

Ex-Two Sigma Quant: Why You Should Bet Against Conviction

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SUMMARY

Omar Cedar, a quant at Two Sigma, discusses the integration of human judgment into quantitative trading strategies, emphasizing the importance of human insights in navigating market uncertainties, especially during unprecedented events like the COVID-19 pandemic. He explains how expert opinions can be systematically captured and utilized to enhance trading decisions, while also highlighting the behavioral biases that can affect investment strategies.

- Human judgment remains crucial in investing, particularly when models fail to predict unprecedented events.*
- Expert insights are aggregated to create a diversified view of market trends, improving forecast accuracy.*
- Incremental bullishness or bearishness in expert opinions can signal the need to bet against prevailing market sentiment.*
- The frequency of data collection is key to identifying market mispricings.*
- Behavioral biases, such as conservatism, often lead investors to underweight their convictions, resulting in lost alpha.*
- The future of hedge funds may see a significant increase in numbers due to lower barriers to entry and technological advancements.*
- Generative AI could enhance analysis but may also lead to more noise in market predictions due to similar interpretations of data.*
- The competitive advantage in trading lies in understanding context and nuance, as well as the ability to make informed judgments based on diverse opinions.*

If somebody's heavily bullish or they become incrementally more heavily bullish, the best thing to do is to bet against them. >> Joining me today is Omar Cedar, an X2 sigma quant who turned human judgment into systematic alpha. >> All these amazing, smart, brilliant machines figured out everything that's possible about the past except they've never seen a pandemic before. The amount of surprise is usually proportional to the amount of alpha you're going to get. Today, Omar walks us through how top quants make money from discretionary signals.

>> There's alpha lying everywhere. Count the number of hedge funds you have today, and in 5 years, I wouldn't be surprised if you have 10 times the number. Hey, when I look at the back end of our YouTube statistics, I can see that only around 25% of you guys are subscribed. And I'd like to ask a favor. If you like the content we create and you want to help us grow this show, if you could hit that subscribe button, I would really appreciate it. I promise that in return, I will do my best to give you guys the best content we can with the best guests and best interviews we can do. Thanks.

And back to the episode. Omar, thank you so much for coming on the pod. >> Ethan, thank you for having me. really excited to be here. You spent years at Two Sigma, famously a quant shop, building a system whose entire purpose was to collect human opinions. Why did a firm like Two Sigma need human opinions, I guess? >> Yeah, great question. Why does a firm like Two Sigma, you know, with all the data it could possibly have, need human opinions? Well, here's something that people don't understand. And actually it comes down to I'll give you an exact example of how this all you know played out and that's you know March 10th 2020 COVID right quant models lost I think like 5 10% something crazy we're down a ton fundamental managers right discretionary PMs were not done a lot okay and everyone was like what's going on well what What happened was, you know, all these amazing, smart, brilliant machines figured out everything that's possible about the past except they've never seen a pandemic before. When was the last pandemic? 19, right? 1918, 1919, around that time. Basically, right after World War I though quels hadn't seen that, but humans are able to take a step back, apply their judgment, and look at the future and envision what it's going to be. And they need zero data, right? They need experience, but they need zero data points like qu models do. So why do you need human opinions? You need human opinions because you will face inevitably times where the models don't know how to treat the future based on things that they've seen in the past.

Human judgment is still very important in investing. I guess you're giving me philosophically why that's the case, but walk me through how it happens in actuality. So you have a bunch of say PMs, you have a bunch of analysts, they think Apple's a buy, they think Nvidia's a buy. you think historically these guys know what they're doing. How does that become trading insight or quantitative insight for a for a manager like Two Sigma, like a quant shop like Citadel?

etc. >> Yeah. think about it from this perspective, right? You know, human insight and again it's not all human insight or not all investor insights are created equal, right? So, we're talking about very kind of specific type of investor insights. There's investor insights that are experts, right? and the reason that they're experts is because they've spent, you know, a number of years building pattern recognition and understanding, you know, various situations that happen in the market, right? And when you think about the way that humans weigh this, and there's actually a book about this, there's actually a number of books about this.

We don't have to go to all the details around this, but think about it from the perspective that, you know, humans that are experts typically weigh only one or two alternatives when they make a decision. Machines can weigh a thousand, right? 100 thousand, a million different data points. The humans never consider more than typically one or two alternatives. You can actually see this with like firefighters, with you know, with any kind of like any people who are under a lot of pressure and stress.

typically when they're experts, they typically only weigh one or two opinions or one or two alternative decision points outside of what the one that they are most likely going to choose. Why do I say this? I say this because at the end of the day, it's kind of like athletes, you know, I mean, we're we're we're talking during the World Cup, right? I mean, you see some amazing soccer players. How many decisions do they actually need to make at any given time when the ball comes to them, right?

Maybe one, maybe two. they already know what they want to do with the ball when they get access to the ball, right? That's the same thing with human experts, right? So, what you're doing by taking this type of opinion and the process that works is you're relying on judgment of experts who have seen a lot of information and have built muscle memory in the space that they operate in. That's kind of how the wisdom of crowds, if you will, has been built in a lot of places like Two Sigma and others where they take opinions of experts.

They say, I don't want just all the same opinions. I want the financials analysts. I want the, you know, the analyst that covers, you know, semiconductors, the analyst that covers, you know, restaurants, all that. I want all their opinions because ultimately I'm going to get a diversified view as to how, you know, both the economy and the market is likely to trend. And it turns out that statistically speaking, that's correct. You need to have enough opinions, but when you have enough opinions, you're actually able to make a very very good concerted forecast, like a really thoughtful forecast on where the direction of of of companies are.

Not always, right? It's not 100%. That's why statistically speaking, but you're actually your hit rates are probably somewhere between 65 to 70% if you have a good data set. If you're a student and like hearing OMR talk about how top hedge funds blend quant and discretionary, listen up. Odds on Open is partnered with Onyx Capital Group, the world's largest market maker in oil derivatives. What's cool about Onyx is that it's exactly what Omar is referring to. Quant and discretionary use to trade at the highest level. This July in London, they're hosting an in-person event for university students. Attend and you'll have a shot at an internship.

If you're a student trying to break into trading, you do not want to miss this. Apply at the link below and I'll see you there. I guess could you give an overview of the specifics of the program you built out at Two Sigma and how you aim to capitalize on human judgment? >> Sure. Think about it again. These are these are really deeply thoughtful analysts. these are people who have invested decades learning about industries, about markets, policies, you know, they understand the political landscape, whatever it takes to really think about the impact, right, of all these exogenous drivers on a company and how its performance is going to shape out both from a fundamental perspective, but also how the market, right, the financial markets are likely to react.

and you know buy or sell the company at any given time. And what they do is they boil all that information down typically as you probably are aware into like ratings, buy, sell, hold, or maybe you know it's a rating of like you know you know strong buy and then and and you know and strong sell and whatnot. Very often they don't even have anything close to a sell as we know. the process of being able to capture information from them involves mimicking a lot of what people actually do when they pick up the phone and call them. So there's a normal process today, right?

If I'm a fundamental portfolio manager and I'm managing money, let's say I'm managing a half a billion to a billion dollars. I'm you know, I manage about let's say 50 to 60 stocks. I have a bunch of longs, a bunch of shorts, and all of the sudden, you know, one of my companies just reported and there's a lot of new information in the market and I need I need advice. I need to really talk through my thesis. I'm going to pick up and call a sellside analyst, right? That sellside analyst has a lot of judgment and expertise. They've been covering the stock maybe for 20 years.

They know the company well. They know the CEO. They know management. They know all these things. And I could talk through a lot of the the nuances and the color about that company. everything that you can imagine related to you know how is it positioned in the market relative to its peers. you know if I were looking at it on the short horizon versus the long horizon how do I think about it what do other people think about it right these analysts are like collections also of information around what do the peers think about this because they're talking to a lot of the buy side shops so they can give you kind of almost like a gauge of sentiment right on it and so on and so forth. So if you think about those types of questions that are asked systematically, a place like you know at two sigma or other places can codify those questions into an actual something like a survey, right? Or something like a website where somebody can actually come in and type that information in instead of having to, you know, go through the process of getting on the phone and talking to people again and again, right?

nowadays I mean this is a the future already but you know aentic systems and being able to use chat right you can basically provide all that information through a through essentially a chatbot right but obviously back in when we were doing it you know a couple of decades ago now the idea was you know you did it on a website you did it in some kind of a survey format but the idea is the web form replaced having to make human calls to those people and now you're gathering a lot of information right quantitatively about again what do they think about the company's positioning relative to their peers the market how do they think about them on short horizon versus the medium horizon and how do they think about or how do the peers think about this how do other byside peers think about these things those are really kind of the codification that we were doing and gives you essentially a normalized data set so think about it now everybody's answering a similar questions on very very different number of companies out there right we're talking about thousands of companies you know 3,000 4,000 companies globally that you're get coring all this information on and you're doing it continuously.

Right now, you have this data set that's really powerful because you're looking at this data set, you say, "Wow, I've got multiple opinions, but they're all normalized, right, on multiple horizons, on peer peer you know, attractiveness." And it's almost like all these scores now can be aggregated and bundled into something that you can say what is the average or the wisdom of the crowds from a mean perspective or median perspective. And typically on average, those are relatively okay.

Those are forecasts that you want to make provided that you're working with good people with judgment. >> And in general, are those forecasts not already priced in because I imagine now I know this is the tension here. You're trying to capitalize on the wisdom of crowds and maybe you're targeting experts, but surely they have also put on a lot of the positions in the markets. Is there still a delta between that and yeah, I guess those two sides of the coin?

>> Yeah, it's a great question. It depends on one really important thing. and you're talking about this specifically. I want to say the reason that you're able to capture mispricings in the market has to do with one thing and that's called sample frequency. The faster you collect the data, the more frequent you collect the data, the more likely you are to catch mispricings. Because think about it, people are not trading every day, right?

They're thinking about things. They're making judgments. They're taking in information. And as they're taking

in information, they formulate an opinion. And if they're being queried on that opinion at a particular period of time, they may take an action tomorrow, the next day, the next day. But the idea is that they're asked for their opinion now. And if you ask it with enough of a high enough frequency, not like a super high frequency, but a high enough frequency, you're able to catch a very, very useful pattern of behavior, which is, oh, I'm noticing that they're becoming more bullish on this company, more bearish on this company. I'm noticing that they're thinking that it's improving relative to its peers. I'm noticing that sentiment's improving on the company because you're collecting it frequently enough, right?

If you were to collect it once a year, yes, a lot of it would be priced. If you were collected once a quarter, most likely be priced in. We're talking about much more frequent than that. >> What were some of the behavioral indicators that moved the needle that surprised you? >> You know, I would say that things weren't I wouldn't say super surprising to me. a lot of things a lot of things that we saw in the data confirmed some thinking that we had because you know again you're looking for patterns around wisdom of crowd I guess here are the things that I would say were probably felt least intuitive right that's what you're looking for looking for signals that are least intuitive but make sense most of the time when people are bullish heavily bullish or heavily bare bearish and they become more heavily bullish, even more bullish or more bearish. What do you think what do you think the the signal is from there from a stock price perspective?

>> I mean, it's obvious like bullish up, bearish down, I imagine. >> well, I'll tell you what. If somebody's heavily bullish or heavily bearish and they become incrementally more heavily bullish, heavily bearish, the best thing to do is to bet against them. Okay, best thing to do is to bet against them. That is probably one of the more surprising things that you can do. Wow, this is an expert. They have a lot of judgment. What do you mean? They're super bullish and they're getting even more bullish. Actually, this is the problem with human behavior. When people become overconfident or not say overconfident but they've become extremely comfortable with the story and the narrative of the company where they don't realize that typically the market has outrun the expectations on the company itself. So what usually happens is when the street is really bullish or really bearish very very bullish or very very bearish on something it's time to go in the opposite direction.

It's because at that point in time everything is priced in and you know you can look at that with the markets you can look at that with securities it's you know people call it overbought oversold right it's really at that time that things tend to change change and so what you want to look for is the instance of the first person in that crowd that's starting to go against the crowd that makes a bold prediction against the crowd everybody's bullish everybody's bearish the first person that walks out and says hey I don't think this is going to work anymore for that's the signal you want and that's when you want to pile in and say all right time to throw my hat behind this guy because or or whoever it is because they're moving against the crowd and we've seen this movie a thousand times or a hundred thousand times and that movie tells you that when the rest of the street is bullish and someone walks out and says okay I don't think this the emperor has no clothes that's what it is the emperor has no clothes then you have you have to pull back.

Fascinating. I mean, that's I mean, it it makes sense now that you explain it and you're talking about human behavior, but I'm I'm genuinely surprised. I would have imagined any bullish signal would entail a greater

expected return and a bearish one would entail that the stock is more likely to go down. Very surprised. Wow, >> it's a fun experiment. but the reality is that this is really where it comes down to the second piece that you've probably maybe can think about from the perspective of data analysis and that's oftentimes that people call the deltas. The change in information is more important than the levels or the current state of the information.

Does that make sense? You always are watching for the change in the change in the state versus the actual state. And that tells you a lot about what you expect because the change in the state is usually one of the strongest signals you can have. That's why I said there's a change when there's a change in the state, especially in the opposite direction of the of the of the actual level, you get some interesting signal. The same thing when somebody has no view on all of a sudden on a name and all of a sudden they have a view on a name, right? Think about it this way.

They were on the fence and now they're off the fence. That change in state is a very powerful change. >> And does it do so for that specific one does the direction that they end up going in align with the direction the predicted or expected direction of the asset price movement >> at that point in time it does. So to your point, think about yes when we said earlier, hey, if somebody becomes more bullish or more bearish and you thought, hey, that, you know, that would probably signal correctly. If they were on the fence before, then that is the signal you're looking for to align with them.

Because somebody who spent all their time analyzing companies and kind analyzing and analyzing and finally decides it's time to get off the fence on that company, that's real information. If they were already bullish or they were already bearish on the company and they became incrementally bullish, okay, that's fine. You like it and now you like it even more. All right, that's good information. But the really powerful information is you didn't have an opinion and now you do.

>> Why would an analyst give you their opinion? You know, they're external. They don't work for two sigma. you know, how does that work? Why would you share alpha in that way? >> It's a great question. Really great question and there's a number I mean one of the nice things about working in the financial markets is that most things you can actually boil down to what we see things people call shared incentives right so it's really about shared incentives what are the incentives for them to participate and it really is very much related to two types of incentives that they can get obviously the common most common incentive everybody talks about in the financial markets is financial incentives. Sure. But you know everybody gets financial incentives to participate in the financial markets and one would argue that financial incentives are actually almost like table stakes right sure. I mean you can give somebody a share of the revenue for instance of the strategy or or the the P&L that you're generating right? So you could say, "Hey, I'm going to invest using this information and if this is successful, then you'll get a share of the revenue and they're excited about it." And of course, they want to be part of something cool like like the new new Alpha Capture product. and that's definitely a beginning incentive that that is not a bad place to start, but actually that's not going to carry you two, three, five years into the program, right? Think about it. They're continuously participating in the program. They need more than simply just knowing that they're going to have some financial incentives because

all of a sudden other other things are hitting them at the same time, right? People tend to be very busy in this as you probably know in this industry and there's always something else that they have to analyze, another client they have to talk to, another piece of you know feedback they have to give. So what's really actually more important than any type of financial incentive oftentimes is informational incentive.

or an analytics basically can you give them some kind of an information edge yourself? Can you give them some kind of an analytical edge yourself for them? So can you give them your analytical edge and your information edge? And that is what we spent a lot of time thinking about because at the end of the day what one of the analysts at a very famous bulge bracket bank told us he said my first call my first call after a stock let's say reports earnings or something big happens in the market is not my highest paying client.

It's my eighth highest paying client. And I'm like why is it your eighth highest paying client? Why would you call your eighth highest paying client first? And the response is because my eighth highest paying client makes me smarter. I can bounce ideas off of them and then I can call my highest paying client and sound really smart. >> Just curious, would you target sellside analysts? What was the program? I guess could you give me a like a more in-depth description of the program?

>> Sure. Well, think about it from the perspective of you know at that time we're talking about this is again a couple of decades ago buy side alpha capture didn't exist right it was all sellside alpha capture meaning the buy side right i.e the the investment in investment manager would query or take the opinions of sellside contributors, right? And one of the pioneers of that is a manager called Marshall Wace. may have heard of them and they started a program called TOPS where they really pioneered you know Alpha Capture where they basically told the sell side they said you know what and it was actually you can probably read about this it was a bet between you know the two founders Marshall Wace that they basically one said the sellside has no value they're simply just paring off information that that you know they read and you know his co-founder said no no I think the sellside has value so they actually hired an intern to collect sellside ideas for an entire summer I think for almost maybe a six-month period and test out whether those ideas had value.

It turns out that the sellside does have some value and so they ended up putting that not just as an intern project but they actually gave the intern by the way one of the most successful people in this market an opportunity to start a strategy on the basis of this science this basically summer project that he had and lo and behold about five six years later they're running almost 10 billion dollars off of that strategy and what they did was they basically realized that it's actually quite simple. Just ask them to manage a portfolio for you or a fictitious portfolio. Tell them, "Here's how many, you know, marbles you have. Here's how many dollars you have. Doesn't really matter. Put your eggs into them and help me build a portfolio and see what stocks they put into those." And generally speaking, if these are smart people, then they'll probably put the right things into the portfolio and eventually you'll be able to corral enough of them and make money again because there's a wisdom of crowds there. what two sigma did years later. So Marshall Wace started that probably back in 2002 2003. Two Sigma was probably in the 2006 2007 period. We were starting that then decided that rather than asking them to be able to manage a portfolio for you.

We said how about you you give us more of we are more interested in your ideas. So we don't care about portfolio management. We care about your ideas and we care about you basically answering some questions like we said in a particularly structured survey, right? So the the mechanism of collection was usually that some kind of a website that they entered that information into and then in response they actually got feedback about how different they were than the rest of the street as well as what is you know what are some of the other quote unquote analytics saying about the companies that they care about. So they gave us information and we gave them back information. So it became kind of an information exchange where they felt they were getting value not just monetarily by joining in in the in the success of the two sigma product but also being able to get access to the information that that you know was coveted right to Sigma had a lot of great information and that would help them be have more of an edge on the companies that they're analyzing. You mentioned Marshall Wasa's alpha capture program and then how that differed from two sigas. I know Citadel would also run a a sellside alpha capture program and recently Ken Griffin's, you know, doing other stuff trying to even do it for buy side. I have a question about where competitive advantage comes from in this space because I imagine everyone's trying to get all the sellside analysts to give either insight or submit trades through a a paper portfolio. where does competitive advantage come from if everyone can do the same thing? I imagine at the top level.

Yeah, it's I would say that the competitive advantage comes with two things. One is context and the other thing is nuance. The markets are they live in the nuance. What does that mean? That means that sure everyone really understands generally speaking what the state of the state is in let's say Tesla, right? Okay, you know this is probably what revenues are might look like. this is what you know marginally we think is going to happen based on you know what the information might look like.

Now Tesla might be a bad example because there is a lot of variability in Tesla's Tesla's output as we know right sometimes their production numbers blow away and sometimes the production numbers totally totally missed but the general concept is you're right a lot of people do a lot of work on the companies and there's a lot of publicly available information to help you get in an understanding of context That's again, Ethan, that's table stakes, right? Understanding context is table stakes for everyone, right? You better actually understand. And if you don't, don't even bother playing the game, right? It's like walking into a poker table, you better be good enough to be able to play and with the ante and then you might want to decide how you want to play the rest of the game, but you you have to be good enough, right?

And that's really the the notion of all these bice alpha capture programs. The assumption is you're working with people who are good enough. And then the question is now you have an opportunity to capture nuance and nuance is the part that's actually really powerful because that is the part that really where marginal information comes in. Remember we talked about this concept that the change is more important than actual level. So if you're capturing changes in the information what you really are entering in is something people call the propagation flow of a of a company. Think about investors. Investors are always investing. They're making trades every day, right? They're buying, they're selling, and there's a there's essentially sometimes when new information comes in into the marketplace, it doesn't come in all at the same time, right? Not everything comes in and everybody knows all the information right then on, you know, 5:52 p.m. everybody knows everything, right? No. What happens is information comes in, someone learns about it, someone formulates an opinion, someone trades, the next person learns about it, formulates an opinion and trades. Now, sure during earnings

that's a big release of information, but intraearnings during in periods, you're going to see a lot of interesting periods where you actually have information release of some kind, some amount of analysis, and then a propagation, meaning the stock starts to move. And it doesn't move all at once.

it starts to move a little bit day by day and that's because people are assimilating this information. They're making investments on behalf of it. Sometimes, by the way, they're putting on positions across multiple days. So, they're not buying it all at once or selling it all at once. They'll buy a little bit and buy a little bit and buy a little bit and buy a little bit to do the opposite sell. And so when you have that approach, if you understand all those nuances, you can build an investment strategy that basically fits into the propagation curve as the company starts going up in price because information becomes known or down because information becomes known negatively. You're able to capture the alpha associated with that propagation and that ultimately becomes the part that is very very interesting mathematically. You know, you can actually prove it that it actually happens in the marketplace, but that's the game that a lot of people are playing in alpha capture. They recognize that they're not going to be the first in. They also don't want to be the last in, but what they want to be is at least in the top quartile, let's say the first quartile of the propagation curve because then you're able to capture enough alpha to make it profitable strategy to continue.

>> In those changes, how much is truly alpha? because I imagine there are some factors, maybe there's some momentum in there. you know, I I I know this is probably a bad example, but an event like earnings or something big happening in the news, I imagine a lot of momentum is a I imagine momentum is a driver in those things because maybe the whole market will move in a similar way. yeah, I'm just curious how you think about that. The way I think about you know any kind of change as you discussed any information release and the alpha associated with it has to do with how much surprise there is to the market in that information.

The amount of surprise is usually proportional to the amount of alpha you're going to get. So momentum and all the factors that you're talking about whether it's a beta if you know and you know growth is moving in value and there's rotation sure that's going to happen and that's going to happen because 60% plus of all the flows in the market today are passive right ETFs you know I mean passive big big vehicles and pension funds and sovereign wealth funds and all that they're doing passive investing they don't have a time to analyze every single stock right they're just investing in momentum or quality or growth or some aspect of a factor that you're talking about and that's buying thousands of companies at the same time and just pushing them along a little by little every day. That is the thing that you're talking about that are sort of moving the stock a lot. However, if you think about what happens during an earnings release, right, and especially if the earnings release is a big surprise to the rest of the street, again, Tesla's production numbers were expected to like be, you know, whatever, some number, you know, 500,000 and it turns out that they came in 600,000, something surprisingly larger and the street was not ready for it. you're going to see a pop in the stock and that's going to be alpha, right? That's not going to be captured by the traditional all the risks that people you're talking about the what people typically refer to as premium factor premium. Okay, that's alpha. Also, there's sometimes little bits of alpha that you can see every day when again there's a marginal piece of information that comes out and people are starting to simulate and trading it, right? while the rest of the market isn't truly like caught up on it yet. So, you'll see little pieces of alpha come across in in you know in between information releases. But Ethan, the most important probably thing to think about is it really comes down to the level of surprise that the investors have, right?

And the investors make the decision and say, "Oh, wow. It's now going to be much better than I thought or much worse than I thought. I have to change the way I think about the investment." And that creates a big move in alpha. What are some of the ways you can quantify surprise? >> I mean surprise typically is quantified using some kind of a consensus metric, right? So think about you know the street has consensus metrics on earnings, on sales, on any kind of you know numbers that the the company is going to report, right? And think about you're probably familiar with fact set, right? You've heard of the word, you know, faxet has a consensus.

you know, you know, Bloomberg has consensus. All the major, providers out there, these big analytics companies, what they do is they query the entire side, you know, base of analysts, all the big banks, and they ask them, tell me your opinion on the on earnings or what you think his sales are going to be. And there's it's not just, again, it's not just a u you know, a phone query or something. I mean all this is now structured and these are in models and they're all systematic but the data basically goes into the database systems and then you end up getting a consensus metric right so it tells you here's the here's what we expect earlier today Micron reported right I think they beat revenues by a handful like I think it was probably over well over 10% 12% beat on even revenues well there was a consensus metrics analysts expected Micron to generate a certain amount of revenues and then they came in even higher than what they expected right That surprise is the delta between what micron came in and what the consensus metric was.

>> When you were running the program or building out the program at two sigma, would you weight certain people's certain experts opinions much more heavily than others? Was that another thing you played around with? It's the the one thing everyone comes into alpha capture with the idea that they believe they're going to figure out how to find the best people and weight them heavily and find the you know the the the lesser right the lagards and weight them less. The problem with that approach and this is you know this is again a real issue that people don't realize is that it is very tough to be consistently good across a long period of time. Oftent times if you end up having a hot hand something happens to you called mean reversion. Right? You probably heard mean reversion right? Mean reversion is when things got too good and now they're going to revert back. Right? So you have to be careful. You want to bet on someone with a hot hand and you think you want to wait them more. The moment that you wait them more, they're most likely going to revert. Very similarly to the whole bullish and bearish example I had earlier. So the the thing that you usually often look for is and actually is essentially is a momentum in their underlying you know in their underlying view. Right? So if there is if they've caught on into a company that's doing really well or doing really poorly and they're able to be one of the first to catch on and now they have some momentum in their ideas, you may be able to follow them for a little period of time while the rest of the street catches up, right? So they're now ahead of the curve and now they're guiding everyone and everybody's moving to them and they're still kind of the bold one and that's when you want to kind of make a bet behind them for a little while.

Once everybody catches up to their opinion, you you you wanna you you have no more use to weight them more than others. It's very much a situational waiting. >> It seems in running the alpha capture program and building it out, you've learned a lot about the way people behave in markets, I guess. What are the most important fundamental insights you've learned? And I don't know if I can, you know, ask this question on the back of that, but surely you trade on them, right? I mean, if you if you if you understand all these things, I imagine it just, you know, there's alpha lying around there.

There's alpha lying everywhere. the reality is to capture it in a systematic manner requires discipline, requires capital, right? requires the ability for you to you know be dedicated to that particular you know craft. So doing it on the side, I tell people trying to be an investor on the side, you know, a lot of it's going to be just gambling, honestly. A lot of it's going to be just sort of luck. But if this is your profession, if this is what you do waking up every day and your job is to basically generate returns and you've figured out how to put together a good systematic strategy to do so, okay, great. More power to you. That's you should be able to create systematic generate systematic alpha every day. you know, hopefully for the rest of your life. but you have to keep learning, you have to keep innovating, and you have to keep remembering that the bar moves, right? More information becomes known, the context changes, the table stakes change, right? The table stakes of last week or last year are going to be different than the table stakes of next year. And if you don't understand that the stakes continuously move in the market and people become increasingly more sophisticated because of data, analytics, AI, whatever it is, you're going to be left behind. And then you really shouldn't stop. You should stop investing at that point in time. and that's what I tell people. I say if you feel like you've now rested on your laurels and you've created something amazing and now you could just sit back, that's unfortunately the pro the time that you probably should just retire and hopefully you've done enough well enough to retire. But that's the idea, right?

There's a lot of alpha lying around, but the reality is you have to be very disciplined to collect it. >> Has generative AI changed alpha capture? And I asked that question with a context of now we have essentially an unlimited number of simulated analysts. Does it work in the same way? >> That's a very very cool question. I like it. I really like it. the idea that, you know, you can now have theoretically a digital analyst, right? basically, you know, you know, an agent that is actually smart enough to be an analyst and make certain decisions and judgments that an analyst can make given, you know, what are they looking at, given the data that they have access to, whether it's news, filings, transcripts, you know, factor data, whatever it is, the digital analyst is able to understand all of this theoretically and make forecast. I think that that might change the game a little bit. Not a little bit. It could change it a lot actually. for Alpha Capture, how will it change it?

I It's a good question. It's a really, really good question. I'm not sure I have the answer yet, but I will give you a couple of hypotheses. Okay? I'll throw out, you know, two hypotheses that will happen. The first one is is that if you think about it, digital analysts, right, require information that is written down. We're all written down or captured, right? What does that mean? That means that they have to read something online and be able to put that into their context, right? A AI has to have context and it has to put that in.

Okay? As the AI builds in more and more context, you hope that it has better judgment and it's able to make better forecasts. But what actually can happen, and this is one of my hypothesis, is that the AIS, unless they get better in a particular way, they may actually get something called context overload. I don't know if you're familiar with that, but context overload is when you throw too much context at them, and now they're not quite sure what to make a decision, and now they become more random. So you could end up having random digital analysts making all sorts of possible hallucinations in the way that they invest. Right? So that's one hypothesis. It could be wrong. But you'll see more random behavior from analysts and how they forecast the direction of stocks and direction of fundamentals if you use more digital analysts. Right? Now the second approach is that they do become smarter and they do become more judgment and maybe we have humans sitting there and really really making sure that all the guardrails are there and everything is you know they don't go off the

rails and they really understand what they're doing. Okay fine let's assume that that happens and all these analysts become smarter and more smarter. These digital analysts become smarter partly because they've been curated by humans who are watching them and making sure that they're making the right decisions.

Right? The problem with that is I do believe in my opinion at that point in time is that then the issue is going to come down to what proprietary information does your digital analyst have that another digital analyst doesn't have because if the world that they can all suck in information and make judgments and decisions that are sound and thoughtful and rational it's going to come down to the marginal proprietary information. So any information released that comes out, their ability to analyze it will be instantaneous, right? They'll know it, they'll see it, they'll make a judgment on it, and it's probably going to be a similar judgment that other digital analysts make. But what could be very interesting is how we end up capturing proprietary data in various different ways and feed it into our digital analysts and keep that proprietary data away from other analysts.

That's a world that's very different than the first world where there's too much randomness and people don't trust the analysts because they make a lot of mistakes. That's a world where we're basically all in essence, you know, creating very interesting pockets of proprietary data and information and that context becomes essentially like gold that actually will become potentially the future currency that people will trade by. you give me your context and I'll give you mine or you pay me for your context, right? Because it's really really prop powerful and proprietary context.

>> Are you bullish human analysts? >> I think that human analysts have a place for a long time because I haven't really seen machines truly think. And maybe I again I'm I'm gonna be I'm gonna go on a limb and I say I know everybody talks about at some point they will be able to there will be AGI or something but really most of what I see today it's not that they're bad it's just that they they don't really think they are good at anticipating what the next action statement code right to write on the basis right of really having a very very powerful powerful database and a prediction engine. It's actually interesting. I'll give you one example.

This is this is Andrew I don't know if you're familiar who Andrew Lo is one of my professors at MIT. He if you look him up he's you know seminal papers on a lot of really cool things that he's done over the years. But he actually came to Two Sigma one time to do a presentation to us and that was really awesome that he came by and he said look he said at the end before he left he said I'm going to leave you guys with one thing. I'm going to boil down human intelligence into two things.

And everyone was like, "Oh, really? That's it? Two things for human intelligence? I guess that's that's who we are." And he said, "Human intelligence is," and he used this word hierarchical memory, which we'll go into in a minute, and prediction. He said, "Hierarchical memory is the thing that you learn when you're a kid and then you learn something else. You build on it. It's just a building blocks, right? You keep building and building and building and you learn something and when you learn something you put it into your memory. You don't have to go back to first principles. You always learn it on the basis of something before.

So the idea is he said let me give you an example. You're walking in the middle of the night down a dark alley.

You see someone walking to in front of you with a trench coat. What's your first emotion? >> Fear. >> Are you happy? Fear. There you go. You're not happy, right? Fear. And then you notice that that person as they get closer, they have a badge. Okay. And they have a hat. What's the next emotion? You think is >> relief.

>> Yeah. Exactly. Your body, your you did this. You Yo's emotions were processed in probably less than what 10 seconds, 5 seconds. Not because you her body had to go back and go through all your database of everything and say well this person is wearing this and they have you know this trench coat and maybe it's black maybe you know the machine would have never figured it out right hierarchical memory and prediction is human is really really powerful right for for obviously the human mind and how it works now we are getting to a interesting point where machines right AI is able able to simulate some of that, right? We're seeing it, right? It's able to take a lot of information and you can see that the kind of decisions and predictions that it's making are similar to what the kind of predictions and decisions that we might make, right? But it's still at a point today and maybe in the future will be better, but at a point today where you still kind of see that it's having to scan a lot of possibilities and a lot of options. Whereas humans have built that hierarchical memory structure and have done a lot of very very quick iteration and been able to get to the kind of that judgment that I tell you about very fast. And that's still something that I'm telling you plenty of researchers have tried to build over the years. I've you know listened to plenty of podcasts. I've read plenty of hierarchical memory papers. It is hard to simulate human hierarchical memory. It's very very difficult. and databases and all the things that the AIs have built over time and the context and everything like that. The only way to solve it has been just throw lots and lots and lots of GPUs at it, right? Throw lots of GPUs, make compute even faster, make it brute force, and eventually it seems like it's going to start simulating something that looks like us. But that's kind of where we are today in reality. So you asked me the question at the beginning. It's maybe a long way of saying is yes I still believe the human analysts have a place and a role because of their ability to have this very very useful sort of hierarchical memory structure and their ability to make predictions very fast on the basis of it.

>> That makes sense. I agree. What about numbers? because we have a lot of human analysts, you know. I think I think everyone understands that you will still meet people. I mean, we talked about even to build the say database or whatever it is that the agents will have to pull from. You'll need people to do that and to think about what is our competitive advantage among all the other people who are utilizing all this new technology. So, I understand that you will still need people. what I want, I guess, to hear from you is how many do you need?

Because when I take a step back and truly think, I feel like a lot of the analyst skill set is grunt work. And so, and do we need that many hedge funds? Do we need you does the the demand expand? I'm not exactly sure it does. Can I get your thoughts on that? There's a number of questions in there and I think I'm going to try to answer them in in succession and I'm actually going to try to start backwards what you just said. You said an interesting point. It's kind of like and this is coming from by the way I've heard these I've heard investors say this before.

They said hedge funds are like restaurants, right? I mean you like going to a restaurant, right? You could sit down in a restaurant, but if the restaurant went away tomorrow, are you going to be sad? Some people are. Maybe it was your favorite restaurant, but most people just move on and they go find another restaurant. So the world of hedge funds and in general investment management, you know, in in many people's opinion, it's not

even just mine, but what I'm hearing and what I know about it's basically what you're doing is you're seating participants who are going to make a market efficient.

And the more participants that are in the market, the more likely you have some efficiency because not everybody again has the perfect information. So they're all going to kind of invest in a couple different ways, trade against each other. Some might make, you know, some mistakes in one one direction, others make mistakes in other directions. But ultimately what you're doing is you have enough diversification of capital that the market is relatively healthy that you if you step in tomorrow and you want to buy or sell something, there's always somebody willing to do it right with you. Imagine a world where all the hedge funds went away and the investment management houses went away or they became extremely concentrated and they're only Stindels and the big the big kids, you know, all hung out there with hundreds and hundreds and hundreds of billions of dollars. What do you think the market will look like then?

Right? So, think about it. So, this is what I'm saying. So, concentration in a market is not great. Competition is good. And it's the same idea with like restaurants. So, maybe maybe you're not sad that the restaurant left, but you kind of like the idea that there's a lot of restaurants on the block because if there weren't and there's only two restaurants, it wouldn't be too cool, right? you you you're going out on a Saturday night, you don't feel great about it. You're like, "Well, everybody's going to the same restaurants, it's crowded, it's stuffy, it's stinky in there. I don't like it."

But if I have all the restaurants on the block and I can pick and choose and there's a lively atmosphere and there's street performers out there, all this fun stuff, you know, telling you feels like New York, right? you have this feeling of like okay there's there's a lively you know a true kind of a spirit and action that's happening in this in this region this zone and that's how the financial markets feel the financial markets should feel always lively there's always action there's always somebody willing to buy someone willing to sell someone willing to step in take the trade that somebody else is not willing to do someone willing to take the over someone willing to do the under right that is the beauty of why I think you You need to have a constant healthy ecosystem. And you should always consider that anytime you see a new hedge fund form, instead of saying the idea of like, oh god, yet another hedge fund, actually think to yourself, cool, another market participant.

>> What do you think the hedge fund world looks like in five years? >> I'm not sure it's that much different than it is today. I think that there is a number of things that are happening that are making it really easy to have a hedge fund. I guess what I would say is this. I see more hedge funds, not less. And why? Because the barriers to entry to build a hedge fund are falling pretty fast, right?

You know, the barrier to to entry involves obviously being able to have some kind of a you know, a process that you are comfortable with, maybe with a couple of digital agents, right, that help you build that out, right? you obviously need a certain amount of capital to be able to invest to make it, you know, on your behalf of your investors. And then, you know, obviously you need to meet some regulatory standards, which a lot of compliance engines now are all automated. So they're actually reducing the cost right of being able to do reporting and analytics to you know the regulators. So if you think about all that it would actually suggest that

there is a likelihood that more hedge funds will actually form not fewer hedge funds and that there will be the opportunity for a lot more people to be participating in that world. I actually believe I could be wrong but I would go out on a limb in saying that count the number of hedge funds you have today and in five years I wouldn't be surprised if you have 10 times the number.

>> 10 times. >> 10 times the number. >> Well, you heard it here on Odds on Open first. It's a proliferation game. I think it's going to be people are going to find pockets of opportunities. You haven't even looked at the number of hedge funds that could form out of the fixed income world. That's a really dark place right now with a lot of very very few real players on the hedge fund space. Think about the number of hedge funds that could be doing commodity trading. Think about private investing and really making private investing more transparent. More transparency, more AI, more things come into it. AI makes things also potentially more transparent if it's making data more transparent because it's easy to access it. All of a sudden people are trading private companies, private company exchanges come along, tech secondary markets. All of a sudden trade hedge funds are trading secondary markets.

So it's going to happen because there's going to be more asset class opportunities. More liquidity is going to come into asset classes that historically have not been frequented by hedge funds. And the barriers again to entry to building and managing a hedge fund in my opinion are going to go down. That only tells me that there's going to be more access to people and opportunities for people and and the baby boomers are all going to be, you know, I feel like they're all going to be Trump closet traders anyway.

They're all retiring now. And they're handing and by the way, that's another interesting thing you should be aware. You probably know we're we're dealing with one of the biggest wealth transfers, one of the largest ever wealth transfers that's happening for baby boomers right to their kids and their grandkids. And then, you know, that's already actively happening, but it's happening right over the next decade or two. And that alone is going to drive opportunities for people to want to make more investments. Well, where are they going to invest their money? Are they going to invest their money in a, you know, I mean, yes, S&P and all the indexes, but that's boring.

People want to invest in their friends who just started a hedge fund because they think that they're really smart and they could do something cool. That's going to happen. So, anyway, I'll stop there, but that's my belief. And are you seeing all these things firsthand? Because you service plenty of hedge funds, top hedge funds, large hedge funds, small hedge funds. I guess what your clients tend to say about this. Are they excited about all the new tech? And is the rate of implementation just speeding up? What are you seeing on the on the front lines?

>> Yeah. Well, we're seeing a massive this year a massive acceleration like everyone else in the ability to access data and analyze it literally at you know at speeds that are unheard of right that analyzing data and and actually accessing and analyzing data in a very robust mathematically sound way historically has taken time. You have to make sure that the data is clean. You have to make sure that you know that there's obviously that the that the analysis is high quality. You have to make sure that all the mathematical mistakes you know people call it sort of data cleanliness but then they have to actually look at you know you know what they call validation

you know data validation and they have to go into the validation very deeply and understand that the data is actually not just correct but the math behind it is actually generating the right data.

You can have a lot of numerical inaccuracies which will cause you to make numerical forecasts that are incorrect. All those things used to take days and weeks to make to actually generate a strong like a really useful insight and now it's happening in hours right you pop open Claude and you just throw into it or a tragic pet but certainly you know throw in any one of these you know ideas that you have with some robust piece of code and guardrails around it and this thing is going to be able to generate do the validation and get you the data. So to your point around number crunching, digital analysts and AIs are really really good at number crunching, especially given the guardrails that you can give to them. They're not great at number crunching if you just ask them to come up with something that's hallucinations, but they're really good if you're able to point to the math and say like a horse with blinders, keep your keep your your eyes forward, look at look ahead, just focus on the math and they can run through it like lightning, right? And do a lot of analysis very fast. So that is driving the ability for people to have access to a lot of analytics at their fingertips that they never thought that they would have. The problem is now you have all these analytics and I've showered you with thousands and thousands of analytics.

What's the next thing that you need to do? Make a decision. Why do you need all this analysis? What are you gonna do with it? Right? And that comes back to another word I just said. It's judgment. Right? All of a sudden, who's going to make the judgment? The AIs that just generated all those analytics? Maybe, maybe some of them will. Maybe you can have a super agent that makes judgments on the others. But the reality is in all these situations, we're coming back to the same thing that we mentioned earlier, which is something that Quants learned decades ago is that you still need humans for the judgment even if the machines are running all the numbers.

Do >> you think Gen AI leads to more efficiency or more inefficiency in markets? I think it's a similar question to your question on more or less hedge funds, right? Because there's a parallel or cor there's a correlary here, a parallel to what you're talking about, right? GenAI allows you to analyze information more quickly. We know that you're able to get the information quickly. you're able to make, you know, access that. What does that do? Right? That allows more people to get access to that information and theoretically make decisions. Now, the problem is if I make decisions on the same information that everybody else makes decision on, the only thing I can rely on is that I'm going to interpret that information differently than they have because I have a different set of judgments about what that what that information means.

So, and that's where it comes back down to experience, understanding of the markets, right? Different people have different obviously experience sets where they come from, where they invested in, right? Even what their family backgrounds are and how how diff, you know, how they grew up will also cast those judgments on whether they decide to invest in one way or another. So, when you have a diversity of opinion, you actually don't have a very efficient market, right? If everybody had the same opinion and they all knew that once I process this piece of information, this is the answer, and everybody comes to the answer within 30 seconds, that's the efficient market hypothesis, right? That gets you to information, gets you to price.

Everybody agrees on the price, boom, the price moves to where it's supposed to be, and now we're done. But if people have different variable opinions on what the information means, they can all process it fast, but they all have different judgment calls on the information, you will still have, right, a lot of noise, a lot of noise that happens in the prices. And I think that that's still ultimately what will happen. And in fact, it might even be more noisy than what it is today. It's actually interesting. Everybody always thought if all the quant models were all working the same way, then we would have really no reason to have any more human traders. And the opposite has happened over the last two decades. And that's something by the way that surprised me when I was at from since I was at two sigma. I always thought that the future the wave of the future is we're all just moving toward you know singularity or something. But the reality is there's even more entropy now in the markets than before. And I think it's because access to information and analysis has become so easy that more people are now making judgments. Retail is making judgments. Financial advisors are making judgments. All people are making judgments on what they want to buy and what to sell and that's actually creating even more entropy than what people realized would happen.

I think using entropy as an analogy is fascinating and on that Omar you spent a good chunk of your career. I call it mapping and aggregating human behavior into insight for one of the best hedge funds to trade on. Are there any behavioral biases you think will be accentuated because of all the new Gen AI tools?

I still think that if humans have to make decisions, no matter how good the Gen AI tools are, right, and no matter how great the Gen AI tools are going to give you the analysis that you've wanted at your fingertips within, you know, three milliseconds of the information coming out, if you somehow have to make some judgment call, two things are going to rule in the markets, fear and greed.

That's it. They've been around as long as humans have been around. And as long as markets will be around, as long as humans will be making judgment calls on markets, you could then guarantee that those are the two things that are going to always be there as reigning emotional decisions. That's unfortunately the animals that we are. No, how matter how rational you want to be, that's ends up what ends up happening to investors.

Final question. Let's say there's a hedge fund manager watching this podcast right now and he's hearing everything we're saying. Genai is going to change a lot, but but it's also not going to change fundamentally what we are as creatures. And he asks you, he says, "OMr, you've seen all sorts of different hedge fund managers. you service them through Omega Point.

What is the number one mistake people make? What is the one thing I need to stop doing that you see your clients who perform year after year after year? the ones that perform, what's something they all do? H, it's a great question. That's actually a great question to boil it down to one thing. What is the one thing that all sophisticated hedge fund managers do in their investment process I would say that they can point to regularly and yet still don't correct it. Okay.

And again I think that it depends on the hedge fund manager and their strategy. But let's think about human. Let's stay on the human, not the ones that are just building only systematic models. I think that there's really two

pieces of behavioral bias that you see regularly in this in in in essentially very very intelligent and super smart, you know, human managers. The first one is what I'm going to call conservatism out of the gate.

They have an idea. They've done the research. They've done the analysis. They really know the stock. They really know the company. But yet, they only put a 1% or 2% position down. Why? Why not a four? Why not a 5% position? If you know it so well, well, let's be conservative. Let's see how this plays out, right? This is not, you know, we're not betting and gambling on Robin Hood here. We're being thoughtful. We We're stewards of our capital, of the capital of our investors. We want to make good decisions. Let's be let's be thoughtful about it. It turns out that a lot of the alpha is actually lost in that initial stage of being conservative.

So the bias is not to be overconfident necessarily when you're a really smart and talented and disciplined institutional investor. The bias is oftentimes on the opposite side to be too conservative and not capture a certain amount of alpha up front and that ultimately ends up actually being sometimes the difference between we're talking a manager earning call it 5 to 6% a year and a manager earning 10 to 11% a year. That's how big those biases can sometimes be. And they know it.

They'll tell you if you talk to them they'll tell you we know that we have that bias that conservatism biased but we have to act that way. It's innate like we have to be disciplined about how we put our positions into the market. We can't just go all in, which is true, but you're still too conservative relative to the alpha. And the data will disprove you again and again that you're still being too conservative and yet you still make the same mistake.

>> I love it. Thank you so much for coming on the pod. This was wonderful, Omar. >> Really appreciate, Ethan. Have a good rest of your day. We'll talk soon.