Adam:	**00:01:48**	I want to make note that that commercial was created when there was no inflation. And you know, there was the crazy continuation of that insane tech-centric bull market. And so I want to credit Rodrigo for his prescience in coming up with that narrative, which obviously …
Rodrigo:	**00:02:10**	It felt like old men yelling at clouds when we were doing it.
Adam:	**00:02:14**	Yeah, tilting at windmills at the time for sure. Mark, welcome. Thanks for coming on the show.
Mark:	**00:02:20**	Oh, thanks for having me.
Adam:	**00:02:21**	-- the show. Yeah. I've been looking forward to this one. This is obviously right down all of our fairways. So, I think we're all very comfortable in this sandbox. So, looking forward to going a little bit deeper than we sometimes can. Before we get started, just a reminder that this is for entertainment/educational/informational purposes only and should not be considered advice. You definitely shouldn't be getting your investment advice from three or four gentlemen on a Friday afternoon. So, with that said, Mark, I think it's -- I mean, you've obviously had a long and eventful career. And so it'd probably make sense for you to sort of map out how you got into this crazy business and how your career has evolved and what you're doing today.

Backgrounder

Mark:	**00:03:13**	Right. I think the best way to put it is, is that I'm still working on the same problem I was working on when I first started in asset management and futures trading. So, growing up in Chicago I had the opportunity to go down to the Board of Trades when they sort of said there's a potential job opportunity. And you go to the visiting gallery above the trading pits, and you look down and you see utter chaos. And I think that you have one of two responses. One response is, get me out of here, this is not anything I want to have anything to do with. I want to work in an office, I want to have a desk, I want to have quiet. And then there's the other group of people who say like, wow, there's something wild going on here. How do I jump in? How do I get involved in this? And how do people make the decisions that they're making? And when you look at all of the craziness that goes on in an exchange, on the floor, you say like, they're constantly making decisions as new information comes in, assessing the information. And you sort of say, like, there's got --what is the skill that you need to make good information or good decisions with limited information? And from that, I worked at a commodity exchange. I got my PhD, so I sort of said I want to be more of a researcher but found that academic research wasn't

that exciting. So, went back to Chicago, worked for the Mercantile Exchange, worked for some money management firms. I was the head of fixed income research for Fidelity and worked at the large firms, asset management, firms and then worked for John Henry as his chief investment officer, and then the president of the company. So, I was in the trend following business. And since that time, I've run commodity fund to funds, consulted for pensions and other organizations that are involved in quantitative and systematic trading. And then doing some work on systematic trading now with one of my partners that we're doing some things for some multi-strat, and still help out with manager selection.

Richard: **00:05:34** So, you write very prolifically in your blog, but it seems like the bend towards systematic is sort of a prevailing theme. Would you say that that experience under John Henry in the trend following business sort of was the one that most impacted the way that you see markets and the way that you want to attack the original problem as you stated?

Mark: **00:05:54** Well, a lot has to do with what you think your comparative advantage and skill is. And you know, some people are very good at discretionary trading and very good at making those decisions on their feet. And I found that I was a person who needed to be very disciplined and structured in my decision. Now, I didn't start out as a trend follower, I didn't sort of plan to be a trend follower, I probably sort of said, like, I came about it as say, like, this works for me. This works as a way that I think to be able to condense information and extract signals. But working for a large money management firm, you know, if you say that you're a trend follower and you work for a large asset management company, that's looked at somewhat askance. Everyone says like, well, you're just looking at prices. This is in the late 80s and early 90s. People were still sort of efficient market people. And you know, behavioral finance was still relatively new. So, then when I worked with John Henry, I think he was unabashedly a trend follower. He said, this is the only way to do things. And it was almost like, well, here is someone who really sort of believes this. And it resonated well with me to sort of say, I understand what he's trying to do.

Now, I think I always sort of said, there's more -- there could be more to this, in the sense that we could use other information too, in the sense as it's coming as an economist, I'd say, well, prices trend but they trend because underlying global macro events or information is also trending. If global markets trend, then prices will trend. So, the two of them are somewhat linked together. And so when you think about that link, this is that I say, the trend follower is saying that's all the information I need. And I'm sort of saying this is that you could get a little bit of extra value, you could get an extra performance, if you also look at what is the causes of those underlying price trends. But you sort of say that price is first the -- is primal. Price is first but you might want to understand what are causing those prices, and maybe that could help you with your decision making.

Uncertainty

Richard: **00:08:16**

Right. And the idea that narrative often chases price, even though we tend to -- oftentimes a lot of people tend to write that the price is chasing the narrative, so to speak. There's obviously a feedback loop in all that, but it is something that we would also share. I wonder if you have a few examples in your formative years, examples in markets and throughout history that have -- that really kind of gripped your -- the way that you chose the systematic approach. Like, can you recall a few of these instances when they kind of really shaped your perception?

Mark: **00:08:54**

Well I, so I say that you can look at it almost every day, every month, you have to just pick up the newspaper, and you find out that someone will have a certain narrative in market, they start looking at it with a certain forecast. And yet prices don't seem to follow what the forecast is, is that I would say that there's people sometimes say, this is what markets should do. When in some sense, you should say this is what markets -- this is what is. The price is what the market is thinking. It's not a should, it's an *is*. And I think that that's important to sort of focus in on you know, what is it actually telling you. So, a perfect example would be is that let's go back in the spring of this year, or like right after the beginning of the Ukraine-Russia war. It was said, well, commodities is that you got to buy commodities, got to have commodities.

And all of a sudden is, is that they did pop end of February and March and then they peaked in March. Then they came and they started getting lower. Here's a perfect example is, is that the narrative will still say commodities got to go higher, but the markets were telling you something else. So, in some sense from a feedback loop, which you first want to say, okay, what are prices doing? Prices are primal. This is what I should use as my null hypothesis. This is -- should be my baseline. Now, I got to try to understand is, is that why is it that the narrative that you're hearing in market isn't taking place? What am I missing? And when you think about what is uncertainty, uncertainty is actually the gap between what you know, and what you need to know.

And so that the fact that prices are going lower, but your narrative is, and the story that you think is that they should be going higher? That's the true uncertainty, because there's a gap between what is actually occurring, and what you do know right now. So, you're missing something. So, then the quest has to be, okay, is there something that you need to go out and acquire in terms of information? Or should you just follow the null, which is following the trend?

Adam: **00:11:08**

Yeah, I think what you're invoking there, in a strange way is almost -- and I sort of came to the same kind of conclusion, a few years ago, invoking the efficient market hypothesis, where trend following is almost like -- it's almost like an expression of the efficient market hypothesis, at the first derivative, right? Like, if price is set at the margin, price of a commodity is set the margin, right? So, we think about all securities as tradable commodities, price is set at the margin, then it's the change in price, at each increment in time that carries the only meaningful information.

You know, all of the accumulated flows that makes -- that drove Apple to have the highest market cap or another point, Exxon Mobil to have the largest market cap, that's a snapshot in time, but it doesn't tell you where the next marginal dollar is going, or the next decision that is being made by an agent or participant in market. But it's the changes in trends or the changes in prices that are telling you the average of what the market is betting in the next time increment. Right? And so I think there's a lot to be said for trend as really almost being the next most humble way to approach markets. You're acknowledging that the average participant that is currently placing bets, is probably -- that average is probably your best indication about where price is going next, right? And you're following the wisdom of crowds, but at a first derivative level, as opposed to at an aggregates level like, is typically envisioned for EMH.

Mark: **00:12:57** Right. There's an analogy with the corporate strategy. So, everyone talks about like, well, I want to be a first mover. And when you think about a researcher is sort of tries to be a first mover. He wants to be ahead of everybody else. What you find out is that in a corporate strategy, sometimes being a first mover actually is not very profitable. You can actually be too early, you could get run over and a trend follower is trying to be a good close follower. So, you want to draft behind the first mover.

And the story that often comes in is that like, we had some investors, they come in and they said, like, well, you know, you guys trade corn and soybeans. Like, what makes you think that you have an advantage? And you know, I sort of was like, I don't. They said -- I said Cargill or a large grain company has a lot more information than I do, and that's okay. They're the mover, I just have to be a close follower. And if I'm a close follower and I'm a good signal extractor, then I'm going to do a good job. So, I want to draft behind them and all the information that they have. I just want to be a good signal extractor. I don't have to be a first mover.

Adam: **00:14:13** And the secret, of course, is in the diversity, right? It's you've got all of these specialists. Like, take Cargill, a specialist in a handful of agricultural markets. You've got different metal traders, who are experts in metals markets. You've got equity investors that are experts at fundamental investing or a wide variety of different takes on equities. So, you've got all of these different fundamental specialists, and you're not going to necessarily outperform the best fundamental specialists in any of the markets that those fundamental specialists are specializing in. One of the big secrets of trend following is if you can kind of get half of or extract half of the information that those specialists are imbuing on the market by virtue of needing to express their views by impacting prices; but you can do that across all of the markets and not really have to be a specialist in any of them, that's the real juice, right? It's not about being a specialist, it's about being the ultimate generalist, and be willing to listen to the herd of specialists in each of those individual markets without needing to understand the underlying fundamentals.

Mark: **00:15:32** Surprisingly, markets are, or market specialists are tremendously myopic. And the sense is that the fixed income guys, which are generally -- the glass is always half empty, they have one set of views. And the equity guys are always glasses half full, have a different view. And it even carries over to like the story I often tell when I was at Fidelity in fixed income. We'd have companies that would come in to tell us about what's going on at the company. CFO would come in and he'd talk to the fixed income guys. They'd say like, you know, our rating is really important, and we're going to pay down debt, and we're going to make sure our leverage is controlled. Then you go over to the equity guys, and they would say, like, well, you got to pump up those earnings. They go, like, yes, we're going to increase leverage, we don't care about the ratings, this is all we care about is pumping up those earnings.

So, we would send like, okay, I'd take my junior analyst, I want you to go to the equity meeting, and tell me what they say in that meeting, then come back and then we'll talk to them when they come back to see us in the fixed income side. So, there is a lot of myopia. And so the great value of diversification is not so much diverse -- not just diversification for providing a reduction in volatility, but diversification because there's myopia in how people look at markets. So, sometimes even when you see the news comes in, the fixed income market will discount that information differently than the equity market. And that causes markets to be out of line. And sometimes the trends or the cross correlations are such that you could take advantage of that.

Rodrigo: **00:17:17** So, speaking of going back to the idea of narrative, right, so far, we've kind of created our own narrative about trend following, right. It's the idea that you're identifying price movement and kind of hopping on the narrative train in order to benefit from, hopefully, a positive P&L. And oftentimes, I find trend followers or momentum managers, taking a very simple story to retail investors, and even institutional investors, which is we're going to make money -- we can make money anywhere. We're going to find the trend, and we need to go long, or find a trend down and we're going to go short. So, Bob's your uncle, it's an easy thing to do.

But the reality now, like, that's the narrative, right? But the reality is, that that doesn't always work, right? Trend following works over time, but not all the time. And we can go through long periods of non-trends, right. So, how do we -- how would you define trend to somebody that's new? Would you define it in that way or how is it that you position it?

Mark: **00:18:18** I mean that's a good starting point. But I think the important point that you have is twofold. One is that there are a number of different narratives. Narrative is truly important. I know, we're going to talk a little bit about management selection. And I think that the whole process of providing a good narrative to investors is critical for any allocation or for investors to invest in a fund. If they don't get the narrative, it doesn't matter what math you use. And I think there's also more than one narrative that can apply to a certain strategy. But generally, I think that the managed, well, called trend following CTAs have never really done a great job of providing an effective narrative for investors. They've tried. They've had different narratives at different points in time. But it's never been enough to sort of get large institutional investors to embrace trend following as a core strategy.

And the story that comes to mind is I was having -- I was at a State Street Bank conference and you know, I was sitting next to someone who was at the conference, large trend follower and they said like, how are you doing and they're up close to 50% for the year. And then they said like -- I said, well, how's the flows coming in? Said, we got a lot of flows. And I said like, okay, where are you getting the flows from? He said, you know, it's almost all retail. He says like the retail flows have been fantastic. I said, well, what about you know, you're an institutional style firm? Why aren't you getting any? He says the institutions are still having a hard time with this. He said, like the individual investors, the financial advisors, they seem like they get the story or they're comfortable with the trend following narrative. But the institution guys are still having a problem. They really have a hard time embracing the story of trend following. And I don't know if you found that the case too.

Rodrigo: **00:20:30** We did. Adam, do you remember when we went to UTAM?

Adam: **00:20:34** Yep. Yeah.

Rodrigo: **00:20:35** And went and talked about momentum and trend. You know, very captive audience. They all made sense that there was a quantitative team listening to every word that we were saying. They were echoing the same belief system as the junior quant team. And then at the end of it, we said, well, how do we move this forward? And they said, oh, we don't. Like, our board would never approve anything like this. It's value investing or bust. You're either buying a cheap company that is future cash flows and is a true undervalued asset. But to just allocate based on a strategy that looks at price and does more of the thing that's been working just on that change, is impossible. It's not going to happen. And it never did.

Adam: **00:21:11** Well, yeah, I think also still the industry lionizes investors like Dave Swenson and Warren Buffett who have folksy clear messaging about buying good companies or you know, why there's an illiquidity premium in privates and

		choosing good managers to select good private companies, and then take them public and make them more efficient, etc. And …
Richard:	**00:21:40**	Career risk, essentially, it's a career risk issue.
Adam:	**00:21:43**	Yeah. But it's also just I think, a -- Yeah, to an extent, but the industry sort of just -- they adopt things that are understandable, that seem and feel tangible. And if your board is steeped into Swenson or Buffett mythos, then none of this is going to make any sense, right? It's not going to resonate. And I think that over the last 15 years, because private equity has done well, because we've been in an unbelievably great market for especially US equity, those belief systems were validated and there wasn't a need to think outside the box and were just now beginning.
Richard:	**00:22:27**	And became entrenched. And became entrenched and hardened. And recency bias played over -- more than a decade. And so now it's become really …
Rodrigo:	**00:22:37**	And just to echo what you said though, Adam, we're at a conference right now in the island. A lot of single family offices are there, I've met a few of these guys. There's a lot of conversation about -- you were bang on. Last time I saw you, you were calling the inflation issue and what I could have done and the fact that you made money. But you know, at the end of the day, I got to stick to my core, it's understanding what I do. I can't invest in a black box, right? I've had two guys say the black box thing and it's really tough.
Mark:	**00:23:07**	Yeah, and I always sort of say that we're not a black box trend follower, we're actually a clear box because we can tell you exactly how we're making a decision. So, the black box is the person is, is that well, stuff goes into the box, and something happens, and then out comes some output, but I can't explain why it happens. Now that could be a discretionary trader. So, no. Now, I think it's really interesting when -- Let's go back to the issue of narrative, is that a value investor could tell a much better narrative than any trend follower, because people confuse factoids and knowledge with skill. So, if I tell you more about, okay, well, I visited the company, and here they're doing. Or if like, it's an old company, here's the amount of rigs that they have. Here's the leases they have out in the Permian Basin. Here's their success rate. So, you give all these factoids and you say, like, that guy really knows that company. You say I got to invest with him. And if you go to a trend follower who might be trading oil, you say, like, well I'm a signal extractor, the signal's saying I got to go long oil … and that's what I do.
Richard:	**00:24:17**	It feels good. The illusion of control, right, the illusion of control of hearing someone who speaks so eloquently and have such grasp of all the minutiae of the industry and the company. And you listen to them speak for 30-45 minutes, you're like, yeah, that guy knows… I'm going to invest with that guy because

he knows what he's talking about. Meanwhile, the price might be already fully -- all his best case scenario might be fully reflected in the price of the asset and there might be no additional upside. But then again, it just felt good and it gave the investor that level of comfort to allocate.

So, I wanted to put on a thread that we were, that you mentioned earlier. You in a recent blog post frame the problem or the investment landscape for trend following as kind of a signal to noise problem, where they might even be able to make money in both high and low volatility environments but not in the middle or not in the transition. Maybe you can explain to us a little bit more of what you meant.

Mark: **00:25:23** Right. So, we'll start back with the whole narrative is that -- So, in some sense, trend following is easy, because we're constantly trying to extract what is the trend, but around that trend, there's going to be noise, okay. The noise is just the up and down movement of the day. And so, in some senses, this is that, when volatility is low, okay, and noise is low, my ability to extract a signal, all things else equal, is going to be fairly high. So, if there's a low volatility I can have -- I'd be able to extract my signals, I'm going to be successful at being able to put on positions. And that could be a good environment for me. And let's take the other extreme, is that when volatility is really high, then you get a lot of people start to sort of seize up their decision making, they start to be a little bit slower.

At the simplest case, they might become more dollar cost averaging type people. Or they might say, I've got to put off a decision, or I'm only going to scale into a position. And so what happens is that you could actually have trends being stronger in high volatility periods. So, in high volatility, the signal could be stronger, even though I have higher noise. And then low volatility the signal could be if they have a same signal, but lower volatility, then that signal to noise ratio could still be high, and I could still make money. And I sort of half joke is that when I talk about volatility and trend following, I always say that we're long, long volatility, because if you have a high volatility, then you could have a lot of dispersion in price. We love dispersion in price, because then the potential place that prices could go to could be much wider. And so there's more opportunity for profit.

So, at the extreme, some would talk about, like, well, I'm an outlier detector. And you may not like that, but we'll just sort of say that that would be at one extreme. But we're actually short, short volatility. And when I say we're short, short volatility is that your worst nightmare from a trend following perspective is that you get a big jump in prices, and then it reverses the next day. So, you got a lot of volatility in the short run, because then you could get hit with a stop, you might sort of say, I got to reverse the trade, then it goes back the other way. And so in some sense, you're pushing into sort of like a knockout option. So, when I hit my stop, my position gets knocked out. So, if I buy a call option I could go -- the price could decline, but as long as I have -- I payout my premium, then I'll just wait for the expiration.

But with a stop loss and trend position, it's almost like a knockout. So, actually your high short-term volatility is your enemy. But long, wide long-term volatility is your friend. And I think that some of the data sort of suggests that. Now, at the same time, what you find out is that then the changes in volatility are always the problematic, because you know, you're in some sense is that you're changing the distribution of what you're looking at. And that's where you could sort of like get a false signal, so that those rapid changes in volatility can also be problematic.

Adam: **00:28:58** I like the way you frame that. Yeah.

Rodrigo: **00:29:00** From 2015 to around 2019. It was a really rough go for trend managers on average. And so do you ascribe that being short short volatility. Was it a short volatility few years? Is that what you ascribe most of the pain to?

Mark: **00:29:18** You know, what you find out is that there is the big overhang from Central Banks doing their quantitative easing, which you have one will have the -- not, it's more than an 800 pound gorilla that's actually pushing on the market. You had the short volatility problem, and I think that there was -- we'll sort of say that there was a switch from a lot of traders that because medium to long-term trend following after the 2008 Greek financial crisis had a bad spell. And I think a lot of people then started to switch into shorter term faster models. And they actually found out that those didn't work. And now we're finding back in the, we'll say the 2018 to the present, people have gone back to more a longer term trend following. And a longer term trend is actually allows you to sort of like, sort of move through those short volatility spikes. So, I think that there was a movement to shorter term trend following at the wrong time and that exacerbated a lot of poor performance in that period of time.

Rodrigo: **00:30:33** But did the longer term trend followers do okay?

Mark: **00:30:37** Pardon me?

Rodrigo: **00:30:39** Did long-term trend followers do okay?

Mark: **00:30:41** They did do -- well, let's say the short-term got really bad. Long-term didn't do as well, didn't do well, either. So, it was a relative difference, but it was just a bad period of time.

Adam: **00:30:55** Yeah, I mean look, central banks were explicitly in the market suppressing large moves, right. How do trend followers make money? There are large moves that persist through time and typically go longer and or, for longer in time than most market participants expected.

Mark: **00:31:17** And you started looking at all of the different, like categories. If everybody's doing similar quantitative easing, and following similar monetary policy, then it's hard to trade currencies. So, all of a sudden, that takes out one leg of the stool. All of a sudden, you had a long-term down cycle in commodities. And I think that generally you find this is that in commodities, when prices are falling, there's more chop, there's more volatility on the downside relative to the upside. So, that took out stool number two. Stool number three is that couldn't trade sort of short-term rates, because they were all close to zero, and they weren't moving at all. You find that the long-term rates, you had the overhang from central banks. So, that's stool number three? And what you look at, some people say, well, let's try to trade individual stocks, but you find on an individual stock basis, a lot of them have negative autocorrelation.

So, if you want to talk about a headwind versus a tailwind, you'd like to have markets that are sort of have positive autocorrelation. Because then you know, that it's just a matter of how do I exploit that or how do I extract that from my trend model. If it's negatively auto correlated is, is that you've got like a headwind that's working against you. So, like every day that might be or in the short-term it's constantly reversing, and you got to try to sort of walk the walk beyond that to try to make money.

Richard: **00:32:46** Which kind of jives with some of the other forces in addition to the Fed that we know have had … particularly the equity markets, namely market makers. I mean, after the great financial crisis, large institutional players and money managers started to hedge their positions a lot more. And so the market makers became another important driving force in the markets and in addition to the passive or the index tracking vehicles that became these pricing sensitive movers in the market that I think engaged in some of the behavior that you're just describing. So, it's a complex problem.

Rodrigo: **00:33:26** But it is interesting. I just pulled up just broad indices like commodity, US dollar, AQX, US, US. And trend followers required, I guess a trend upward or a trend downward, and what you observe in those periods of pain is that they were just flat. They literally just went flat and … was that 14 -- But even like the 14 was a good year for trend following. That's when commodities, you know, took it in the chin. But of course, the problem is that, you quote the NASDAQ and treasuries even were doing okay. And so you're thinking there's a trend. Like how can you not -- that's the biggest trend we've seen in 10 years-- in 100 years in NASDAQ. How could trend followers now be making money? You know, it goes back to the pain of being diversified in every which way you cut it, whether you're diversified globally as a long only investor, or whether you're a diversified trend following manager, right. It's a tough go when you go flat for decades. It's almost like trend following needs to be matched up with some sort of options trading strategy to capture, yeah, some sort of spread trading.

Mark: **00:34:45**

There is the sort of, I call it *the dirty secret of trend following* is that everyone talks about diversification. They want to have a lot of markets. Like, they need diversification. You make most … trend following when a lot of stuff starts getting correlated and everything starts trending together, because if you have everything uncorrelated, then you might make money in half the market, you lose in the half the markets and you net out to something that might be slightly positive or zero. Is that you say like I want, there are a lot of trends to occur, I want them to be correlated and I want to trade those different markets, because they may not all move at the same time.

But you say, like, hey, inflation goes up, this is a godsend, because then you say that now we got a whole bunch of markets going up at the same time. And the other reason why I just love inflation is because inflation causes price distortions. And price distortions cause people to believe that markets are more uncertain. And if there's more uncertainty that puts sort of grit in the engine of decision making. So, if there's more grit there, then they're going to slow down their decision making, and that's good. Inflation causes distortions. I think that then you can exploit those distortions.

Rodrigo: **00:36:07**

Well, yeah, I mean, you certainly get into discordance between central banks, right. You're going to have different policies for dealing with inflation. Every country, depending on how they're affected, what they import, what they export is going to have different issues. That affects the political angle, as well as to how they handle it in contrast anybody else. And so for the first time in many years, it's not US dollar and everything else, but it's many cross trades of those currency pairs, which also affects their fixed income markets and so on. That's where the dispersion comes in. I mean, inflation tends to break things and create that disparity that definitely helps active managers, right?

Mark: **00:36:44**

Well, it's more than just policy differences, when you think about it is that because -- okay, let's say commodity price is going up. Is it going up because of inflation? Is it going up because there's a demand problem? Is it going up because there's a supply problem? And you don't really know what is causing that, or even if you sort of, say, a company that is having an increase in sales. Well, is it because they just raised their prices? And is that what's causing it? Or is it because they've got a lot of people that want whatever they're producing.

So, the perniciousness of inflation is that we use prices as signals to tell us how we should act, how we should invest, what we should buy. And if the prices are being distorted by inflation, then I can't make good decisions. And then that's going to cause companies to be more dispersed, it's going to have commodities be unclear what they're doing. You know, like, right now it's fixed income, is that with inflation now is you've got significant inflation, and so that you'll look at expectations, and even 10-year or five year or five year forwards, is that those still pretty low, is that there's a huge gap between what we're seeing in inflation, and what they're expecting, and what is the real rate of interest if you have volatile inflation?

So, one thing that they always talk about is that, and I think Paul Samuelson said is that markets or micro markets are efficient and macro markets are inefficient. And this is a … that causes inefficiencies and that's where price information will help you exploit that. So, a perfect example is, what is the fair value for a bond right now? So, hard to say. So, if you sort of say, well, what's the fair value of Ford? You can say, well, I look at GM, I look at Tesla, I look at others. I can say, okay, here's the relationship that I should see for there. So, there's a limit to how far there's that arbitrage will get out of line between auto companies. But on the macro side is that what's the value of the dollar? What's the value of a 10-year bond?

Adam:	**00:39:16**	Yeah, comparing apples to oranges.
Mark:	**00:39:17**	… fair value, then price has become a really good indicator of what you should be doing. Following prices may be more rational than trying to figure out what is the fair value for the 10-year.
Rodrigo:	**00:39:31**	Now, Mark, do you think it's inflation that creates these dislocations or is it the rate of change of inflation? And possibly, it'll be similar, as the rate of change of disinflation comes our way eventually. Like, is one side different than the other or are they kind of both two sides of the same story?
Mark:	**00:39:50**	Well, so there's two parts. There's the level and the dispersion of inflation. And so when you see that inflation is higher, then the dispersion, or we'll call it the volatility of inflation gets much greater. And that's what's really causing the distortion and that's what really causing the problem. So, you look at the CPI that we had just the other day. The reality is that we're like, three tenths or less, you know, we're pretty low relative difference versus what was last month and then versus consensus. But all of a sudden, is that people extrapolate this out because .3% is noise, but it's caused a lot of people to readjust their expectations.
Adam:	**00:40:41**	Well, so much has to do with positioning too, right? I mean, if markets -- if investors hadn't come into that print so unanimously short, or so unanimously long the dollar, or so unanimously short rates, then we wouldn't have seen nearly this kind of move, right? I want to pull on something you mentioned, which I think is a really important point, Mark, about the fact that trend followers make the real money when a lot of the markets all correlate, or all end up kind of moving in sort of the same direction, right. And I think that's a really good insight. I think what I want to add to that, is that by virtue of being able to view -- so, what's happening, right, is that there is one big muscle movement from a macroeconomic standpoint, that is converging and driving several sectors to all kind of move persistently in a direction, right.

And so, you're not really picking up -- it's not like every individual market is operating on its own. They're all expressing a dimension of one bigger force. Right? But what's great about it is that you're able to view that larger force from a wide variety of slightly different angles, right? So, you don't have to make one big bet. It may converge largely on one big bet, like certainly, we know, over the last few weeks, probably several months, that systematic managers have been long the dollar and short rates, right? How do we know that? Because when everything reversed yesterday, universally systematic managers all got hurt. They all got hurt together on exactly the same trade. Right? What was that trade? It was betting on more persistent inflation and a more hawkish Fed for longer. Now we get a print that suggests that maybe we are so confident about that, and all of the different markets that were pricing that particular force, then reverse together and you get a difficult few days.

Mark:	**00:43:07**	Well, I guess the one thing is, while I say the dirty secret is that we want them to be highly correlated, because that's where we make the most money. The other part of the dirty secret is that when we all get correlated positions, we're also taking a heck of a lot more risk too. So, if things go reverse then you're going to have a big problem. But the difference between what I'm talking about is, and let's say a discretionary trader is that, like a discretionary global macro trader will say, well, I've got, you know, X number of bets. But usually what happens, they're one bet expressed in a number of different markets. And a trend follower would say, I'm not going to come up with one specific bet. But my model may give signals all similar, so I organically turn into a single bet, but it's not because I have the view. The markets are organically telling me that there's something going on that's similar across markets that would cause me to be positioned in the same way.
Adam:	**00:44:12**	Yeah, it's an emergent phenomenon.
Richard:	**00:44:15**	Yeah, to your earlier point, you were talking about how different markets will discount news in different ways and over different time frames. Back in February and March, well, I think particularly in February of 2020, we started to see several markets rolling over quite aggressively, particularly copper and some other metals in the run up to the COVID crash. Throughout your professional life and your experience, have you seen some markets be the truth, if you will, converge into a price level that is more accurately reflecting what is needed in the market, while other markets have been slower to arrive at that same, quote unquote, conclusion?
Mark:	**00:45:04**	Right. You know, the truth may change at time to time, but there are a couple that are sort of a Bellwether market, which it seems very consistent. We know that oil is a Bellwether market, okay. It's almost as though that -- because if that rolls over and it goes higher, eventually that's going to spill over. So, it may move first, but eventually, then it's going to have spillover effects in other markets is that we'll sort of say that dollar/euro, dollar/yen, sort of major

currency markets, is that you're going to see one moves, and then you're going to have a spill over to the other, is that you'll look at 10-year bond and then you can sort of look at the large equity indices, so you have some Bellwether.

And then in some sense, a lot of people say, well, I'm going to make more money as a trend follower trading more markets, and then trading the less liquid markets is that, usually what happens is that they might actually trend more because there's less liquidity, and there's less traders involved, but they're usually still sort of correlated to one of the Bellwethers. So, if gold starts moving, you're going to start to get some of the other precious metals moving along, and some of the trends maybe -- the signal may be stronger, it may last longer. Crude oil moves, and then you might see products start moving along with it and they might last longer. So, that's where you get the opportunity.

Adam: **00:46:40** I want to acknowledge Michael Harris asked a question in the comments about volatility scaling. And this is a perennial topic of discussion in the trend channel. So, maybe, Mark, I don't know if you have any specific thoughts on that.

Mark: **00:46:57** Right. And this is, we'll sort of say that those are battles that were fought, we'll say, when I was at a major trend follower, where I'd say, like, how do we handle volatility, how do we target volatility? And so in some sense is that you sort of say, like, well volatility is going to affect your signal to noise ratio. Right? So, that on one hand, you have to think about how do you include volatility or how do you use that as the input in this, we'll call it the signal extraction. So, that's the return side. Then there's also the volatility, if you say, like, well, how do I want to scale certain markets, is that natural gas is going to be more volatile than another market. So, you can't sort of say, I'm going to put the same dollar amount. So, that makes a big difference. And then you'd say like, well, what is the range of volatility that I want to have in my fund overall, in the portfolio?

And I think the one thing I get really nervous about is that people who sort of say, well, I want to target the volatility at the portfolio level, because then that means that if you don't have a lot of positions on, that means you're going to have to scale those up more to sort of hit your target for your portfolio. When in some sense, I like to sort of see more volatility in the portfolio itself. So, if there are less opportunities, you shrink the size of the portfolio, you shrink the risk, the volatility goes down. And then sometimes if there are a lot of opportunities, you allow the volatility of the portfolio to go much higher. So, you allow for more volatility at the program level, based on the set of opportunities you have.

Adam: **00:48:54** Yeah, so you get conviction-weighted exposures in the market, rather than just assuming that you always have the same edge. Right? Like, your exposure in the market should reflect the edge that you have in trading today on all of the different markets that you're trading. We shouldn't just always be assuming we have the same edge, right?

Mark: **00:49:17** So, we were looking at some model recently with one of my friends, we are working on this. And we say, well, okay, since we want to have it, it's going to be a scaled factor. And so the signals have a scale and then we could rank order all of the positions. But if the scale sort of gets close to zero, we can say like, well, technically we could have a situation we have no positions on, because we're just not getting anything that we think that has an appropriate return to risk. And we said like, well, can we live with a situation that we might go all to cash? And we said like, yeah, we like that. That might be the best option for this portfolio.

And in that sense is that well, how does that from a volatility sense, is that some clients sort of say, like, I can't believe you're going to get volatility over some arranged sort of like a really low number. And we said that should be fine. But we just want to also have the ability that if we're seeing a lot of opportunities, we want to sort of ramp it up. Like, your worst scenario is that you have good trends in place, you're making money with those trends. And then someone says, well, because we want to put a cap on volatility, we're going to start peeling off our positions, we're going to peel off our risk. And so we're going to reduce our ability to make money when we have the greatest opportunity for profit.

Now, you might say that because volatility on an individual market gets so high that my signal to noise is now low risk, that's fine. The question is that if let's say the portfolio is making money, and you got a lot of positions on, and markets are getting more volatile, but you have, quote, unquote, good volatility, as opposed to bad volatility, you want to sort of keep that good volatility on?

Adam: **00:51:12** Yeah. So, specifically, I think Michael was referring to, so you're setting a risk budget for a trade on the entry of the trade. And I'm sort of describing it more of a traditional kind of trend strategy, like a breakout strategy or something. But so you've got a position on now, the price is broken out or whatever, your signal is fired, and you've got a risk budget for that position. If the volatility of the underlying market jumps as you've got your position on, do you want to manage the size of that position, so that if volatility escalates dramatically, you're going to lower exposure, partway through the trade? Or do you just always have the same risk on that you originally put on and allow that the market to run as far and as fast as, as it will, without trying to manage the underlying risk?

Mark: **00:52:15** Right, I'm going to be half pregnant on this thing. And so in some senses, is that you always want to look at what's your return to risk ratio? So, I always go back to this principles of signal to noise. So, in some sense, if my return to risk for that particular trade is really high, even though the volatility is going higher, but my opportunity set is really strong, then I might hold on to that. Now, there might be a final cap on how much max risk, I'll take in any one position, so that might be constrained. But if let's say I just have a jump in volatility, but I was sort of saying, I got a really good signal, I might sort of stick with that. But if let's say that I'm just have, when you think about it, is that if the -- if I'm looking at just a linear extrapolation of a trend, and I get a spike in volatility, my signal to noise ratio has gone down. So, by definition, it may become a less attractive trade. And so I might be taking some of that off.

Adam: **00:53:17** Interesting, yeah. And so I just want to pull on that a little bit, Mark, because you're now, you hinted at this idea of expectation, right. And I think this idea of having an expected return, or an expected Sharpe ratio for a trade is generally anathema to the sort of classic trend followers, right? And then this might be a really good segue to get into something that we talked prior to the show about the idea of ideologues versus pragmatists, right? I may be connecting the wrong dots there, but I do definitely want to get there. But how do you think about that? Because I mean, we run it as quants, rather than as trend followers, and we explicitly have expected returns for each of the trades. All of our models have an expectancy. We sum all the models. That has an expectancy. But that is anathema to, I think, how the original kind of trend, classic trend mechanics works, right? Where it's like, there's a signal, I'm on.

Mark: **00:54:30** Right, right. In some sense, the classic trend follower would say is that all I'm looking at is what is the price doing relative to some measure of trend? As long as it's above it, I'm gonna hang in there, and some would argue trends will always go longer than expected, which is sometimes the case. But realistically if you sort of look at markets, you know that at some point is that you have some idea of how long a trend might last from past data. You can sort of say like how much move, has it happened in the past. Now, it could be greater than that. But you can sort of scale and have an idea of exactly what should be the expected return on a trade. And I think that that could be, well, what's the environment. So, if we're in a recession regime, then I might expect that a downtrend in equities could last longer than it would if I was in a steady state or a positive regime.

And so you can use that to sort of give you a little bit of help and support and how you look at the portfolio. Because the one thing that would drive me just completely batty is just like, I always say, like, it'll probably have lost more hairs. But it's when you see that you follow a trend. Trend is going up, and then all of a sudden, you start to give back some profits, because the market is starting to go down, and it hasn't gone through the, you know, say a simple moving average. So, you had a trade that you may have made 20% on, but then you gave back half the profits so it's only 10%. And then you say, like, well, someone will say, that was a great trade, we made 10%. And as a fixed income bond guy I'm saying it's like, it was a great trade, but I lost 50% of what I could have made. Is that I'd rather have gotten out before the peak, and then sort of found another opportunity somewhere else, as opposed to ride it to the peak, go beyond it and sort of give up half the profits. That really is painful. And I think that's --

So, the two real pain points for any trend follower is, one is that giving back money from the max price. And then the other is just getting stopped out. So, stopped out is that it's a necessary part of the business because it's telling you something is wrong. And I always sort of say it's like I'm being Ulysses lashed to the mast when we go past the Sirens, is that I got to stop myself from hitting the rock, so you have to stop loss. But those are the two pain points, is that when you get stopped out on positions, repeatedly, because then you know something's wrong. And then the second is when you know that you had a trade that you could have made X but you gave back half the profits.

Adam: **00:57:39** Yeah, so I think it's just a -- it's a completely different view. Like I think if we had some of the some of the old school turtle traders on having this conversation that their hair would be on fire, right, because --

Mark: **00:57:52** Absolutely.

Adam: **00:57:54** Right, yeah. But we view it in a very similar light, right, that there's context, history can inform what you should expect, based on the nature of price movement over a wide variety of different look-back horizons, a wide variety of different types of moving average windows, etc. and conditioned on other stuff like the shape or a slope of the term structure, seasonality effects, etc. Right? So, I agree, but I just want to acknowledge that there will be trend followers listening to this who are punching their screen.

Mark: **00:58:40** And that's okay. In fact, you want to have a variety of trend followers. So, the question that always comes in is that well, the trend followers they're a herd, you know, they're rolling over markets in some commodity markets is that they all trade at the exact same time. I think the important point to sort of say that, from a manager selection point of view, and then just from the saying is that when you see -- hear the word trend followers, they're not all the same. Everybody has a slightly different nuance and how they want to exploit opportunities, and what they do. And you have to understand and appreciate those differences. So, the classic and we'll talk about the ideologues and so like the –

Adam: **00:59:30** Yes, please.

Mark: **00:59:32** The ideologue will sort of say like, this is the way I do it if I'm a turtle trader, or if this is the way I've been doing it, this is the way I've always done it, you never change your models, and anybody who doesn't do it this way, it's sort of like they don't know what they're talking about. And we'll probably sort of say that the US trend followers have generally been more falling into the ideologue camp. And a lot has to do with it is, they started early at a given time in history, and so they made a tremendous amount of money following that system. And so I think it was like, well it's important to be a purist. Okay. I would sort of say that, I sort of half joke, the other approach is the pragmatist of Europe. And so the European is probably much more of a pragmatic from a political and a number of issues. And so we'll say that the London CTA *Mafia* is probably much more sort of agnostic, or they're more pragmatic relative to the US ideologues.

So, now, what you found is that when trend following has done very, very well, those pragmatists have underperformed, the ideologues have won. So, during certain periods of time, the ideologues have just gathered a tremendous amount of money, and the pragmatists have sort of had a smoother return, but they missed out on those big trend explosive periods. So, I don't have all the numbers in front of me of, let's say, the -- I call it the *London Trend Mafia* or *CTA Mafia*, but you look at them versus some of the more ideologue managers, pure trend followers, is that you can see the gap between their return to risk ratio, and what their performance has been this year, versus maybe other periods of time where they may have done, they may not have done as poorly as the idealogues have done.

And a lot of this also you got to think about in terms of history is that the reason why long-term trend followers or long-term trend followers in the 70s and 80s were because that's what the market allowed. I don't you ever look at what the

Adam: **01:02:16** The round trips?

Mark: **01:02:17** -- brokerage costs you paid when you were in the 1980s? You're paying like $80 a round turn. So, it was just amazing. Then you sort of say, well, what's the price per round turn you're paying now, is that you're probably --

Rodrigo: **01:02:33** Yeah, you can trade a lot more now than you could then. Right? And you had to keep it simple.

Mark: **01:02:39** The fees you paid to the exchange and then to the CFTC are probably more than what you actually paid to the broker. Now an interesting part was is that because markets became electronic, markets, cost came down, bid-offer spreads were tighter, brokerage costs are lower. Then all of a sudden, people got on the faster trend following bandwagon because you said like, well, why not? This is cheaper to trade. So, I could trade faster and more. And so and the long-term guy, sort of said like, well, I got an advantage here. But this is where my bread and butter is long-term. But then the guys who started later in the 90s, or 2000, they were fast guys, traders, for the simple reason is that for them, the environment was cheaper to go fast.

Adam: **01:03:32** Right. Yeah.

Richard: **01:03:34** How has your trading evolved then? You started off under John Henry in a more purist, perhaps, trend following, maybe ideologue. I don't want to put words in your mouth. But maybe it was a more of a classic approach. And then you arrived at your current state, moment in your career where you're toying with these different ideas, these different approaches. I wonder, within the trend following do you have a preferred style? Is it breakouts? Is it moving averages? Do you think some of them lend themselves better, just to markets versus others? And then a second part of that question would be, have you married other styles to trend in order to create more of a multi-strat approach?

Mark: **01:04:14** So, I think there's always been an approach to trying to marry different styles, and because a perfect example is that when people talk about diversification, I always used the term STM. You allocate style, timing, and markets is your three dimensions for diversification. So, you want to have market diversification so you trade a lot of different asset classes. It doesn't have to be the number of markets but the number of classes. The number that uncorrelated across, so you cover that. But there is a limit to what you can do in market diversification before you bump up against liquidity issues. And then the other place where you're going to get a lot of bang for your buck is timing. This is that sometimes long-term trend following does well. Probably intermediate to long-term in the long run does better, but sometimes short does better. And when you blend those signals together is that you're going to get a better mix. So, short-term, it can get a little choppy, but it does sort of take you out of some -- when you net it all out, you take out some of the extremes.

And then you look at style. So, you can have breakouts which is I always call it a nonlinear system. And then you can have a simple moving average, is more of a linear type of system. So, you can move between those two. But then you also can think about style difference and exactly what you're trying to extract from the market. So, you're doing a FX program and there we sort of said yes, we wanted to have a trend component. But then you also wanted to have a carry component and carry does really well. It does well when trend following is not doing well. You just need to -- have to have a conditional factor. And this is when you get more sort of global macro-y, is that volatility pops or there are certain conditions or there are certain stresses in the market, you got to get out of carry. And if you play it blindly, you're going to get crushed. And those are the times when also trend following will start to do better. Okay.

And then you also want to look at something, you can look at fair value models, you can look at models of volatility. And we are doing one thing for a couple of clients where we build portfolios of alternative risk premia. And you could sort of say, well, you can bundle up different risk premia together and get a pretty good portfolio that is going to give you smoother return. Now, this gets into, the classic problem is that we know that trend following is going to have

		lumpy returns. It might be really good over the long run, but it's going to be lumpy and --
Richard:	**01:07:07**	Hard to stick with.
Mark:	**01:07:08**	-- running a business, sometimes you got to just sort of say, people don't want lumps. Now, in some sense, when I talked about a trend follower that earlier is up 50% for the year, is that think of what the impact just done on their last three-year track record or the last five-year track record. You have a 50 year up move, then they're thumping their chest and as all ones they're saying is like, well look at my three-year annualized return. Is that if you did it on a five-year basis, you have one year 50%. That just adds 5% to your annualized returns. So, you can have some pretty bad performance in the first four years and then that 50% numbers turns you into a stellar manager over a five year period.
Rodrigo:	**01:07:53**	Yeah, lots of one stars went to five stars this year, for sure, and back to three and then back up to five. So, Mark, let's talk a little bit about the -- you talked about clients and allocations and putting together portfolios for people. We've done a lot of work in trying to change the language of capital efficiency and or portable alpha into the return- stacking concept, right? Because the biggest issue tends to be I want my 60/40 return, I want my equity portfolio return. I don't want to give -- I don't want to carve out performance from my traditional portfolio to put in this like chunky non-correlated strategy. And so for me, it's a no brainer, it's always been, you don't have -- we're not yes and this, right? Get your portfolio and then stack the returns of your trend following manager on top. And you can do that now with mutual funds and ETFs, but for single family offices, for institutions, it seems to me like carving out an allocation to buy a fund of funds versus stacking managed futures on top, which is capital -- it's super easy to do in contrast to trying to kind of stack a long/short equity manager, right? That's very costly. Just the way futures work seems to be a perfect tool to get to yes and this problem. So, my genuine curiosity is even though this is a no brainer, it seems to be very hard for us to, you know, we have a few family offices where we're stacking futures on top of single positions that they're not going to sell ever. But broadly, I'm not getting a lot of traction on that. So, when you deal with clients, how often are you being asked to do a capital efficient portfolio for them versus carving out from their portfolio to create an allocation? What's the percentage there?
Mark:	**01:09:41**	Well, I think you still like sort of the carve out like okay, we're thinking of giving a 3% allocation as opposed to, you know, when you think about the trend following, okay, and or you know, if you want to call it, you know, it's interesting on language is that we always call it trend following is that if you're an equity guy, it's always got to momentum. So it's a momentum factor. So,

could be trend following. And I think there's been some academic researchers. So, trend following does better than the classic momentum style, so they want momentum. And so we talked to a lot of clients where we say like, well, what you really should think about is, is that let's take for example, your bond portfolio, so you got sort of corporate credit. So, basically, what you have is treasuries, and on top of that, you've got a risk premium, and the risk premium is your credit exposure.

So, why don't we take the following, is that let's get rid of some of corporate bond exposure, because that may be a bad time in the cycle. And what we'll do is we'll take the treasury portfolio, and we'll overlay on some other alternative risk premium on top, you call it momentum, it could be something else. But you say like, in some sense, that's very capital efficient. All you're doing is swapping out one risk premium for a different risk premium. That risk premium could be associated with trend, it could be momentum, it could be something else. But you know, that's a more efficient use of capital or even the classic, in that people sort of say like, ah, I hate that volatility that you have in there. Say like, well, let me put this way, if you want to get a real impact from trend following, you want to find the most volatile trend follower you have. All you care about is the information ratio. All you care about is return to risk.

And then you want to find the guy who has the highest volatility, because for any dollar exposure you give for a high volatility for the same, you know Sharpe ratio, you're going to get a much more bang for your buck in your overall portfolio. And I understand is, I was going to say something like, well, that's a hard concept. It's just that I think they understand it. It's just that the pain that they'll see if something goes wrong is so high, that they're sort of saying my career risk, or the pain risk of trying to explain that, is much higher than the gain I'm going to get from efficiency. And that's the human nature that we see, is that we live in a world of regret.

And there's a book by, I think it was like Daniel Pinker. And he said, like, there's two types of regret. There's regret, *if only*. If only I did this, that's one type of regret. The other regret as well, *at least this didn't happen to me.* And so in some sense, a lot of the family offices is that they don't want to suffer that regret, of sort of investing and something goes wrong. And this gets back to when we talked about the whole narrative storytelling is that how do you sort of tell quick stories, good stories that could get people to sort of have that light bulb moment? And some people sort of push the idea that well, storytelling narrative, that's all marketing. But when you think about great scientists, that scientific ideas were popularized when they were associated with a great narrative. So, narrative drives science, narrative drives data, and narrative dries allocation. You just got to find the right narrative.

Adam: **01:13:43** Just to take it one step further too Mark, building on Rodrigo's point about return-stacking. I'm perpetually scratching my head at why allocators don't think more deeply about the tradeoff between allocating to a small number of multi-strat managers versus a larger number of managers that are dedicated to a single strategy. And I'm motivated by a few things. One is, first of all, if you're paying performance fees, then you're going to pay a lot more performance fees. If you've got five funds that each one in 20, you're going to pay a lot more performance fees to those five funds than if you were to take all those five funds, wrapped them up in one multi-strat, and then pay performance fees on the performance of the multi-strat. Because the amount of performance fees you pay inefficiently is a function of the Sharpe ratio of the underlying strategy that you're paying performance fees for. So, that's number one, you're paying more fees.

Number two, you don't get any of the -- or you get much less of that potential capital efficiencies. If you've got five different sleeves, they're relatively uncorrelated, you're allocating to five different funds. Each fund is 15 vol, you put them all together, and the portfolio is like 10 vol, right. Whereas if you were to put them all together in a single fund, you can then rescale that up so that you've got a higher Sharpe portfolio that is delivering 15 vol. So, higher expected returns for the same level of risk. And then the third thing is just the massive cost of all of the extra trading. So, you've got five different managers, they've got uncorrelated trading strategies, which means that -- and they all have an information coefficient of .51, maybe.

So, there's a lot of unproductive trading going on in all of the five funds. One of the funds is buying ES today, another fund is selling ES today, another fund is buying ES, another one is selling ES. All this is unproductive trading. And if you put them all together in a commingled account, you get to net out all of those trading. And our estimates suggest that that's like a 25% or more boost to expected net performance after accounting for all the opportunity for trade netting. So, lower fees, higher capital efficiencies and way lower trade cost drag. Why are more institutions not moving in the multi-strat direction?

Mark: **01:16:36** And I think they are. I think that it's -- the issue is that we celebrate the idea that people are slow to react, because that's how we make money as trend followers. And yet in some sense is that we're seeing this process occur. It's that in some sense, you look at fund to funds. Fund to funds was everybody wanted to invest in a fund to funds, and then they sort of say, like, that really isn't a solution. And so there have been a movement to multi-strat. Multi-strat is a great way to be able to sort of break out all the costs, the high cost structure of fund to funds, and some of the biggest ones are closed. And so in some senses is that there's got to be another set of managers to do that multi-strat business. And then in some sense, when I was talking about alt-risk premiums, is that you could be able to build a swap portfolio of all alternative risk premium swaps. And you could be able to do all that in that same structure. You could create a multi-strat or a fund of funds in a box.

Adam:	**01:17:41**	Okay, but even in that if you've got five different strategies, let's say you're buying five strategies from a bank, right, but you're buying them through swaps. Someone's trading that portfolio. You got to -- someone's trading the *carry swap* portfolio, they're trading the *trend swap* portfolio. And so you're still not getting any of that trade netting. Right?
Rodrigo:	**01:18:02**	And you have to rebalance across the swaps contracts as well.
Adam:	**01:18:04**	Exactly. Yeah.
Mark:	**01:18:06**	Well, there are different -- So, you get the extra returns to be able to point to, here's my performance and such. So, there's advantages that way. It's that you still have -- is that there is sort of like I say, there's some trading on the back end either because of the swap dealers doing the trading or -- and then you could sort of say, you don't get any expertise, because you're buying an index, as opposed to if you do a multi-strat is that, in some sense, you can learn, you can have a feedback loop, and you can actually then be able to improve the models. It's that the problem with the alt risk premiums is that you're buying a certain index representation of a risk premium. And so now if you feel as though that there's no longer a fair representation of the strategy, you just got to unload it and go on to the next thing. If you have a multi-strat, you can sort of say, is that, and something is not going well, or there's a change in market structure, I can learn from that and be able to improve.
Adam:	**01:19:14**	You can innovate, yeah.
Mark:	**01:19:15**	So, you can have innovation in a way in a multi-strat is that -- now you have to be able -- and this becomes an important part of manager selection. So, it's doing this survey with CAIA and manager selection and due diligence. And so the number one issue is that the two things that are most important for a lot of investors is risk management as you'd sort of expect. And number two is that in terms of sort of -- is research. And I think that in some sense, implicitly, they're saying is that am I investing with a manager who can adapt and learn and be curious of the environment around him, so they can become better over time. Or they make a mistake, they could say, well, I made that mistake once, I'm not going to do it a second time. So, I think that curiosity research is an important component of being a good manager. And then you sort of say, and I'm willing, if people can show me that you're good at that, they're willing to pay for that, they're willing -- and part of it is then being able to say, from a research perspective, are you willing to share your research so that you're engaged as a relationship with the client. And I think that some managers do that very well. And some of them do it very poorly. Some quant managers have been, we'll sort of say the type that they're

very guarded about what they do and how they do it. And I've gotten to the point is that --

So, I use the analogy of chefs and cookbooks. And I've been using it for a while, so if you've heard it before, stop me. But you go to a bookstore, so you go in the bookstore and you say I'm going to go down to the cooking section. And you go see all these chefs have all these cookbooks. Like you go to the best barbecue, or they're giving you the best how to do this French soufflé. You go in there, you take the book, you look at it, they say, okay, here's all the ingredients you need. Okay. Here's all the steps you got to go through to do this. Here's all the pictures of what I'm going to do. And then I'm going to give you a description. First, you do this, then you do this, and here's what it's going to look like. And so you take it so like I got to buy this book. I'm going to be able to do a nice soufflé when I get home. And what happens when you get home and you try to do -- replicate that recipe? What happens? What do you think happens?

Adam: 01:21:59

Yeah, it doesn't work out. I mean, we've had lots of these types of examples, where we wrote this *Adaptive Asset Allocation* paper back in 2011. we've had at least a handful of managers come up to us, or ex-managers come up to us and say, we read this paper, we replicated it, we ran this in our own strategy, we made a couple of tweaks, inevitably, right. We made a couple of tweaks to make it our own and they fell flat. Right? They didn't have the fundamental understanding that went into why the decisions that were made. So, I generally, I can agree with that to a point. I do think that there is reason to believe that if you share all your secrets, then you're going to give your competitors a much easier time to eventually catch up to you. Right? Like there's a lot of really smart, highly incentivized, highly motivated people in this space.

And risk premia are probably not going away. But there is a limited amount of alpha, right? So, to the extent that you believe that there's alpha in your process, whether there's alpha in your model creation, your back testing framework, your innovation pipeline, how you approach a problem. I don't know, there's institutional alpha to the workflows within your company, there's a variety of different sources of potential alpha, right, but that alpha is definitionally scarce.

Mark: 01:23:39

Right. Now I will sort of say that, well, one, I think that there's a happy medium. So, sometimes even when you go to the recipes, is that they'll give you some pictures, but they don't sort of say like, okay, here's how you have to knead the dough a certain way to get it just right. But so you had to hold back some stuff, but I think one thing that -- the term I like and I think, AQR uses it, is that there's *Craftsman Alpha*. That's how you put everything together. So, you could sort of say, a trend follower, okay, I look at past prices, I could use a moving average or I could use some other more sophisticated approach, but it's still looking for trends. Okay. It's not that hard. We haven't invented a new way of looking at trends in the last 20 years. There's ways that you get a little bit of an edge. But if there's no trends, you're not going to make money.

But what really separates a lot of the managers is what is called the *Craftsman Alpha* of how do you take that trend, a single model for a single asset, and how do you bundle it together into a portfolio? What's the sizing, what's the way in which you determine what's going to be the maximum position? How do you manage the risk? How do you sort of set up stop losses? And so when you sort of say that, if I'm looking at a manager or if I was doing a due diligence, I'd sort of say like, okay, you're probably not going to tell me what's the driver for how you, we'll call it the signal extraction. But what I'm really interested in is, all that *Craftsman Alpha*. How do you get that? And I've seen so many times where I've got like an okay model. But if you have the right *Craftsman Alpha*, if you know how to bundle it together in a portfolio, you're not going to take the ugly duckling and make it win a beauty pageant. But you can take someone who's not, you know, you could take a good model and you could turn it into a much better model, if you do the *Craftsman Alpha* correctly.

Richard: **01:25:52** And your soufflé can actually arrive at the right consistency, right? That's essentially how …

Mark: **01:25:58** Exactly. And I always say, another way to put it is that as systematic managers, as trend followers, you have to sort of say, like, I'm actually running a factory, okay. My inputs are price, it could be other stuff. So, I got inputs coming into the factory … as a return. Okay. And my quality control is my risk. So, in some senses, is it so I got to think about what's going on in the shop, what's the production line? You know, how do I make sure I got quality control of my data? How do I get quality control of what I'm doing? How do I get to make sure that everything is -- all my bolts are put on properly, and it's all the little details of running a factory, and there's no glamor in running a factory. It's that we're on the shop floor, and we got a production line. So, we're not thinking about having lunches with companies.

Rodrigo: **01:26:57** Funny enough, our image in our deck of the alpha process is a factory line.

Mark: **01:27:03** Okay, so you got the little smoke stacks.

Rodrigo: **01:27:05** Little smoke stack, you got the funnel that comes in, what you exclude, what you include, how do you optimize, yeah, it's pretty -- it really is the whole process, that *Craftsmanship Alpha* that …

Mark: **01:27:17** And I don't know how -- whether that resonates well with clients. I guess from a client perspective, I would sort of say that I would really feel good about the fact that like, okay, these guys really think of themselves as engineers who are running a factory, because then they could sort of say if it's a good factory, then it should lead to repeatable success. And if somebody said, like, well, I'm a big thinker, but I don't sort of get into all the like, the nuances and all the deep details, then then I get a little bit, I would get a little bit more nervous.

Rodrigo: **01:27:51** Not to mention minimizing *key man risk* and all that right, with that type of machinery.

Mark: **01:27:55** Yeah. The process is the star, not an individual. And you say, like, well, what are you paying a management fee for? Well, you got to run the factory. And you say, like, and the quality of what's coming out the factory, that's what you're paying the incentive fee for.

Rodrigo: **01:28:13** So, speaking of that, what are your thoughts on replication ETFs? Have you put any thought into that? Where do you think that ends up?

Mark: **01:28:23** You know, the thing that scares you is the fact is that they're more ETFs now in individual stocks that we've got traded. So, the whole issue is that at some level, some of the ETF businesses turned into a marketing business as opposed to a solution business. So, in some sense, if I want to trade a basket very efficiently in a form, then ETF is a great way to trade a basket from a retail perspective. But then when you get beyond this, where we're going to sort of say, well, we're going to have active ETFs, we're going to have different types of replication baskets. So, then you sort of say, like, well, what problem are you trying to solve?

Adam: **01:29:24** Yeah. No, I agree. And there is some element of you know, the *Tommy Hilfiger Effect*. Tommy Hilfiger being the -- beyond which there are no further derivatives, right? Like, you've got trend managers who derive their strategies from some of the original, like the OG trend guys. And then you've got the second level of derivative manager that is deriving the performance of these other derivative managers. I mean, it's like, now we're going to, you know, eventually work just going to have replicators of replicators, and it'll be …

Richard: **01:30:03** Turtles all the way down.

Adam: **01:30:04** Yeah.

Mark: **01:30:04** No, no, when you -- the thing that you always look at it replication is that and you know, I know, you've seen, let's say, okay, how can I be able to create, let's say, a hedge fund strategy that I'm going to replicate with other factors. And what you find out is that the R squared that they have is still really low. And then you say, I could have factors that are significant, that are a close representation of what's going on. But the amount that I can explain of the variation relative to the total variation is very, very low. And you say like, well, the amount that's unexplained, is that where all of the creativity and skill lies?

So, you can sort of say that there's -- you've got all the major factors that might be associated with that strategy.

But by the definition, if you're looking at sort of replicating or using some linear regression, you're still going to have a tremendous amount of the variation that's unexplained. And is that unexplained portion the skill portion? And you say like, well, okay, that really doesn't help you that much if let's say all the skill portion is not what you can explain. Then you say, like, I don't know, if that does you much.

Rodrigo: **01:31:31** And the volatility that is part of that unexplained portion of the replication ETF might just be pure noise, and could lead to problematic years, let's just say, or wonderful years, right? You can get a good luck either way, good or bad.

Richard: **01:31:44** Well, overcrowding. Like, the overcrowding can help you on the way up, and the self-fulfilling prophecy and capital flowing in, and then all of a sudden, that marginal dollar starts to seep out and then all of a sudden, the door is not wide enough for everybody to leave. And so the capitulation of the replication strategy drives an industry that was actually providing a solution to be bundled by the marketing tool as Mark put it.

Mark: **01:32:12** Now, I will sort of say that, there are a couple of things is I sort of said, like I've just indicted some replication, but when you look at, for example, private equity, is that when you think about, and no investors really … directly. But when they come in there and you show them your returns, and you show them your return to risk profile, and then you know, they're looking at they're -- you know, and you say, like, hey, I'm doing well, relative to my peer group, I'm doing relatively well to the others. But the elephant in the room or the shadow behind you is that they say, like, well, I can invest in private equity. I could get double digit returns. I get no volatility. I only have to mark to market once a year. And I'm going to lock that money up for seven years, and they're always going to be able to sell out all those investments, and I'm going to do great. Is that like, holy smoke, this is like, can you imagine what, you know, some of those marks at the end of this year are going to be where they, you know, where if you mark it once, is that there's going to be a lot of, there's going to be a lot of pain in the streets.

Rodrigo: **01:33:23** Well, Sequoia is going to be interesting, right? All these private -- a lot of them haven't marked down their losses, a lot of them are FTX investors that -- so, I'm going to see how that goes. And then …

Mark: **01:33:35** And then when, from a replication point of view, you can sort of say that there is a, if you lever up some of, you know, different indices, you're going to get a close approximation to a private equity return. So, it may not be the best private equity return, but it's going to give you private equity-like returns, because that's what they're doing. They're leveraging up equity exposure.

Now, the reason why people don't want to do it is because like, if I take a leveraged position in a number of, let's say, small cap indices or different types of indices, well, I got to take that mark to market every day. So, I don't want to take that pain. So, even though I have the liquidity, even though I'm going to get similar return, and I sort of get a much lower fee schedule, is that at the end of the day I don't want to take that mark to market.

And the pain of mark to market is the bane out of a lot of investors. It's that when you think about it, think of trend following or think of all of the high value. What would happen if, let's say, in a trend following strategy, say like you're going to buy it on January one, we're going to stick it in a drawer, and we can't look at it except until the end of the year. And the end of the year, we're going to open up the drawer and then say what you did.

Rodrigo: **01:34:58** If only.

Mark: **01:34:49** For the most part, I think a lot of people would sort of say like, hey, this is not a bad strategy. I like trend following. It's that if you just sort of said, put it in a drawer, open up once a year, take a peek. And you say, like, damn, this is a good strategy.

Rodrigo: **01:35:13** What is …? He's calling it volatility recycling or volatility washing? I thought, yeah, because it's like -- no, volatility laundering, like money laundering. Volatility laundering. It's just again, going back to human nature and what we need and what we should have doesn't necessarily jive with what we need. A way of volatility laundering that I'm finding interesting is that those hybrid strategies, right, those return-stacked strategies that you're hiding some beta. We know that when you grab your equity, and you add some trend following, the line gets smoother, the correlation is about zero long-term. And if you show people -- choose a line over the last 15 years that you'd prefer, they prefer the hybrid line. A way of volatility laundering might be like, starting to look at those kind of combined return-stacked combos, right?

Mark: **01:36:10** And we'll sort of say, people that may not have started out and said I'm intending to launder volatility, because that's my road to success. It just sort of then takes a life on its own. Or similar, you say, from … yeah, from the trend following perspectives, like and I've seen this from managers, you say like, well, what we're going to do is we're going to have a long position in equities attached to my trend following over the last decade and a half. So, in some sense, you say, like, yeah, but then you could tear those pieces apart, and they could do that themselves. You're going to pay an incentive fee for that portion. And so there are CTAs who do a little of that volatility laundering by sticking in some long-term trend for equities to be able to do that. So, people pulled in a lot of different forms, it's not just the private equity guys who do it.

Adam: 01:37:09

Well, long-term trend following does embed some pretty substantial market beta, right, just mechanically it does. So, short-term trend following just doesn't, it gets -- whatever those returns are, they're going to be a lot less correlated to the underlying markets than the long-term trend followers are, just mechanically.

Mark: 01:37:29

Right. But for the long-term trend follower, his intent is not to launder returns to smooth it out to try to give -- to sell a better product. It's just saying, this is who I am and I'm just sort of saying that I believe that long-term trends are going to give me the best returns. And so given that there's a long-term positive movement for equities is it means that I generally you should be more long-term with those positions. So, it's de facto, it comes out there, but it's not an attempt to launder or to sort of smooth out the returns. It's just a, this is who I am.

Adam: 01:38:03

Yeah, yeah.

Richard: 01:38:04

Intent matters.

Adam: 01:36:06

Yeah, for sure. Before we let you go, Mark, and I know you've already been extremely generous, but I just -- do you have any insights that you feel are more unique to your process in terms of manager selection, in the systematic space that you would want to share before we wrap this up?

Mark: 01:38:28

Well, the one thing that I guess is that, and this is from this survey work I did with CAIA, is that it's interesting that we tried to rank order, what are the strategies that are most difficult for investors to sort of do their due diligence? What's sort of the most difficult for you to figure out? And I'll just do a quick search, what do you think are the most difficult strategies to, for investors to make a decision on?

Adam: 01:39:00

Well, I would think structured credits got to be up there, but also I'm sure a quant systematic has got to be up there too.

Mark: 01:39:06

So, it's like, venture cap and private equity are hard, because you are making a long-term, you're locking in investment. And there's a sort of *trust me* factor. And then you got to talk about marks and other stuff. But global and systematic strategies is that they say that we have a high weight on quantitative analysis for picking the managers. But we still find that these are the hardest strategies to be able to understand. And then we sort of say like, well, what is the deciding factor for picking systematic and global macro? It's based on qualitative judgment. It's on a qualitative side. It's not the quantitative numbers and it's qualitatively can I be able to determine whether they can generate future performance? And I find that sort of really interesting because you sort of say, like, a classic is that you've got systematic managers, we got good statisticians and yet they're telling me that my choice of managers is going to be based on the qualitative judgment of what I think of the manager himself.

Adam: **01:40:27** I actually think that I would lean in the same direction, right? Because, I mean, aside from the sort of operational due diligence, compliance, etc., what is your experimental design? How do you gain confidence in your approach? How do you quantify the range of expected outcomes? You know, how do you think about risk management? You know, these quest-- the answers to these questions, I think, are fundamentally vastly more informative about what to expect from the manager going forward than just looking at past returns.

Mark: **01:41:06** Right. And I think that putting, well, it in a slightly different framework, it's what's your awareness of the world around you, and how you sort of fit in your tools to be able to take advantage of the world in which you think we exist in? And in some sense, you'd say, like, a data scientist or a statistician has a tremendous toolbox. So, you got all these different techniques you could be able to use? And what separates a good manager from a great manager is that, does he know what is the appropriate tool to use in the world in which we live? And in some sense, when you think about it, is that it's like, yeah, if I take a hammer, and I use that to screw something in, it's not going to work. Hammer is a good tool. But it has to be used for the right program.

And so it's being able to say, I understand the markets well enough to be able to say, I can appreciate and I can tell you why I use this kind of tool, or this type of technique, in this kind of situation, because this is where I'm going to be able to create an edge. And I think that that's critical to the whole process. And I think that having this sort of awareness of the world around you is critical. So, he's a Columbia historian is Adam Tooze. So, he's written stuff about the crash, and he's a really prolific writer. And so he's very --

Adam: **01:42:48** Yeah, he spends a lot of time talking about the Polycrisis.

Mark: **01:42:51** Yeah, exactly. So, it's the Polycrisis, because then when you think about a Polycrisis then you say, like, okay, how can I extract, if there's conflicting crises that all can occur at the same time? You know, how do I sort of, you be able to handle that, and how can I be able to deal with that? And in some senses you say, like, well, some macro strategies won't work well, if you have a Polycrisis, because you're getting different conflicting signals. And so in some sense, you say, like, okay, I might have to put more weight and just what is the process of what's going on in flow, what's going on and trend? Because I've got these conflicting headwinds and tailwinds from different types of crises. So, a perfect example is that like, we're fighting inflation, we're fighting a debt crisis. We're fighting an energy crisis. We have a geopolitical crisis. We've got trade issues. So, all of these things are sometimes in conflict, that sometimes using prices might be the best way to deal with that, because it's, as I say, price is primal -- best way to sort of get at some of these issues

Adam:	**01:44:04**	Yeah. An ensemble of models. What did you say, style, timing, and …
Mark:	**01:44:10**	Market.
Adam:	**01:44:11**	Markets, right. Yeah, ensembling and…
Mark:	**01:44:15**	Yeah, the ensemble is probably a better word to use.
Rodrigo:	**01:44:20**	Yeah, clarifies a little bit what the important steps are, because you can have, I think, was it Chris Schindler, talked about managers coming to him and saying, look how uncorrelated I am. And he's like, yeah, that's because you don't trade these 20 markets. So, you're uncorrelated for a very simple reason, the markets you chose. And the data would tell you otherwise guys are pretty good. It's uncorrelated. I wonder what it is, you look under the hood and you realize it's just less diversified strategy that used a cheap trick to try and fool us.
Mark:	**01:44:55**	Right. And I think that this whole idea of style, timing and markets, it's a nice simple way, and when you think about again, storytelling and narrative, you say, like you want them to -- when you walk away, you want them to remember something. And we always have to joke is that, sometimes you're not always seeing the chief investment officer, you might see an analyst, as opposed to the committee or the chief. And that analyst then has to convert what you've been telling, and you've been telling them a great story, you're giving them all the details. And he has to -- and there's a good chance that he walks into the elevator with his boss, they're on the 20th floor, and he goes, who'd you see? And he said, well, I saw these guys from ReSolve and he said, well, what are they all about? Yeah. And if he can't explain it by the time he gets to the lobby of the building, you're done.
Rodrigo:	**01:45:50**	It's almost like he'll be like, well, never mind, I'll tell --
Adam:	**01:45:53**	Yeah, never mind.
Mark:	**01:45:55**	Yeah. So, if you could sort of say, hey, look, they're systematic, they're disciplined, they follow -- they have different styles, different timing, they have different markets, and they're, and they follow trends. And you know, here's what they're going to do in an uncorrelated way when there's a crisis, he says, like, okay, I got it, send me the report. So, that's what you got to get to.
Richard:	**01:46:18**	It's the quality of the narrative that the analyst can produce, right? If the narrative, if an analyst can actually frame it properly, and produce the right kind of narrative, back to your earlier point, then the story is sound and the CIO can get behind it.
Mark:	**01:46:33**	Right. And I'd probably say, Richard, it's one of those things that … said, like I talked to the analyst, and he sort of likes it. I say, like, well, look, tell you what,

I'll write you a one pager, just in case you forgot anything, and then I'll send it to you. And a lot of times, they'll just say like, I love that too, because like, I want to get it right, I got to condense all of what you told me in one page. And so there's the pitch book, which everybody's got to have a pitch book, but no one reads. But then they need to convert that into a like a one-pager to say okay, here's what they do and this is what we got to show the investment committee, because they're not going to show them a 20-page pitch book. So, it's got to be condensed in there and you can sort of say, like, if they have to do it on their own, they're not going to get your story, right. So, it's almost as though …

Adam:	**01:47:28**	Give me the tweet. What's the tweet? Eventually, it'll be like, like, or unlike.
Mark:	**01:47:35**	Yeah. So, you got to do that for them.
Adam:	**01:47:38**	Yeah. That's right. Well, that's good. We'll be in touch with you next week for you to get together with us in the sales team and to crystalize that point.
Mark:	**01:47:45**	There you go. Okay. This was a pleasure. I really liked it. I'm just checking my watch. We've had a long call. So,…
Rodrigo:	**01:47:52**	Thank you for your time, Mark.
Adam:	**01:47:54**	Yes, there've been a lot of fun, shared a lot of really valuable insights. So, thank you very much, and thanks, everyone, for tuning in and have a great weekend. Yeah, Mark, where can people find you before we let you go?
Mark:	**01:48:10**	Yeah, it's at MRzepczynski@AmphiTrading.com.
Adam:	**01:48:15**	That's A-M-P-H-I trading**,** yeah, .com. And then you're also on Twitter, right?
Mark:	**01:48:22**	Rzepczynski, you know, well --
Richard:	**01:48:25**	They go on YouTube, and they write it out.
Mark:	**01:48:27**	They got it right there on the bottom there. But love to be able to talk with you. And one of these days, I'm going to get up to Canada, so we're going to have to get together. So, when you're not there hanging out in the Caymans or whatever.
Adam:	**01:48:41**	That sounds great. You're welcome to come down here too.
Rodrigo:	**01:48:42**	… all the time.
Adam:	**01:48:4e**	That's right.
Richard:	**01:48:45**	I'm in Toronto so come any time, Mark.

Mark:	**01:48:48**	Sounds good.
Adam:	**01:48:49**	All right. Thanks. Have a great Friday. Thanks to everyone who participated and with good questions and comments, and we'll see you next week.
Mark:	**01:48:57**	Okay, good talking to you. Thanks, bye.