden this whole ride down, but they won't be able to make money going up, as is sometimes thought.

**AD:** I would agree with those sentiments and it's true that we have had a 30-year bull market in bonds, but that's not really why CTAs make money. It's also important to think about this notion of 'crisis alpha' and where it really comes from. A lot of people point to the fact that the strategy

can get short. When equities are going down in a protracted way, the strategy can get short equities and that's where crisis alpha comes from. That's not really the case. It certainly helps and some percentage of the crisis alpha does come from shorts but mostly the crisis alpha comes because the CTA strategies have been long bonds for most of their history and will do so in the future. The reason is because term structures of interest rates are generally upwards-looking. It's not the fact that interest rates have been moving down in level so much. It's the fact that the term structures slope up and it's very hard for a model to overcome the negative carry of trying to be short, and so the default position is to be long. If you look under the hood of a CTA system, you'll find that they tend to have a long position in bonds and when the equity markets and other asset markets tend to roll over, the crisis alpha comes from the fact that the CTAs have been predominantly long bonds going into crashes. So a trend allocation is probably going to make you long bonds at least in part just by its very nature.

The other thing, too, to keep in mind is when people talk about what "will happen to CTAs in a rising-rate environment"? We tend to think of that as an isolated event and rates just go higher, but rates don't go higher in isolation. They go higher in concert with moves in other asset classes. What you can see in the historical data is that when rates have been materially rising, many times it's because of an inflation shock or an inflation expectation shock and in that case commodities tend to be moving quite violently and CTAs are well equipped to deal with episodes where commodity markets are really on the move. If we go back to the seventies leading up to the 1980s, where the rates were rising for a protracted period of time, CTAs did quite well during those times because of the performance in commodity markets and so I tend to worry less about rising rates. I do worry that you could get a situation where systems are neutral bonds, or not as long bonds as they were, and then equities roll over and you experience less positive crisis alpha.

**KB:** You recommended an optimal weight of 20%, 30%, even 45% and we know that most investors aren't going to get there. So, in practice, what are people doing? If you make a 3% to 6% allocation to trend, does that make any difference in your crisis alpha or in your portfolio characteristics? What kind of investors tend to have larger or smaller allocations to CTAs?

**AD:** Since that was my statement, I'll just back it up briefly. People are not doing gigantic allocations as I pointed out in the simulations and generally that

comes as a result of not having a policy portfolio that has a large allocation to trend. So, if you have a policy portfolio that you're tracking that has no trend in it, it's going to be very difficult for you to do large (or any) allocations to trend. Even a 10% allocation to trend is going to play havoc with your tracking error and so on. So, in order to do this in a meaningful way, you have to buy into the notion of changing the shape of your Return distribution. But most investors have not done that. Most policy portfolios do not have an allocation to trend.

**KB:** So, is it worth investing in CTAs with just a 5% weight?

**AD:** I think so for sure. I think any amount you can get in there is good and will help you change the shape of the Return distribution. I also think that small allocations and getting people used to what it feels like to hold trend in a portfolio is helpful. There are other ways – by the way – to get divergence into the portfolio. Venture capital allocations are also a very divergent strategy that can help add divergence.

**CS:** 5% is better than nothing, but I think my biggest worry is that the CTAs currently right now are both long equities and long fixed income. Some of the managers I cover are more than 50% net exposed long both equities and fixed income, and if we have a sell-off and a rising-rate environment, the Fed is probably going to hike in December, although the futures markets don't have them priced in until a full year later. So, if we do have a taper-type tantrum that we had in 2013 where we have a simultaneous sell-off of fixed income and equities, CTAs are going to have a bad, nasty month and it's been so long since we've had good periods. Some of the selling points for CTAs is, "hey, we're going to protect you when we have a sell-off," and this first sell-off could be quite nasty and people will lose patience again. So, that's my biggest worry, but I do think that overall in the medium term we still will be protected from overall market movements by having CTAs in the portfolio because – remember – the other 95% of your portfolio is invested in equities and fixed income and Bitcoin that went up ten times in the past year and we're well diversified. This is another form of diversification.

**KB:** Well, some people will get fired if they invest in Bitcoin, so we'll leave that out for the moment. This has been a fantastic panel and those of you who know me know I've been a big fan of CTAs for a long time. It's where I made my largest allocations as a consultant and hopefully the returns and the crisis alpha will be there in the next market crisis. Joel, thank you so much for planning this panel. **THFJ**

“It’s not at all true that the vast majority of CTA returns have just been from staying long bonds and they’ve ridden this whole ride down, but they won’t be able to make money going up, as is sometimes thought.”

— **JOEL HANDY**

## BIOGRAPHIES



**CHARLES ALVAREZ,**  
*CAIA, Associate Director of Financial Research*

Charles Alvarez joined CAIA in January 2017 as Associate Director of Financial Research as well as Chapter Executive of the Virtual chapter, and a contributing Member of the New York chapter. Charles serves as the Assistant Editor of the Alternative Investment Analyst Review (AIAR) and manages the Association’s Academic Partnership Program.

Prior to joining CAIA, he worked at AB (AllianceBernstein) exclusively under their alternative investments business as a Client Portfolio Manager in their Multi-Asset quantitative group. Charles earned a BA in Mathematics from SUNY Binghamton. He has earned the Chartered Alternative Investment Analyst (CAIA) designation and is currently working towards the Chartered Financial Analyst (CFA) designation.



**JOEL HANDY,**  
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Joel is the Director of Business Development at Efficient, specifically leading the institutional sales and marketing activities in North America. He works with large public pensions, private pensions, endowments, foundations, wirehouses, and global consultants. He is actively involved in the research process at Efficient and in publishing white papers and articles for Efficient. He is a CAIA charter holder, has a Series 3, and has been in the industry since 2008.



**KEITH BLACK,**  
*Ph.D., CAIA, CFA, Virtual Chapter Head*

Keith Black has over twenty-five years of financial market experience, serving approximately half of that time as an academic and half as a trader and consultant to institutional investors. He currently serves as Managing Director of Curriculum and Exams for the CAIA Association.

During his most recent role at Ennis Knupp + Associates, Keith advised foundations, endowments and pension funds on their asset allocation and manager selection strategies in hedge funds, commodities, and managed futures.

Prior experience includes commodities derivatives trading, stock options research and CBOE floor trading, and building quantitative stock selection models for mutual funds and hedge funds. Dr. Black previously served as an assistant professor and senior lecturer at the Illinois Institute of Technology. He contributes regularly to The CFA Digest, and has published in The Journal of Wealth Management, The Journal of Trading, The Journal of Investing, and The Journal of Alternative Investments, among others. He is the author of the book “Managing a Hedge Fund,” as well as the co-author of the 2012 and 2015/2016 second and third editions of the CAIA Level I and Level II textbooks. Dr. Black was named to the Institutional Investor magazine’s list of “Rising Stars of Hedge Funds” in 2010.

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