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| **Mike:** | **00:00:59** | Welcome everyone. |
| **Adam:** | **00:00:59** | Okay. Welcome. Happy Friday. |
| **Mike:** | **00:01:03** | Happy Friday afternoon, cheers. |
| **Roy:** | **00:01:05** | Cheers gentlemen. |
| **Mike:** | **00:01:07** | The pre cottage beverage. |
| **Rodrigo:** | **00:01:08** | Cheers. |
| **Mike:** | **00:01:13** | I don't know, you're a little delayed there Rod, or it may might just be me. |
| **Adam:** | **00:01:17** | Maybe your brain is delayed. |
| **Mike:** | **00:01:19** | Yeah. The hamsters in the internet will start running quicker. Before we get started everyone, I know you're fascinated waiting for that disclaimer. You should not be taking investment advice from four dudes on a Happy Hour Riff-cast at the end of a Friday. So if you're going to get financial advice don't get it here, but having said that we're going to have a wonderful conversation with Roy Niederhoffer. And I think this is going to be a really good one. So super excited to have you on Roy, thank you for taking the time to join us. |
| **Roy:** | **00:01:48** | My pleasure, I'll do my best. |

## Backgrounder

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| **Mike:** | **00:01:50** | Why don't you frame your background for everybody? I'm sure most people on the show will be familiar with you, but why don't you just give us a little background. A little bit of the beginning, your early years, career arc, how you got into this crazy business and so on. |
| **Roy:** | **00:02:08** | I started with a completely different plan from where I ended up. I was going to be a neuroscientist. I'd become a pretty good young programmer of computers back in the late 70s and early 80s. And I got very interested in the human brain and what was going on inside there. So I spent my college years studying visual perception and recognition and also music perception. As some of you may know, I'm a bit of a musician and I got very interested in answering the question *is there any difference between the effective musical training on people, and the people who are not musically trained, and how their brains work*. And I was all set to do that for my career, but I had an alternate offer. I was going to go off to Cambridge and study that, and then my brother who was in the hedge fund |

business from the mid 70s, asked me to come and help him in New York. And basically I couldn't afford to not take that offer.

So I went to work for my brother Victor, who has trained a lot of really successful people over the years in both hedge funds and elsewhere, and worked for him for five years and then in '92 I left and we began trading at RG Niederhoffer Capital Management, in July of '93. So I can't believe I'm coming up on 30 years in this business. We really are doing just about the same thing now as we were doing then. We have the idea to be short duration quantitative traders that could provide downside protection for people with equity and fixed income exposure, traditional exposures, and be uncorrelated to what else was out there, which even today is still mostly trend following, out there in the CTA macro space.

So we've been evolving over the years but that's been our mission and we still have, if you were to hear my presentation today, it sounds very much like the things I told our first investors in the early 90s.

**Mike:** <u>**00:04:19**</u> Incredible. So in short, your brother ruined your life.

**Roy:** <u>**00:04:26**</u> By the way, he's still at it too. I just saw him a couple of nights ago, and he said he follows markets continually.

**Mike:** <u>**00:04:34**</u> I think it's hard to get it out of your system once you're in the markets, as it were.

**Roy:** <u>**00:04:46**</u> Exactly. I think it's a little bit of a dopamine high that people get, just like playing video games or even the way that many, social media is designed. Markets provide that same small burst of dopamine when you check the prices, and hopefully there's always hope so there's always a little bit of burst of pleasure in there. And of course now, markets are not even 24/5, they're 24/7 because of crypto. Thank you very much Bitcoin.

**Mike:** <u>**00:05:13**</u> Yeah, that's true. That light went on for me for crypto. So have you been in the role as CIO for the entire 30 years of...I mean that the company is your namesake so I'm assuming you've been sort of at the helm.

**Roy:** <u>**00:05:26**</u> Yeah, I was a lousy employee, even for my brother. I've never worked for anyone in my life. I think what I'm good at is, I'm a generalist, and I'm pretty good at a lot of things. And I might be pretty good at enough things that I'm unusually good at being pretty good at a lot of things, if that makes sense. So it's turned out to be a good role for me and I've been very fortunate to have exceptional people all the way through. I made a very good decision on day, even day zero, before I started the firm. I made one phone call to a guy that I had hired four or five years before at my brother's named Paul Shen, who is my CIO. And he agreed to come on board, he was working for the COMAX and had been floor local at the NYMEX and also Design Systems. So he had all sorts of experience. And the two of us have been a great team all the way through. And of course, I have a lot of lot to say about the investment strategy. But he has really been the one kind of flying the plane where I sort of design the aircraft.

## Role Evolution

**Mike:** **00:06:33** How has your role evolved over 30 years of captaining this ship if you will and adapting to markets, to client desires, to all the various vagaries that come into an investment business.

**Roy:** **00:06:52** I think in some ways it's exactly the same. Even back then there was a need for institutional quality management in the CTA space, and there wasn't a lot of it. And to give you a sense of what passed for institutional quality management, I was set up in a one-bedroom apartment on Seventh Avenue and 58th Street. Around the living room of that apartment, I had about six or seven computers spitting out system ideas and trading stations, and we had about three people in there. And I had people come in from a very well-known pension fund and not only did they allocate, but what they did, they parceled out five pieces to allocate to five different consultants, and two out of the five allocated to us.

So if you can imagine a pension fund today allocating to a 26 year old guy in his living room of a one bedroom apartment, it's just unheard of. But back in the day, that's where the industry was, and that's where I guess there was some talent to be found not just us. But we were one of many kind of quirky unusual firms. However, I recognize that I needed to really step it up. And so we have always tried to be really institutionally friendly and I think one of the things that my role has been is to be able to explain, and give people confidence in their investment, in something that's rather arcane. Short term, non trend following trading is not the same as well, when something's going up we buy it and we hold it for a few quarters and then we sell. That's easy. Or we buy stocks that are cheap and sell them when they're expensive. That's easy. But, we analyze 30 years of high frequency data and we come up with patterns using machine, it's a little more of a stretch for people.

So being good at explaining things has been something that I've always tried to focus on because it gives clients comfort and even today, I think we're we've been kind of at the forefront of producing interesting, general interest articles. For many years I used to publish a monthly letter that unlike almost every other hedge fund in the world, we would actually do research that was relevant to the clients that were reading the report, instead of just about us. And that I think also was something a little bit of an insight that I had.

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| **Adam:** | **<u>00:09:25</u>** | Can you highlight some examples of that? I'd love to pull on that a little bit and just... |
| **Roy:** | **<u>00:09:31</u>** | Sure. I've had a couple of interesting ideas that are counter consensus over the course of time that we really have focused on, and one of them is the role of *realized volatility and returns*. Basically one overarching theme of our studies over 30 years has been, when volatility is high, pretty much everything is in trouble, because most investments in the traditional world and hedge funds are short volatility investments, and a lot of ways of describing the word short volatility. But when vol goes up, people have trouble. Another thing we came up with was that very early on, we're talking mid to late 90s. Now everybody knows it. But at the time, it was heresy to say that hedge funds didn't make money when the stock market went down, because they literally were hedge funds. That's what hedge funds were, they were a hedge against stock market declines. And it's true in the early 2000s up to about that point, some did. But even then it was clear at that as an asset class, not as an individual manager, the data was very clear that hedge funds were only making money when the stock market went up and therefore, the hedge fund industry was essentially just a long bet on equities going up. And we were very upfront there at saying that. |

And then we've talked a lot about trend following and what it is and what it isn't. One thing, we love trend following and we believe in the strategy, but we've been very clear for years and years that trend following doesn't mean you have a put on the stock market. And we've explained that for decades. And the final theme that we come up with which I think is a really relevant one for right now is that the nature of the slope of the yield curve in fixed income futures is such that if you're a long duration holder of fixed income, you can't be short fixed income futures. It's too costly. Typically, the high yield curve has been about 3% from zero duration, after say 10 years, and you've paid or received that carry for long fixed income futures, you've made about 3%. And we show that in fact most of the profits of CTAs actually came from that roll yield, rather than actually being correct on the fact that interest rates had gone down for 30 years. It was actually like three quarters low yield and one quarter trend following that actually made the money, which is fine.

The problem however happens when rates start to rise. And I don't think anyone had ever asked the question, *is managed futures truly a symmetrical strategy in fixed income?* And most people say, well, of course it is. You can go short, just as easily as you can go long. But it doesn't work that way, and the reason it doesn't work is that you have this roll yield, either paying you or eating away at your profits every single day. And in fact, we showed which was complete, I thought it was a mistake when we came up with this result. What we did is we said what would happen if time went backwards from today to 1990 and yields went up to where they were at 1990? That's six or 7%. Now I think most people would say, well, the fixed income futures market is definitely going to go down, or yields go up, bonds go down, it's that simple.

Well, it's not that simple because of the roll yield which is costing you two or 3% every year. So over 30 years, you've paid a lot of roll yield. And it turns out, that if interest rates in 2050 are where they were in 1990, the price of the 10 year note future is going to be higher than it is today, which is completely counterintuitive but it's also true. As there's one caveat, as long as the yield curve does what it usually does 97% of the time, which is have a positive slope. And of course, there's a natural reason for that. Because it's more risky to lend somebody money for 30 years than it is for a day.

**Adam:** **00:13:44** Yeah, we found the exact same phenomenon, that the starting yield and the roll yield account for about 85% of the total return of treasuries over the very long term. So to be short treasuries you have to overcome just a remarkably large hurdle rate. And if you evaluate a very large variety of different trend strategies, trend specifications, then we have certainly found that for any kind of traditional trend following strategy, there is no alpha in being short fixed income, period. All the alpha is on is the long side. I'm wondering, did you find a similar outcome in equities?

**Roy:** **00:14:28** Yes.

**Rodrigo:** **00:14:30** Yeah. It's less direct though. This is just more of a wishful thinking type of thing that the human ingenuity will continue to create growth in a way that leads to an upward drift in equity markets. And by the way...

**Roy:** **00:14:45** It’s the same for hedge funds, it's not just CTAs. Again, I'm using the word CTA here as the way that most people invest in CTAs, which for most people means 90% trend following. There are obviously some managers who are not subject to this general claim that I'm making here. So I don't want to say everyone is.

**Adam:** **00:15:08** Yeah, understood.

**Rodrigo:** **00:15:10** So how do you deal with that reality then, as a trend follower? Do you just accept it and everybody needs to be cool with the fact that most of the P&L comes from long on the equity and long only bonds?

**Roy:** **00:15:20** Well, I guess we have always tried to distinguish ourselves since our duration is only about two days. So we spend much less actual time being short. We try to be really tactical and we might get minus two or even minus three beta to the 10 year, but only for 12 hours or for two days at a time. So we're not paying very much roll yield in that time. And it turns out that you can actually make money on the short side being tactical, and if it's okay, may I show a slide, is that okay?

**Rodrigo:** **00:15:54** Sure.

**Adam:** **00:15:54** Yes, please.

**Roy:** **00:15:56** Let's see if this will work. Share window. Okay, that should do it. Can you all see that?

**Adam:** **00:16:07** Sure.

**Roy:** **00:16:08** Alright, so what we're looking at are four different boxes. What we did here is we asked the question, what happens when bonds go down a lot, when stocks go down a lot, when bonds go up a lot, and when stocks go up a lot. So this is when your portfolio's either make a lot of money or lose a lot of money, if you've got the traditional mix of stocks and bonds. And by bonds here I mean, Barclays Global Ag Fixed Income, which is a good proxy I believe for how people use bonds. And it's also MSCI World Equities, which is I think a good proxy for global equities. And the question we asked is, if we take the 25 worst peak to trough drawdowns now, that's when the damage happens, it doesn't happen over five or 10 years, it usually happens in about 15 or 25 or 60 days like the taper tantrum. And if you add those together, that's an enormous amount of decline in the portfolio.

And theoretically at least, any sort of protective strategy, a hedge strategy, should be making money ideally in all four of these quadrants. And what we found though is that the left side of the chart which is bond drawdowns, shows that every type of hedge fund style except the little one on the top which is market neutral, which is just up marginally, every other hedge fund style is down. And so are CTAs. And stocks are all down, same thing. Every hedge fund style is down including market neutral. And in fact, it also shows something else. Normally people think of bonds as highly protective during stocks drawdowns. Well look, this is I think Barclays Global Ag in there. It doesn't look like it made much money at all in the worst drawdowns for stocks. And the equity market didn't make money in the worst drawdowns for bonds. So it's hard to find anything, and what we're showing here is that short duration strategies can be tactical and make money in these in these environments.

And this is this is I think the chart of the century or the chart of the decade, because none of us really know what we're going to face. We're in a world of central bank balance sheet expansion. We had a pandemic. The news feels like it's going to be even crazier in the next 10 years than it was in the last 10 years. And we have central banks with massive balance sheets printing faster than they've ever printed, and completely backed into a corner that I don't believe the Fed is going to ever going to be able to taper. They've said it over and over again and every time they try, they fail. And my view is that they will continue to fail. It's impossible once you began the opium drip, you can't stop it. And so we have to wonder what's going to happen and is it going to be inflationary? Well, that would be certainly the upper left. Is it going to be terribly deflationary for stocks? Maybe somehow. I mean, I could see that happening. We don't really know if there's going to be some interest rate effect on equities that take stocks down along with bonds or maybe even independently. But we also have to worry about deflation here. Rates going to go to zero or beyond the United States? Well, that's this box. And of course, if we have hyperinflation or even just a lot of liquidity, as we've seen since 2009, we could get this box.

So all four of these must be reckoned with and you can't just say I'm just going to buy bond puts, I'm just going to buy stock puts. It doesn't work because you face these, you have to keep up with the stock market. And if you don't, you're going to have a massive real losses even though nominally, you could be making money, as anyone who has invested in Zimbabwe knows, for instance. So this to me is, how do you protect a portfolio against all four of these scenarios? And the answer and I'm sure you guys have come up with the same answer which is probably why we're here, is these are very volatile scenarios. So you got to be long volatility. And as you see in at least the left side of this chart, and in so many other ways of looking at it, so many types of investments are short volatility. And that's not going to work in any of these four boxes.

## Punitive Diversification

**Adam:** **00:20:34**

I would say too that the situation has gotten substantially worse over the last decade because the diversification objective has been more punitive over the last 12 years than it has ever been in the history of active markets. And so you've seen so many hedge funds, even CTA strategies, begin to gravitate to higher and higher ambient average beta exposure, right? So the hedge fund strategies that might have at least offered some kind of buffer, or maybe you had a 50/50 chance that they were going to be up or down in an equity drawdown 10 years ago, now the probability that they're going to be down in an equity drawdown is closer to 70, 80, 90%. So you really got to think even more differently about your hedge, what are your alts exposure now, than you did even 10 years ago.

**Roy:** **00:21:30**

Yes, I think part of that it's just a matter of science, where the bigger you are, the harder it is to make tactical bets on the short side because of the roll yield issue, both in stocks and bonds as we discussed earlier. So it kind of forces people into positive roll yield positions, because it's too hard to get in and out in too costly into negative roll yield positions. And I think that it's not intentional, it's just that as the industry has grown, it's impossible not to be long stocks and bonds. And those of us who have failed to do so, and I've really tried to maintain this diversifying quality, have paid dearly. I mean, many of my peers who were doing similar things to me, in their let's say late 2000s are no longer in business.

I wouldn't say that we've thrived over the last 12 years but we're still around, and I'll show you another chart that really kind of demonstrates what we're talking about.

This is one that, we asked the question, what does, really look at the chart on the right. All we did here is we said, what does the monthly change in the S&P have to do with the performance of CTAs and hedge funds? And you would think there'd be a pretty easy relationship. But it actually turns out that the relationship for real is exactly the opposite of what most people think it should be. The orange line is the performance of the Barclays CTA Index and the different boxes, this is minus 5% or less for the S&P, this one's minus five to minus 2.5%. This is minus two and a half to 0, 0 to two and a half, etc. So this is when stocks are up 5% or more, these orange CTAs are doing beautifully. And also when they're up two and a half percent or more, great. No other box is really above zero. So what this tells us is that all the profits of the CTA Index again, not individual CTAs, just the index, from 2003 to now have occurred in months when the S&P was up two and a half percent or more. So that is not what people think that they're buying.

And in terms of hedge funds, now you really see it. This black line is the hedge fund index, and it's like a straight line. It's telling us that hedge funds are just a positive .3 beta bet.

**Rodrigo:** <u>**00:24:03**</u> They're just a lower volatility beta position, that's all it is. And if they were smart, they just lever up to the point where their volatility was similar to the S&P and at least they'd have a fighting chance. But I think they sell just their low vol version of the directionality of markets.

**Roy:** <u>**00:24:20**</u> Exactly. And I think, it's in a portfolio better and helps the portfolio better, is more like this convexity. This happens to be one of our funds that makes most of its money up here on the downside, when stocks are having down months, but also some money on the upside. So that's the two boxes that I showed you earlier. This is stocks up a lot, and stocks down a lot, definitely, or even stocks down a little. And the same thing happens to be true for fixed income. You see what I'm talking about? How CTAs are not actually able to make money being short fixed income. So this is the daily return of that Barclays Global Ag Index. This is 1% or less performance, this is 1% or more, etc. So the orange again is the CTA index. So basically we have that straight line again. CTAs are essentially statically long, the Barclays Global Ag Index.

**Adam:** <u>**00:25:18**</u> I think there's some interesting context to explore here too. For example, I'm fascinated by the fact that you use monthly returns for the equity analysis and daily returns for the fixed income analysis and it highlights something that we have found too, which is that the timeframe or the periodicity of observation matters a great deal in evaluating the skew or the convexity of CTA strategies. Typically, you would observe kind of quarterly periodicity. For example, you'd observe a more positive convexity in more CTAs especially recently, because they've gotten longer and longer in their holding period and their look back horizons, and therefore in a sort of 2008 or 2000 style bear market, you would expect CTAs to probably provide some positive convexity from quarter to quarter. But in rapid drops like March 2020, or really any of the of the drops we've seen over the last 10 years, traditional CTAs are just not designed to provide the positive convexity or the put-like quality that CTAs in general are often pitched as being expected to provide.

**Roy:** **00:26:46** If we remember, 2008 is seared into my memory. So I can quote the script, chapter and verse.

**Adam:** **00:26:55** Ours too.

**Roy:** **00:26:57** But if you remember as of October 31, it was not looking so good for CTAs. Stocks were down 20, 30% and CTAs were down. And the only reason that this happened is that there was a massive fixed income rally at the end of the year that saved everybody in the industry, from October to December, and most of it was November, December. So that was great for the industry. Thank God, there probably wouldn't be a CTA industry if it wasn't for that. You missed 2008, what is your selling point if you're not there in 2008? By the way, the reason that we chose the daily versus monthly there is that this particular fund that I'm showing here does not actually trade equities. So we are not able to get on board an equity move because we don't trade them.

So what we were showing was that eventually, and this is I think another general point, equity market volatility can happen quickly, but eventually it filters into all markets. You have one big up day. It might not move the bond market very much, but you have 20 big up days or 20 big down days, you can be sure that's going to move the currencies, that's going to move commodities, etc. So the point was to use a longer duration as people experience the equity market, but to show that on a day by day basis this fund that we're talking about here, actually does have the ability to make money on down days immediately, for fixed income rather than have to wait for the thing to get volatile. So that's the reason.

## Excluding Equities

**Rodrigo:** **00:28:30** So the discussion around the positive carry in equities and bonds and the inability for a diversified CTA to not be long those things, is that what's led you generally to, do your funds exclude equities in order to be able to capture idiosyncratic risk?

**Roy:** **00:28:51** Our flagship actually trades equities and likes to be long and short. So this chart happens to be from a presentation of a fund that's designed to be zero risk weight under Basel Three, for Asian investors. Essentially, what that means is you can only trade fixed income and currency.

**Rodrigo:** **00:29:08** Right. And so to recap how you deal with the upper drafted, you just trade faster, shorter term and you can snap in and then get back out.

**Roy:** **00:29:18** Right. And that's always been our distinguishing feature. And of course, that puts an upper bound on your asset size. You'll never have a $20 billion short term CTA, you just can't do it.

**Mike:** **00:29:30** What do you think the capacity is there?

**Roy:** **00:29:32** I think two or 3 billion at, again, you have to you have to set a vol. So let's say it's 10 vol, so I'd say two or 3 billion, maybe 3 billion at 10 vol is about it. That's been my experience.

**Adam:** **00:29:46** I want to make sure we reemphasize a point which you mentioned but I want to make sure that we don't gloss it over because I think many CTA investors really don't understand that even in 2000 and 2008, all of the crisis alpha gains came from long bond positions, not from short equity positions.

**Rodrigo:** **00:30:10** Yes. And I think we need to disaggregate what you said about Ag losing money, that the fact that the Aggregate Bond Index has lost money. That's because there's a lot of corporates in there. So when Adam speaks about bonds, we're talking about sovereign bonds that tend to be a flight to safety. Guys like Druckenmiller didn't make money shorting the S&P, he made money going long TLT in his account, similar to many CTAs.

**Mike:** **00:30:41** Probably the euro.

**Roy:** **00:30:42** That's right. And I will say, in fairness this index has a little bit of equity-ish ness in it because of that, but at the same time most people don't just put treasuries in their portfolios. Most pensions I've talked to have a more Barclays Global Ag Fixed Income-ish allocation, than they do just, we're going to be long US treasuries. And of course, even outside the US, you have this issue where there's a flight into the US for safety out from wherever else, maybe the …

**Rodrigo:** **00:31:18** Right. So the other thing is, in those charts, correct me if I'm wrong, but at the bottom right what you capture on the upside of the S&P 500, or the equity markets, generally speaking, CTAs have certainly had a hard time over the last 10 years in capturing any significant upside to be able to provide those types of returns for clients. And so what does that been a result of as you analyze the data? Is it been just whipsawing? What do you see that being the issue?

**Roy:** **00:31:54** In the sense why?

**Rodrigo:** **00:31:57** Why has having, a lot of people when you talk about the word trend and they perceive it to be as if there's something making money and if it's trending, I'm going to make money there. And then they've seen a CTA make no money for a decade and then they're looking at the NASDAQ. They're looking at the S&P seeing a straight line in their eyes and say, how is it possible that you are a trend manager that didn't capture any of that trend?

**Roy:** **00:32:20** I think a lot of managers have, to tell you the truth. I think a lot of other markets have been very difficult. The currency markets and fixed income markets have not, but I would say trend following and equities has been a pretty good place to look. So I can't speak for anyone else's system.

**Adam:** **00:32:42** I think what Rodrigo is saying is that like a diversified CTA, the diversified CTA indices have kind of been we're kind of flatlined between 2009 and 2019. And if you look at equity markets it's been almost a straight line up with a couple of corrections that lasted all of three hours before the Fed stepped in. And so for people that are maybe not fully understanding the fact that these CTAs trade 80 markets, and they're not only focused on the S&P, the NASDAQ and Dow futures or just the Treasury and Bund futures, that while they may have made a lots of money being long trends in US equities and some sovereign bond markets, that the whipsaws in all of the other 60 markets that they trade, took away sufficiently that you weren't able to see the positive returns that they earned on equities in the portfolio, because they were overwhelmed by the other whipsaws maybe.

**Roy:** **00:33:47** Yes, I think that's true. I would also say that historically and now we have to go back into the 2000s and before, equities did not trend as well as the other markets. What trended? Fixed income and FX trended and the 70s commodities trended. So people tended to be overweigh those, relative to equities. And I think it took a while for people to evolve and say, wait a minute, these look like the stocks are going up in a big trend. We got to have more stocks. And of course, that could be another explanation for the evolution of CTAs toward being long equities and fixed income. Basically, if you weren't long equities and fixed income, or you fail to get long equities and fixed income, you did not survive. So this is just a survivor bias issue rather than a strategy issue, and those who got longer equities did better and better and attracted more money, and needed to be longer equities, as we talked about before. So it's positive reinforcing cycle.

## Using Behavioral Science

**Adam:** **00:34:47**

Roy, I'd love to dig into...there's a couple of directions I want to explore. First of all, your background in neuroscience, do you bring any of the thinking or techniques that you learned, because there's a lot of overlap between certainly modern neuroscience and financial time series. Both of them deal … theory and lots of noise and lots of network effects, lots of feedback effects, etc. Do you apply that directly do you think or peripherally or there's no connection at all?

**Roy:** **00:35:34**

I would say the way we do it is more like behavioral neuroscience, a little bit of a higher level than like what individual parts of the brain do and how neurons work, obviously in the sense that many machine learning paradigms are sort of mimicking the way individual neurons fit together and interact with each other. Then yes, that too. But the way we look at it is that there are built in evolved behavior patterns in the human brain that have been placed there evolutionarily. They help keep people alive over evolutionary time.

So one very good example that is, in most places, in evolutionary time, most times, the current status of the world is a good predictor of the future status of the world. So we have a recency bias essentially that's built in because essentially the African savanna doesn't change that rapidly. And the way we apply the ideas of behavioral psychology, and this is going to sound very much like the work of Daniel Kahneman who is an idol of mine. And I'm happy to say also more recently a friend of mine, Danny articulated in *Thinking Fast and Slow* probably 100 different specific ideas. And every one of them can be applied directly to investments. But like one might read scripture or difficult poetry, you can't just read it in one sitting. You have to just kind of read a page and think about it. When that book came out, we actually did a chapter a week for probably three quarters of a year in our research meetings and some would present and we talk about it, and we literally went through it. Like we were doing like in Judaism, there's a weekly Torah portion. It was exactly like that. It's was a weekly kind of information.

And so what we do is we use the ideas of behavioral psychology, of these biases that we know are built in by evolution and we try to instantiate them based on one's experience, trading. Let's take today for example. The most dramatic move that occurred today I guess, is it Bitcoin, which from 5am to 7am dropped 5% after looking super strong and hitting like a three or five day high, at exactly 5am and before you knew it, the thing was down 10%, and right near its two week low. And if you were watching that market as I was, it was so psychologically disheartening. You felt something. It was impossible not to. And what did you feel? You feel the influence of your investor behavioral biases. You're anchored, that's one of Kahneman's ideas, to the level 45,000, and suddenly it's 40,600. Well, that feels really bad. It's down 10% from a price that it was literally at two hours before that. And you also have this visual perceptual biases where you extend patterns in your mind that are not predictive at all but just seem like we ascribe physical properties to prices when they're not at all physical. So things like momentum, it's a testable hypothesis, but it's not a guaranteed thing. Like a steel ball in a vacuum, that has momentum. The price of Bitcoin does not have momentum like a steel ball in a vacuum. So it looks like it's going to go to 35. And so it gives you a set of emotional responses.

So our trading strategy takes these observable, palpable, visceral experiences that we all have watching markets, quantifies them into testable hypotheses that we can go back and say, okay, well let's look at similar things that have happened in the soybean market, and in Google, and all the different markets for decades, and we find similar things that have happened. We then can say, well what can we learn from those similar events? So I wouldn't say it's a direct, literal application of neuroscience, I would say it's quite relevant and theoretically driven, and that what we end up with in our trading strategy are trading rules that we follow, that actually have as their independent variables as their conditions, stories, understandable situations that anyone who's trading that market can say, yeah, okay I kind of get that.

Another maybe summarized way to say it is, if it made it to the front page of any financial news website, a big move occurred, an unusual move occurred, high or low, something strange, and people noticed it, our systems probably noticed it too.

**Adam:** **<u>00:40:57</u>** Amazing. So a couple of things fell out of that for me. One of them is that, if I understand correctly, you are trying to quantify patterns in prices that will trigger emotional responses or biases, express or prompt humans to express certain types of predictable biases?

**Roy:** **<u>00:41:25</u>** Yes, that is in fact, almost inadvertently, almost directly quoted my marketing materials from 1992, and from today.

**Adam:** **<u>00:41:33</u>** Incredible. So you can sort of look at different price patterns and say this is likely to trigger confirmation bias or anchoring or like you said, 60 or 100 different biases, cognitive biases that have been identified over the years and there's decent research on that, that can help narrow this sort of the specification of when this type of behavior is most likely to be prompted.

**Roy:** **<u>00:42:11</u>** Yes, and we do. That's our job.

**Adam:** **<u>00:42:13</u>** Okay, fantastic. And then once you have identified patterns that express that bias, you're then looking for those patterns across all markets, and you're looking for ones that are consistent across all markets.

**Roy:** **<u>00:42:33</u>** In general, yes.

**Mike:** **00:42:36** And how much does that vary given the different players in the market? Are those that are participating in the lumber or cotton market really? I mean, there are some similarities behaviorally, but there's some differences too between them and those participating in equity markets. So how do you think about that?

**Roy:** **00:42:56** We recognize that there are going to be differences. Some of them are only obvious in retrospect. You can tell a fantastic story about why the Japanese people are different than the Swiss people and therefore their markets trade differently. But I don't even want to go there as to try to explain that, after the fact. And you certainly wouldn't necessarily predict a certain difference *a priori*, which is what you need to do. You have to be prospective rather than retrospective in your storytelling. So our general theory is, there are going to be characteristics of markets that express themselves in all markets, and then there are going to be characteristics of individual markets, that express themselves in individual markets. And then there are also going to be characteristics that have expressed themselves in individual markets, that have never shown up in other markets but are going to, and that is the scariest thing of all, because if you think about an S&P doing what crude oil did last year. If you imagine an S&P going negative?

**Mike:** **00:44:10** So that's the unknown unknowns?

**Roy:** **00:44:12** Right. The unknown unknowns, exactly. And you can just tell all sorts of stories. I remember one of the days, and this is another one that's seared into my memory. It was during the Gulf War, and our Secretary of State James Baker was negotiating with the Iraqis. And he got on the box and said, we have the following statement about the end of negotiations. And regrettably by the time he finished the word regrettably, the crude oil market, it had like a heartbeat shape it had gone like from 16 to 11 because everybody thought they were going to have an agreement, and then the next tick was 24. It literally more than doubled in one tick, and just like a heartbeat, then came all the way back down to about 20 or 21. I'll stop there.

## Overcrowding

**Rodrigo:** **00:45:15** So let's talk a little bit more about the behavioral side of things and how that can create patterns that allow for breakout systems and trend following that match those behaviors and numbers, with the fact that you're not the first one to recognize that. In fact, many people have recognized it. You talk about a $3 billion capacity or something, what you do, you're not the only one. … big discussion with regard to trend following haven't been, there's too much money chasing it, and therefore it's overwhelming the traditional behavioral triggers that might have been useful in the past. So what are your thoughts on overcrowding?

**Roy:** **00:46:00**

Well, I think there's a few ways to answer that. One way is to not always be trend following. And that is something that I think, we staked that out very clearly back in the early 90s and we said, we are primarily contrarian. Not 90% contrarian, but more than half, and we still are. So we are often on the other side of a lot of the positions that trend followers take. So that's one way, to literally force doing something different than the typical places that one looks. And even in hiring my researchers, what I found over the years, is that the people that produce the best results for me are not people with traditional backgrounds, because there tends to be a convergent evolution in education where people start to use the same tools and they share syllabi and they know this *Python* and this math library and this way of forecasting, and everybody approaches it the same way, even though they might come from different parts of the world.

And so people that have disparate backgrounds and are willing to look in places that are not obvious, are very interesting to me, and have done very good work for me. So hiring well, people that are willing to force themselves outside the usual mold of the questions one should be asking. I think there's also a specific value to being different. Like if you have an idea that whatever you're doing is likely to be done by other people, where you can force it not to happen at those times, and measure that. So those are also very interesting questions. Sometimes the optimal situations are the most sub optimal situations for that, just as at a racetrack when everybody knows that a horse that's the favorite is going to win the race, the payoff is terrible at that point. And we see that in markets. Markets are exactly the same, they're pari-mutuel. So you have to be very careful to force yourself not to follow the herd of optimization to find the best strategies.

**Adam:** **00:48:13**

But everybody knows that the 20-day breakout should be bought aggressively, then maybe you want to fade the first couple days of the 20 day breakout. That sort of counter- intuitive approach.

**Roy:** **00:48:29**

It's certainly an interesting question to ask.

## Buying Evolution

**Mike:** **00:48:31**

Actually let's dig into a more open ended side of things. How would you approach the research and development and strategy deployment process? That is actually a process for which I think investors place not enough emphasis on. You're not buying the systems that ReSolve or Niedermeyer have today. You're buying the evolution of those systems over time, as markets evolve? So how do you guys approach that problem? Because that's fundamentally a very key point, I think that some miss.

**Adam:** **00:49:12**

And tricky too.

**Mike:** **00:49:14** Yeah.

**Roy:** **00:49:14** Yes, for sure. I think also, the longer one is in business, the more one learns about how important this process of when do you take out a strategy? When do you start believing in a strategy? Is there an appropriate test period? What is that appropriate test period? A lot of it comes down to *optimism bias* actually. It's is a very humbling thought for me that if you believe your own bullshit, you're going to believe that you have a lot more ability to answer these questions than you do. And what I've come to is the answer to most of these things is, it's really hard to tell, impossible to tell over very short or even medium timeframes.

So, one very important idea is be patient. Because if you constantly switch, and here there's a wonderful book from 100 plus years ago called *Secrets of Professional Turf Betting.* They talk about this very phenomenon, here we go back to horse racing again, where if the favorite wins the first couple of races, well then everybody tries to bet on the favorite. And then of course, the favorite may win the next couple of races but it's not going to pay off very much based on its probability. And then the longshot wins and no one bet on the long side and a couple of those come in and then everybody bets on that. So there's this constant sloshing back and forth and it's very important when you're choosing strategies not to get too focused on the very short term, as we saw at the end of 2019, one of the least volatile years, maybe the least in some measures volatile years on record. So many people got out of their equity downside protection just at the time when COVID was going to hit and the market was so vulnerable to an enormous correction. And I've seen this over and over again.

We saw it and no one believed the stock market could crash in March of 2000 when it was on the high. No one believed that. I remember 2007 people were like, people were incredulous. Even Greenspan, if you remember what he said, it was maybe Bernanke said, taking over but, there's not a bubble. And I also remember in terms of strategies working and not working, and this must have been in about 1997, I had a guy come and sit in my office and say, this is a really nice shop you have here, you have lots of research going on, you're interesting doing great stuff but, I was just at this place in Greenwich and they have like five Nobel Prize winners working for them and they've never had a down month. Why should I invest with you when I can invest with these guys who currently have dozens of PhDs working for them?

**Adam:** **00:52:04** Is this 1998?

**Mike:** **00:52:05** Yes. It is. It's four letters.

**Roy:** **00:52:10** Right, exactly. And it's just a matter of cycles, and look, they've been able to stay with it, they had a phenomenal strategy, they just needed to stick with it. But it was just a risk management problem, more than it was a strategy problem. So when you face this question, when do you take out of this strategy, it's really important to be diversified and accept the fact that if you're truly diversified, a lot of what you do is going to stink, and it's going to seem really bad. But that's what diversification is all about. And we see this with investors all the time. One of the studies, actually the one that we did with Danny, he and I presented at a hedge fund conference a few years ago. We asked the question, why is it so hard for investors to keep diversifying strategies in a portfolio? And we simulated this by saying, imagine you have 20 funds in your portfolio, 19 hedge funds with typical hedge fund performance, one CTA and everybody's got the same Sharpe ratio. The only thing that's different is their correlation to each other. Hedge funds are obviously more correlated to the equity market. CTA in this case is negatively correlated.

And what we found is the loss aversion bias and the recency bias effects were probably responsible because what happens is that the way most people present their monthly performance is they have, this is where we made money, this is where we lost money. And then at the bottom, there's the worst performer. So you've probably seen a monthly table, and we do this with systems also. And so the...Sorry, my son just turned on the lights on me …

**Mike:** **00:53:51** I was like Oh my God.

**Roy:** **00:53:53** I'm looking like, viciously yellow. I'm going to finish this story before I do.

**Adam:** **00:53:56** Are you enduring liver failure?

**Rodrigo:** **00:54:03** He's turning into vision from marble.

**Roy:** **00:54:06** I'm going to have it terminated.

**Mike:** **00:54:11** Agreed. That's so good. I'm going to have my kids come in and do that, looks amazing.

**Adam:** **00:54:15** That's right.

**Roy:** **00:54:16** I thought for a second, he actually figured out a way to blew our entire home power, which is not inconceivable.

**Mike:** **00:54:23** He's mining some Bitcoin.

**Roy:** **00:54:25** Anyway. So Danny and I asked this question. If you present your performance that way, how often does the CTA end up at the bottom of that list monthly, compared to the other funds? And the answer turned out to be, the CTA is there four times as often as anyone else in that portfolio. And this is with the same Sharpe ratio. It's just the correlations Right, exactly. And just the loss aversion, we hate to lose more than we love to win. Again, there's that lousy CTA, didn't I just talked about that CTA last month and the investments we need.

**Adam:** **00:54:55** This is so good.

**Roy:** **00:54:57** We even did it, we doubled the Sharpe ratio of CTA. We said the CTA is twice the Sharpe ratio as anybody else in the portfolio, and they still are there three times as much. So that was kind of an interesting thing, and when you're doing system allocation, you have this bias as well. You hate to lose, I hate to lose, everyone hates to lose. So you want to take out your losers and yet, the markets are so random and ever changing in their cycles just like the horses, and people are by their investor biases, triggered to make poor decisions that are sub optimal. So sometimes just doing nothing is better than doing something that feels like it optimistically should have a positive impact.

## Ending the Noise

**Rodrigo:** **00:55:43** So you address the fact that it's difficult and you have to have diversifying strategies within your mandate. Does it come a point or are there any tools that you guys use internally to say, okay, at this point, that's enough, you're clearly just noise, you have a Sharpe ratio of zero.

**Roy:** **00:56:06** One of the things that we were able to do because we've been doing it so long is, we can actually say, just how good are we at doing this? And the answer was not very good. So we let computers do it. We actually have what we call dynamic allocation. We let the computers with some variables that we think are at least objective and somewhat predictive say, okay, this system needs to be down-leveraged, this system can be up-leveraged because its environment is better. So once you can identify what those variables are, and they're not complicated variables, and there are a lot of them, it at least gives you maybe a better than average chance to survive. If you have a system that really is bad, at least the models will probably, this allocation system will eventually de-leverage it.

And finally, you'll have enough time, and that's all it takes. It just takes many more quarters and even years than one would think because our optimism bias makes us believe that our priors are better than they actually are.

**Adam:** **00:57:12** You've also got a shorter trade horizon, right? So you've much higher sample size to be able to …

**Roy:** **00:57:20** I should say that about trend following. You're absolutely right. When you have a lot of individual independent observations, you're constantly getting new data.

And you can decide if your new sample is different from your prior sample. But trend following, it may be that 100 years from now, our computerized models of our personalities downloaded into the iPhone 74 that our great, great, great grandkids are playing with, we'll all be sitting around here just doing this and one of us going to say wow, trend following that was the best strategy ever. Because it caught the rise of this crypto insanity, NFT, whatever that went up 48,000,000%. And all you had to do is trend follow in everything, and you would have made it, and in fact it may already have happened. And if you think about what Bitcoin is, there's that book, *Irrational Delusions and the Madness of Crowds* ...

**Mike:** **00:58:18** Exuberance.

**Roy:** **00:58:21** *Irrational Exuberance and the Madness of Crowds*, yeah. If you were to take every single one of those bubbles. And of course, the book is written like a cautionary tale, like whatever you do, don't buy these bubbles. Don't be silly, don't do it. And you bought every one of them up 100 times, every single one of them. And you also bought Bitcoin up 100, you probably be up on the trade. So trend followers we have a longer horizon in our lifetime.

**Adam:** **00:58:50** So let me let me just pull on this idea of, because I think if I understand what you're saying about identifying strategies that are a little weaker, it's not that you are de-leveraging them such that you're removing them entirely from the suite, so much as you're identifying conditions when these strategies are more likely to be profitable and other conditions when these strategies are less likely to be profitable. Is there a way to map that to a process that an allocator might be able to use, sort of say, if you're expecting this type of condition then you want to allocate to these types of strategies and if you're expecting this other type of condition then you want to allocate to a different? Is it that extrapolatable so to speak, or are they very specific to the types of strategies that you run?

**Roy:** **00:59:56** I think you can do it. I think it's really hard to do it, and I think you actually have to have alpha in your global macro ability, to make that kind of call. Now, of course, all of us believe, I always like to do this when I'm on a big webinar or something, and say how many people think that their investment returns are going to be better than average? And invariably like three quarters of the people think they're going to be like better than two thirds of their peers. Obviously, that's impossible. Except perhaps if people tuning into my webinars are somehow selected in such a way that they really are. I will always say, give them that credit.

**Rodrigo:** **01:00:36** I've had this discussion recently; couldn't you have a large portion of the population be above average but nobody can be above the mean? The mode, I think.

**Adam:** **01:00:46** The median.

**Rodrigo:** **01:00:48** The median.

**Roy:** **01:00:50** The expectation also could be, that's like been my thesis with Bitcoin to like the mode, the most likely outcome is probably down, but you have a chance for like 100 X return on the upside, and you've had it all the way through. So it's like a lottery ticket with a very positive right tail and yet, it still may have a negative medium.

**Rodrigo:** **01:01:14** I get it. The Lake Wobegon example.

**Roy:** **01:01:18** Getting back to what we said before, to me the problem with allocation that is a really hard one is how do you maintain a truly diversified portfolio in the face of potential underperformance relative to your peers who don't follow the same strategy? And I get it? I really feel the problems that many of my potential clients, and especially the ones that don't allocate to me. Many of them are like, I just want to be long equities. And maybe they're willing to say it, or sometimes they're unconsciously...

**Adam:** **01:01:55** Their actions speak to that sentiment.

**Roy:** **01:01:58** Right. And that's normal optimism bias and it and it's been true for a dozen years. So to me, the hard trade and the right way to do this is just to have some, get off zero in the truly diversifying trades. Do you have a slug of your portfolio that is going to just crush it if rates rise, and stocks don't go up? What happens if stocks go down? Are you going to be okay? And those people that have that, are going to be the heroes, true heroes, the ones that save their pension funds, the ones that save their families. And I think there's a chance that we are entering a world where there's existential threats to multi-generational pools of wealth, from overprinting of fiat. It's not equity bear markets that take people out of the game. Every family in the world can survive a 50% decline, even a 75% decline in their equity holdings. It's horrible and sad but it's not completely, it's not an elimination event.

But if you lose 99.99% of your real value, you're out of the game. And that's what's happened in these hyperinflationary events. That to me is the greatest risk. And if you think about it, what do we know is going to happen during this thing? Well, probably interest rates are going to rise. Okay, that's a good thing to protect against. Probably it's going to be pretty volatile. Okay, that's good, too. Probably, I want people that can make money, long equities, and not at point three beta. At one beta, or maybe even more than one beta, if stocks really go through the roof. Because we don't know. And to have that humble question, I don't know which of those four quadrants I'm most exposed to, but whatever happens, I've got something in there even if it hasn't made money recently, or even for a bunch of years. That to me is good portfolio allocation. But it's really hard to do that because your investment committee …

**Mike:** **01:04:08** The recency bias drives the overconfidence bias, which drives the allocation. It's just a vicious circle.

**Rodrigo:** **01:04:14** I spent my career before meeting Mike and Adam banging my head against the wall. And then Mike and Adam and I got together and we all did it together for the following 15 years. I don't know what it is about this group of individuals that, we may enjoy it. I don't know. But I think that it is really difficult to go against this mass optimism that exists in being long equity, and asking anybody to reduce their equity position. Even I found this to be true even during post '08. Just this is the belief in human ingenuity and optimism and the markets will come back up again, and the fact that you're looking at drawdowns that happen very seldomly, most years you're showing double digit returns on the S&P or …, even though during that decade and you analyze at zero. But you're fighting against human ingenuity I think, is why people don't like you. And they don't want you to be right.

## Things You Can Sell

**Roy:** **01:05:15** I think the answer is actually to reframe the entire question. So how do you reframe that? What you're really suggesting in this situation is, you've done so well, but we're smarter than you are. So you should give us some of that money that's done such a great job that you've worked so hard on to make that phenomenal return portfolio, and you should give it to us, because we know better than you do.

**Adam:** **01:05:41** Oh my God, dude how do you reframe that? Because that is exactly what we've been saying for 10 years, you're so right. That is the subtext of what we've been saying for 10 years. What is the secret with …

**Roy:** **01:05:53** The total number of assets raised by that emotionally driven approach is zero, correct. So here's how you frame it. And it only works for strategies that are very capital efficient. Like managed futures. Here's what we'll do. We can take any exposure you have, stocks, bonds, MSCI World, BGA, distressed hedge funds, whatever you want. And we will give you that exact exposure, with us overlaid on top of that. And we will do something like double your return and make your overall risk even less with that combination. And that's how powerful it is. A lot of these combinations, like us plus equities and one of our funds ended up something like triple the return, two and a half times the Sharpe, less overall volatility. And you still have like a 0.97 correlation to your underlying index that you had originally. ***You don't have to get somebody to take from what they have and give it to you, if you can serve as an overlay and give them the same exposure, plus you.*** And so that to me is the ultimate reframing of this. And it can be done with swaps. Yes, it might cost you 50 or 100 basis points a year to do it with somebody that's going to lend you 100%, I'm sorry, 200% versus 100% total assets. But money's cheap. Negative interest rates, I'll even pay you to do it.

**Rodrigo:** **01:07:23** It's so funny that it took us 15 years to come to this point. We wrote a piece called *Stacking Returns* that just went public like last month, and it discusses public funds that now have embedded betas in them, plus CTA or plus global macro, and how you can put multiple...

**Mike:** **01:07:43** And leverage here I think, too.

**Rodrigo:** **01:07:46** Yeah, beta plus alpha, levered up. And you can put them together in such a way where you can get your 60, you can get your 40, you can get 60% CTA and global macro, with a little bit of tail protection. And all of a sudden you're giving people what they want, with that medicine on top. And it's funny because for me when I first heard of Milburn, for example, that launched this fund that had 100% equity and then the CTA on top. Advisors would be like; why would I pay somebody money if they're doing something that I could do on my own? And I was like, yeah, of course, that's ridiculous, why would they do that? Well, now I understand, the positioning is, you're getting the beta for free. You're paying me for this other thing but you're getting the beta for free and what you get with that, is an added level of comfort and stewardness that you wouldn't otherwise get if I just offered you the pure thing.

So it's taken me years to go from like, yeah, why would you pay somebody to do that and just like, actually you should pay more, because not paying the behavioral tax of that beta alpha. And our funds now have both beta and alpha and this is why we wrote the paper that you can put a bunch of these guys together and get both things. But it's amazing how you do have to position it and as a *yes end*, as all the improv people out there would understand. There's a reason why the *yes end* is such a powerful thing.

**Roy:** **01:09:18** Exactly, yes. And also it doesn't have the almost antagonistic, *we know better than you* aspect. I had someone say, when someone wants to be the smartest person in the room, let them. And the reality is, I can't deny that everybody I talked to has better returns than I do. That's true for everyone that's not long equities, basically. So from an objective perspective, I'm not as smart as everybody else that I'm talking to. However, I think the combination and getting to that consensus, that beautiful synthesis of you can keep all that great equity exposure that you have and get the special medicine of will make the downside smaller. And by doing that, and this is the key, it's not just the your downside is smaller and your vol is lower. Nobody wants that, they can't sell that either. I've discovered after 30 years of trial.

What you can sell is, you're going to make more money and you're going to be a hero, just in case the rest of your portfolio doesn't do as well. And that is something that you can sell. The heroism of taking that intellectual leap and saying, I'm not going to be like everybody else, I'm going to get what everybody else has, and I'm going to get more of it, and they're going to have a smaller downside too. That's what negatively correlated strategies can do.

**Adam:** **01:10:43** Roy, what's the structure for that? You mentioned swaps. So is the revelation here that in order to be able to represent that solution, you need to go to a few investment banks and say, how might we structure this? And then you're able to go to existing plans and deliver the pitch that you just said, *the yes end pitch* and say, we already have solutions set up that allow you to have your cake and eat it too. I'm just from a business standpoint, what are the steps to take in order to facilitate that vision for the institutional space?

**Roy:** **01:11:26** I think it really depends on what the structure is. We've tried this in the past and this is not a particularly new idea for us. But the error that we made or the failure that we had was, we decided to figure out what the combination needed to be. And maybe that combination was 100%, like Milburn, we'd had the same thing, 100% the S&P plus us. But not everybody wants that. So the idea is, if you're capital efficient, you can run an SMA on top of an existing exposure, that someone else can do for you. Or we can synthesize it, or we can do it in a swap. There are a lot of different ways to do it. So it's really almost a partnership question. How would you prefer that we do it, but there are a lot of ways to do it, and the numbers are just spectacular when you add a strategy that's got like, for the smart alpha fund that I've been talking about, that's got like nine or 10% return, nine or 10 Vol, but it's negatively correlated to stocks and bonds. So when you add it to stocks and bonds, you essentially get 10% of portable alpha on top of whatever you've got, with less volatility. So if it's stocks you end up with S&Ps plus 1000 basis points, with less volatility. If it's bonds, you have bonds plus 1000 basis points with less volatility than bonds. And that's the beauty of it.

And we can do that in managed accounts as you guys can too. So it doesn't have to be a swap but a swap is very easy for a CTA strategy. You're only using 20,25,30% of your capital on a daily basis. So there's not a huge funding cost. It's not like a hedge fund where you're going to have to pay 100% just to invest, and then there's an additional leveraging that they're paying for.

**Rodrigo:** **01:13:11** It's the capital efficiency…

**Roy:** **01:13:14** Right. The capital efficiency is what makes managed futures a beautiful investment. Even trend following.

**Rodrigo:** **01:13:19** I think it's an interesting discussion to have because it truly is one of those, this belief system that again, in the first iteration of how to communicate is that you're not doing the right thing. It's not smart for you to do it because look at what happened 2000, 2010. Look what happened in the 70s. Not only in the 70s that you have poor returns on equities, but you were highly correlated to bonds. So you're not even getting that. That's that doesn't work because they've done so well. So you stack this on top. If the 70s do happen, this is another thing that comes up. If the 70s do happen and you have bonds and equities highly correlated and they're doing poorly, you've saved your client or yourself or your family the vagaries of a zero real return, and added, in especially in CTAs, there's so many commodities in there that you're probably going to benefit from high inflationary scenario by being long these things, and the benefit of the rebalancing between your CTA position and your bonds and your equities, that rebalancing premium from pure entropy is also an additive measure that you are completely leaving on the side and not bringing to the table, by not considering adding this overlay. So there's so many things that it's so obvious but it's so difficult to communicate.

## Up Months and Down Months

**Roy:** **01:14:36** Yes, another way to frame it that I've found some success with is to think of it in terms of what's going to happen to your up months, and what's going to happen to your down months. Now, what most people fear when they invest in managed futures or short term trading, whatever it is, is sure my down months are going to be smaller but my up months are going to be smaller also. And people don't want to lose that. They hate to lose more than they love to win. And losing that potential profit, which one is very optimistic about, is very scary. So the conversation has to be, we're going to make your up months 10%, 20% bigger. And you saw that earlier. The strategies make money when stocks go up and bonds, and irrefutably, our funds is up this year. So the question is, if I could say your up months are going to be 10% larger and your down months are going to be 10% smaller, okay, that's interesting because there's no sacrifice.

And when you frame it in that way, suddenly these diversifying strategies that have the embedded beta on top of it, you don't have much tracking error, you're going to have like one or 2% standard deviation around your benchmark. You're 0.97 correlated, so your investment committee is never going to nail you for that. Like 0.97 correlated to the S&P, it's basically the same thing. That's not a problem. And suddenly, but wait a minute, you can double your return by doing it, you can triple your return by it? Yes it actually works.

**Rodrigo:** **01:16:10** So how do you deal with the obvious objection which is, you're asking me to lever this thing up? I know we're talking about we say words like overlay and portable alpha, but the truth is when it comes down to it, the word leverage will come up. And there's a fear that all you're doing is you're increasing returns, but you're also increasing your risk. No, thank you, I'm not taking leverage. So how have you worked over the years?

**Roy:** **01:16:35** Part of it is to show, drawdown by drawdown, that in fact we live for equity drawdown, that's our favorite thing. So you're not going to have more risk during this, you're going to have significantly less and we have negative beta. So basically, the more you add of us, the less overall risk there is. Also the fact that this particular fund doesn't trade equities means that you're never going to have double leverage in equities. You might have an in fixed income but being 2X or 3X the ten year beta for a day is not catastrophic. It's not like being a 3X beta on the day of October 19 when the stock market goes down 25%. So it's a little bit of a, what's the biggest move in the ten year, four or five points in a day I guess. Which by the way was amazingly the third week of March, I think had the biggest declines in the ten year, and '20.

You wouldn't think of that as an inflationary period but after that huge deflationary period into the beginning of March, that was actually the biggest inflationary period in... actually is the third largest in bonds.

**Adam:** **01:17:50** This is March '09 or?

**Roy:** **01:17:52** March '20.

**Adam:** **01:17:54** March '20, I see.

**Rodrigo:** **01:18:00** I saw that this morning. I was actually looking at how that 30 year did and it was just a massive.

**Adam:** **01:18:08** March '09 had a similar character for the same reason.

**Roy:** **01:18:11** Yeah, everything became a risk asset. Even crypto became a risk asset. That's another thing that people have to think about. Like, what happens if everything in your portfolio gets sold? And those are literally the most volatile times?

**Rodrigo:** **01:18:26** Well, the objection keeps on coming up that everything correlates to one. It's just the most overused statement that I hear in this business, and like there's a point where everything correlates to one and I would say that no, that never happens with CTAs, but there were a large amount of CTAs that also correlated to the downside. So it's not like you could claim a whole industry to be immune to it. There's your strategy being shorter term and designed for that and you can probably hang your hat on that, but does that conversation ever become easier for you or you constantly having to just look at your own track record and show them, we are different than everybody else?

**Roy:** **01:19:05** I try to answer with data but yes. I think there is a sense where I'm pretty happy with what I have. I'm just going to take the pain if it goes, because everyone else is going to be in pain too, and I won't lose my job. So it takes a rare outlier intellectual leap for people to really say, I truly believe and I get how hard it's going to be to have these strategies in there at times, but I know it's good for me. Kind of like going to the gym, right?

**Rodrigo:** **01:19:39** Amen. Very good. Those are good ways of framing it. I think more people need to hear this now when we're at peak everything. And Mike always says that people make changes through crisis, necessitate change, and it's these types of conversations that I'm hopeful will make a difference this time. I'm sure the phones will be ringing off the hook for you Roy and us hopefully after this conversation.

**Roy:** **01:20:10** As you can tell I love to talk about this stuff. So if nothing else I love to teach people and listen and learn and certainly it's great to have kindred spirits, I think you guys have probably spent five times as much time talking about these issues than I have. So thank you for being convivial partners with me here.

**Rodrigo:** **01:20:33** Amen. I really appreciate the framing that you've done, I'm going to steal 80% of it if you don't mind.

**Roy:** **01:20:41** It's worth what you pay for it.

**Mike:** **01:20:43** We'll look forward to invading Vermont to get together with you.

**Roy:** **01:20:46** Yeah absolutely, come and visit. We have a nice setup there and my trading room has the best view I've ever seen in the trading, just mountains and deer.

**Mike:** **01:20:57** Hold on. I was just going to shoot dinner.

**Roy:** **01:21:03** I've never done any hunting but I fear that in the most heavily armed per capita state I may have to learn about firearms.

**Mike:** **01:21:10** Is Vermont the heavily...wow but those are a bunch of hunters.

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| **Roy:** | **01:21:16** | In the home of Bernie Sanders, the highest number of trees per capita is number of guns per capita, it's a very unusual state. |
| **Adam:** | **01:21:22** | My family's favorite ski spot is Smuggler's. We used to go there every year for like five years and... |
| **Roy:** | **01:21:31** | Yeah, anytime you're in the neighborhood, come this way. |
| **Rodrigo:** | **01:21:34** | So you're going to pick up bow hunting, you seem like a guy who likes a challenge. That stuff is challenging. |
| **Roy:** | **01:21:40** | I'm a violinist. So the only... |
| **Mike:** | **01:21:43** | He's a musician, he's not a hunter. Roy, where can people find you? What's the website for the firm? |
| **Roy:** | **01:21:49** | www.niederhoffer.com and you just type in Roy Niederhoffer, it'll probably come up to the right spot. For better or worse I've been out there a long time. |
| **Mike:** | **01:22:00** | Twitter handle and whatnot. |
| **Roy:** | **01:22:01** | I'm not on Twitter so much. We just do our website. There we have papers on all these things that I've talked about, some white papers. |
| **Adam:** | **01:22:09** | And you make those available on your website? Those papers? That's great. That sounds really interesting, I'm going to go look them up. Thank you. |
| **Roy:** | **01:22:18** | We managed not to talk about crypto, but... |
| **Mike:** | **01:22:22** | Yeah. Are you guys actively looking at trading the crypto derivative set in your portfolios? Are you active that now? |
| **Roy:** | **01:22:31** | We haven't actually added it just because there's still a lot of institutional reluctance. And I've been active for 10 years. This is an example of one of my really poor macro ideas, which is that there was going to be tremendous inflation after QE in 2009. And I started to look at inflation hedges and I came across Bitcoin. I said, oh my gosh, this is like the perfect inflation hedge here. So I was completely wrong about the macro call. But I was lucky in the timing. So I've been familiar with it for a long time and we have a big prop operation doing that. We're heavily involved in DeFi. We actually have pitched a couple of partnerships with investors to run a DeFi plus managed futures portfolio which is just an incredible combination of return and protection. It's just like the golden combination. |

And so I think there's a lot in there, but my longer term view on it is that there's going to be a great convergence, and all of trading is going to be decentralized, it's just too good and too cheap and too easy and 2 billion people have no access to financial services and DeFi is going to give it to them. And whatever the ESG concerns one has, environmental concerns or whatever about Bitcoin or crypto in general, the beauty and the extraordinary gift of giving billions of people access to banking and lending and payments and investments, which you literally can do with cents, and without commissions essentially, is an incredible innovation. So I'm super bullish on all these things.

**Rodrigo:** **01:24:17** I literally go from Roy's point of view to like literally the previous call. 100% Ponzi, it's going to zero, aspect of it. It's going to save the world. I've gone round trip twice today, like aggressive views with all the data.

**Adam:** **01:24:37** They're not even consistent views. One is the tech will eventually democratize access to financial services. The other is Bitcoin's going to the moon. You can have Bitcoin go to zero and DeFi still transform the financial services. So the two views are not inconsistent.

**Rodrigo:** **01:24:57** 100% agree. But Roy we should chat after the commercial about all this.

**Roy:** **01:25:02** All right. Sounds good.

**Mike:** **01:25:01** Love to chat offline.

**Roy:** **01:25:03** Thanks everyone for sticking around to listen to me too. I know I'm …

**Adam:** **01:25:09** Absolutely one of the top conversations. Really appreciate your time and candor and the spirit of the conversation. So cheers.

**Rodrigo:** **01:25:18** Yeah, stick around Roy.

**Roy:** **01:25:19** Have a great weekend.

**Adam:** **01:25:20** You too.

**Rodrigo:** **01:25:21** Thanks all.

**Mike:** **01:25:21** Thanks all.