AI Exchanges: Will AI Make Markets Less Efficient?

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Allison Nathan: Welcome to another episode of Goldman Sachs Exchanges. I'm Allison Nathan, and I'm here with George Lee, co-head of the Goldman Sachs Global Institute. Together we're co-hosting a series of episodes exploring the rise of AI and everything it could mean for companies, investors, and economies. George, good to see you again.

George Lee: Great to be with you.

Allison Nathan: So George, I always look forward to these conversations. Today we are talking about how AI is changing the way that investments are made, so just really digging into how useful the technology is for investors, and also how it could be changing the way that markets actually behave.

George Lee: It's fascinating, like AI is having tremendous impact across the investing landscape. It's inflecting the way that fundamental investors generate alpha, gather information, draw insights, but it is having a particularly interesting impact in the quantitative investing space where quantitative investors are reveling in the affordances of these new models and new capabilities, and we have the absolute perfect guest to help unfold that for us, it's Osman Ali, and Osman is the global co-head of quantitative investment strategies heretofore known as QIS to shorten the podcast, and that sits within the Goldman Sachs Asset Management business.

Allison Nathan: Osman, welcome to Exchanges.

Osman Ali: Thank you for having me.

Allison Nathan: You sit in a very interesting place in the firm, so it would be helpful to just first understand what your team does and how they are adopting these technologies?

Osman Ali: Absolutely. We are the Quantitative Investment Strategies team, and we're a team that's been investing now for about 37 years. So the track records go back to the late ‘80s. So we're a team of investors that analyze large

amounts of data using quantitative techniques, and with advanced technology to identify opportunities across public markets and across really all asset classes. And the way we do this is by creating a set of models that help us analyze all this data and make better and better investment decisions. Now, I mean models in a very general construct because under the surface of these models, we're using a variety of AI and machine learning techniques, both large and small language models, to analyze that data in order for us to find the right opportunities across the asset classes. So as you can tell, AI and machine learning is a big part of how we operate and how we get an informational edge. The reason this works, by the way, is because it pays to be data driven. It pays to be dispassionate in your investing, and it pays to be dynamic because as the world changes, as markets change, as data changes, we adapt and evolve these models to help us gain an informational edge in the markets that we operate in.

George Lee: It's fascinating. And the 37 years, that's a, it's an incredible statistic and that spans multiple analytical regimes in terms of using models and analytical techniques. Let's talk about this most recent development that Allison and I spent so much time talking about the

generative AI wave and how those new models, large language models and derivatives, are influencing the way that you process data and reach investing decisions.

Osman Ali: Sure. So I see this as an evolution George, because pre large language models, we were still analyzing language. It was just in much more rudimentary techniques. So our foray into, let's say sentiment analysis goes all the way back to about 2008, where back then we wanted to incorporate what investors thought about companies. But the way that was done was using more traditional bag of words type sentiment classification models that we internally built and hired individuals to help us build. But as the technology got better, as the modeling got better, we were able to replace the machinery that was ultimately trying to do the same thing, capture investor sentiment with better and better techniques. And certainly the advent of say large language models is yet another advancement in technology that allows us to do the same thing, which is capture investor sentiment. Because what hasn't changed is the importance of investor sentiment in making investing decisions. It's just that we are now able to get a much finer lens onto it with these models that exist today that didn't exist 10 years ago.

George Lee: So let's double click on that for a moment. So, you have a long history of kind of general text extractions, sentiment analysis. How has that changed in the last year or two with these tools? What are some of the nuances that you can apply to that sort of age-old technique?

Osman Ali: Yeah I would say the big change now is that these models can be so specifically tuned to understand financial context.

George Lee: Mm-hmm.

Osman Ali: In different languages. And these models are so dynamic that they're able to allow us to capture the subtleties of how humans are expressing themselves in ways that just couldn't have been done 10 or 20 years ago. So our team actually takes some of these models and oftentimes it's not the largest language models, but some of the smaller ones, and fine tunes them to be able to say, do Japanese language sentiment extraction from management disclosures that Japanese management are putting out there, in ways that we couldn't do before. So what does it allow you to do? It helps you capture managers management sentiment. It helps you capture the kinds of risks that they think exist in their business operations. It

helps you capture the sell-side sentiment. It helps you capture the general public sentiment. And what I can tell you is taking a step back is when we look at let's say equities, more than 50% of what we think drives the stock's return over the next 12 months is not the fundamentals of the business. It is what the market thinks about it. It is the themes or trends that a stock is exposed to, and all of that is captured through means like this.

Allison Nathan: But Osman, let me ask a follow up, because it almost feels like with all of the powerful, nuances that this technology now brings, it's almost like you're learning about so many nuances. Is it hard to actually then parse through them to come up with an investment conclusion.

Osman Ali: I think the markets are getting complicated and I'd love to spend a minute on that because you're right. There's a large amount of drivers of stock returns today. But I think what we try to do is come back to some basic first principles of what we think are driving stock returns over the next six to 12 months. Yes, I'll admit that increasingly the drivers of stock returns have skewed more towards the technicals of the market and less towards

perhaps the fundamentals of the businesses as we've seen market sentiment drive returns.

But the way our investors approach investing is to first write down in a piece of paper what we think we want to look for in a company. And it could be as simple as, I want a company where a company management in Japan is getting excited about their prospects and the market is getting excited about the company's products and the average investor seems to be want to invest in that stock.

The way you distill that from the data has changed. Ten or 20 years ago we could not have had this conversation because as much as I would've wanted to know what the average Japanese management thinks about a company, the techniques and data to do that just did not exist. And so the quantitative investor from 37 years ago, when our organization first started, prided themselves on going broad but not very deep in data.

Today that is completely different where the average quantitative investor, the data scientist who's thinking of investing in markets, can be broad. We analyze 15,000 stocks every single day. But can you go very deep because the data to do that is available. It may not be cheap. That's

a separate conversation. It's available in the technology and techniques to analyze that data and identify what you are looking for. And that's important. It’s not just what is the data telling. It's what you want to find in it that’s possible.

George Lee: So one dynamic that's fascinating relative to the earlier parts of our mutual career is this wave of technology is widely democratized and available in an egalitarian way. You've harnessed sophisticated approaches to using these kind of tools to drive returns. Now that this has been spread more broadly, does that reduce your edge in the market and how do you think about that?

Osman Ali: Yeah, great question. There's two forces here that I'd like to touch on. The first is what do you do with this data to maintain an edge? And I agree with you that the democratization of this technology should mean that these more and more omniscient models are in the hands of more people. Having said that, I think investing is a zero sum game. I don't think everyone can outperform the market. It's mathematically impossible. And so to use this technology to successfully outperform the market wanting needs to have an informational edge, and you get that

informational edge through data, and again, I feel very fortunate to be where we are at Goldman Sachs because we have an enormous amount of data.

For the last 37 years, our team has collected, curated, modeled, cleaned a very large corpus of data, which gives us an informational starting point. It's not the edge, but it's a starting point. Secondly, not to belittle technology but technology needs an investing lens to it.

Meaning you have to build technology that gives you the scale to analyze that data, the scale to do inferencing and the scale to build the analytical platform around it. So technology is very important. The third thing is experience in context. Allison, you had a great question about these models and their output.

And it seems like anything is possible with them. It is, but you have to know what to ask. Because investing is a zero sum game. You have to ask the right question to get the informational edge out of these underlying models. And so the combination of data, technology and context slash experience is what I think gives a handful of investors the edge in this market to outperform meaningfully.

But I do want to get to a second point, George, which is that at the same time I think the markets are getting more complicated and providing more opportunity for alpha in many ways. Let's talk about the markets that existed when we started our careers, there wasn't as many passive investors there.

There certainly weren't as many retail investors as there are today. So if you look at the market today, what I see is an equity market where the clearing price of any securities, often a complex supply demand dynamic across passive investors who are indifferent to the price. Retail investors who are acting with euphoria and sentiment.

Hedgers and other investors were not necessarily maximizing returns and sure alpha seeking investors. So that cocktail means that markets behave in funny ways at times, but may not always be efficient necessarily. So I think there's a lot of opportunity to derive alpha in markets where they're getting more complicated. There's a lot more agents out there. And it presents the data scientists with a way of making sense out of the madness.

Allison Nathan: Yeah, very interesting. And ultimately you bring up this complicated market point, Osman, when we

think about what these models should be doing, they should be able to identify predictable patterns, and then see where you're deviating from it. And that's where the opportunity lies. Do you think the use though of these models is in some ways impacting the market itself. Are they making the market more predictable as quant firms leverage these opportunities? Or are they making them less?

Osman Ali: Yeah, if I go back to think of a model again as this readily available large language model at all of our fingertips. I think the use of that in the hands of an average investor can both make the market more efficient and less. So certainly, there's corners of the markets where you would all agree, or we would all agree there's inefficiency. That there's fewer investors investing, there's less data available. And there's less of an ability to get clean information. The inefficient segments of the markets, small cap stocks, emerging market stocks. One could argue that large language models, given that they have processed the entirety of what's out there on the internet in the public domain, could allow us to at scale identify mispricings and opportunities in those corners of the market that otherwise

would've been hard to find five or 10 years ago using conventional techniques.

So I think in those areas yes, there's probably some price discovery that these models allow the average investor to do and therefore make that segment of the market maybe a little bit more efficient.

But these models, again, in the hands of the average person will create herd behavior, will encourage investors to pile into the same type of securities because they're giving the same output as, random as they may be at from time to time. They'll likely give the same answer to the same type of question and they'll create a different type of inefficiency in the market where crowding and another such forces will push prices away from any sort of fundamental value. We see that happen already with the effect of the retail investor in public markets, whether or not they're using these models to make their decision, we see that type of crowding effect happen. So I think they're creating a different type of predictability and inefficiency in markets as a consequence of their broad use.

George Lee: So, you've made a very strong case for the amount of curation and insight that you bring to data

gathering, and yet with the trajectory of the models that we observe, it seems like there may well be the emergence of a new asset class of fully autonomous investing machines. And there's been some stuff in the headlines about this recently. How do you think about that, which seems to take this theme and approach to its ultimate extreme.

Osman Ali: Yeah, I'll go back to the point earlier, George, about investing is a zero sum game. So unless the markets are perfectly reflecting everyone's view, there's going to be inefficiencies out there. And I see, and the herd behavior and crowding effect surrounding some of this technology as something that will on net make the markets probably less efficient and more predictable to the type of investor who is looking to see exactly what kind of mispricings inefficiencies crowding these models cause. Because if you ask these models the same type of question that are going to give you the same type of answer, which will cause investors to pile into the same type of securities, which will cause markets to move in a direction that becomes predictable in terms of its reversion.

And so, we're spending a lot of time on our team on modeling the investor's psyche to understand what

investors think. The institutional investor is different than the retail investor. The passive investor is different than the active investor. That's a large part of what we model in terms of predicting stock returns.

And one of the things that goes into, at least modeling the effect of the retail investor is how are they making their decisions? What are the tools at their disposal? And as these models start to factor more into that decision process we'll start to see exactly how they're creating the inefficiencies that I'm speaking about.

George Lee: Yep. That's great. Let's wrap up with a question I'm sure you get asked at many cocktail parties which is my child or my friend wants to get into the investing business. And while that's been a pretty traditional and well-trodden path, historically, this may be a moment where new skills, new backgrounds, new ways of thinking are useful. What advice do you proffer to people who make that inquiry?

Osman Ali: Yeah, so I would say especially as you think about a career in investing and where you end up, it's clear that an organization that takes data and technology seriously is going to be critical. An organization that has

invested in data, realized the importance of it, that is technology led, is going to be one that can get an informational edge, but there's also no replacement for experience and context in investing. So, as much as I would advocate a deep understanding of data science, data and technology, I think it's the combination of understanding that those two, alongside with experience and investing in places that take the combination of those seriously, is where I would advocate people start their careers.

Alison Nathan: Let me just ask one more follow up to that because if you look at the size of your team, Osman, as you've adopted these new technologies, is it bigger or is it smaller?

Osman Ali: That's a great question. It's about the same. So we are about a 100 person team around the world. And The number of people hasn't changed meaningfully. That's a combination of a few things. It is absolutely true that a lot of the hard work is done by the machines. You need to have the right people sitting on top of that. But I also think that there's an intimacy to investing that's important, about the size of a team and how tight it is as a global

organization for the amount of assets we manage, where it's important to make sure that you have the right number of people and sometimes more people isn't always better from a cultural standpoint either.

Allison Nathan: Right but it's not smaller.

Osman Ali: Absolutely not smaller. Net Net is larger certainly, but it's not materially larger.

Allison Nathan: Interesting. Thanks very much, Osmond. This has been a great conversation. And George, as we look at all of the insights that Osman gave us, is there anything that stands out to you in particular?

George Lee: First of all, I would echo your comment. I think it's a great and fascinating discussion. I think Osman's comments suggest that the market context really is shifting around us. And I think one of the most provocative and interesting takes here is that these tools, which you might think would converge to a more efficient market, are in Osman's view creating more opportunity, more alpha opportunity, less efficiency. And that's a fascinating takeaway and I'd say slightly counter consensus, but I think extremely well articulated and thought provoking.

Allison Nathan: And also just hopeful in terms of there are going to be careers here, right. that despite the technology and because of the technology. George, always great talking to you.

George Lee: Always great being with you and thank you.

Allison Nathan: This episode of Exchanges was recorded on May 1st, 2026. I'm Allison Nathan.

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