Allison Nathan: As the trends across technology, media, and telecommunications continue to converge, how are companies and investors preparing for the generational tailwinds and macro headwinds that are sweeping across the sectors?

Eric Sheridan: Nothing is worse for the technology sector than decelerating growth, rising expenses. But what I noticed at the conference last week were companies that said the idea of cutting costs for the sake of cutting costs is more behind us than ahead of us. Definitely a narrative shift to now is the time to invest for growth in a responsible way.

Allison Nathan: I'm Allison Nathan and this is Goldman
For today's episode, I'm sitting down with my colleagues in Goldman Sachs Research, Eric Sheridan, who covers the US internet sector and is here with me in the studio in New York. And Kash Rangan who covers the software sector and is joining us from our offices in San Francisco. Eric and Kash will be sharing their views on how the macro environment, the health of the consumer, and of course, AI, are affecting companies and what that means for investors and, ultimately, consumers,

Eric, Kash, welcome back to the program.

**Eric Sheridan:** Thanks for having us, Allison.

**Kash Rangan:** Look forward to it.

**Allison Nathan:** So, let's start with takeaways from last week's GS Communicopia and Technology conference. We hosted more than 2,400 senior leaders across the technology, media, and telecommunications sectors. Kash,
Kash Rangan: First of all, thanks for doing this with us. Investor sentiment was definitely more positive than it was last year because we had a generational shift in technology happen in the last 12 months since we had the last Communicopia and Technology conference September 2022.

In the past 12 months, I like to say that both Eric Sheridan's life and my life, our lives completely changed because of generative AI. The sentiment, and what investors are probably looking for, are signs of generative AI starting to take hold in a mainstream way, whether that's happening or not, that's one thing.

The second is what is the impact of the macro on companies and businesses? And how are CEOs and CFOs sounding today after having gone through one of the fastest rate increase environments that we've seen in corporate America at least in our lifetimes?

And third and final, what is the state of the hiring
environment? And I think the tech sector has been going through a period of retrenchment, layoffs, etc. And this is a sector that badly needs to invest in headcount, capital, in order to continue its growth trajectory. So, there was a lot of expectation that we're going to hear an update on what companies are planning to do from initiatives that could help green state growth such as hiring and capex. So, that's how I would frame the sentiment among the investor community that was here at the conference.

**Allison Nathan:** And so, let's dig into some of that. If you grab onto the theme that you mentioned, Kash, which is how is the macro economic environment, in fact, playing into company performance? What did you hear companies say?

**Kash Rangan:** I think the word that was most commonly cited, which I'm sure Eric also heard quite a bit, was stability. And that's the first sign of a recovery. So, you want stabilization as opposed to declining activity.

I think what we went through the last 12 months since we could do go the September 2022 conference was leading business indicators started to really take a bit of a hit. And
we got to the point where the net new business activity declined pretty precipitously over the last couple of quarters or so.

I think at this point in time, net new business activity has started to really not decline. But hit a stabilization level, which I think is very important. From this point onwards, how that stabilization converts into growth is the next big question. As long as the fear of a recession can be comfortably put behind us-- in that regard, we were really fortunate to have the conference kick off be conducted by Jan Hatzius, our chief global macro economist, and also head of global research. He had lowered his probability of a recession from 20 percent to 15 percent. And I wish corporate America listened to his pronouncements because if that turns out to be true and that we are headed for rate reductions in the second half of 2024, I think that lowers the cost of capital for a lot of tech projects and should really start to unfreeze the back log of projects that have been held up because of this uncertainty.

If there's no corporate CIO, CFO, CEO who would want to engage in a technology project in the face of a recession, those odds coming down, we do think sentiment on getting
these projects going and getting the growth back up, therefore hiring to be supportive of the environment, those should all be headed in the right direction.

**Allison Nathan:** And so, what are we seeing on the hiring front at this point though? Are we seeing companies starting to turn the company in terms of head count?

**Kash Rangan:** Not yet. The growth companies are still hiring. The mature companies that had stalled are not yet. That's the most important thing. If we're looking to a Microsoft or a Salesforce, etcetera, some of the big, mature companies that went through pretty gut-wrenching layoffs to the tune of 10 percent, when they start to resume hiring again, I think we are probably in the clear.

But that's not happening in a big way. But companies are open to the prospect of hiring for the first time in the past six or nine months, which is a really good sign.

**Allison Nathan:** And so, how optimistic are you that we will begin to see that into 2024?

**Kash Rangan:** I do not know a single CEO of a software
company that does not want to accelerate growth back again in 2024. I do not know a CEO of a software company that does not view themselves as very much in a growth mindset. Because the opportunity set all of the sudden with generative AI potentially posing a brand-new tech spending cycle, nobody wants to be left behind. Right?

I think it's just a matter of time that if you want to cater to the demand in the pipeline that has been generated because of generative AI, if you want to go attach yourself to these big, strategic projects and enjoy that surge that this technology promises to provide to productivity, you're going to have to start to hire. It's inevitable we're going to have to start hiring at some point. But this quarter? Next quarter? If you want 2024, it's going to have to pick up.

Allison Nathan: And would you say the same for IT spending in your companies in this sector?

Kash Rangan: It's interesting but a very relevant question that you asked, Allison. One of the companies had presented, ServiceNow, the CEO of ServiceNow, made a very aggressive, and I hope he's right, he has been right so
far, made a very aggressive forward-looking statement with respect to the state of IT spending. He, Bill McDermott, expects IT spending growth rate in calendar '24 to accelerate 2X the levels of calendar '23 growth rate.

Now, if that were true, it's not going to be a positive just for one company, it's going to be positive for the entire sector. So, I think when you go through periods of retrenchment, it's easy to get caught up in the negativity and try to extrapolate the present. But to me as an analyst covering this sector, it's the most fun time when we're coming out of a down cycle. That's when the rate of change, coupled with the excitement with new technology, not just economic conditions becoming more conducive and we need to start hiring back again, but then we have something to look forward to.

Like we came out of the 2009/2010 great financial crisis with Cloud computing, right? A major catalyst for tech spending. So, this time around, coming out of this cycle, with the promise of generative AI, things are looking quite exciting.

Allison Nathan: And Eric, let me bring you into the
conversation given the main points that Kash had highlighted as points of focus. Are you seeing some of the trends that Kash was talking about playing out in the internet company space?

**Eric Sheridan:** We're seeing more of the dynamic that consumer spending has sustained at a level that has persisted longer than people thought it would have six, nine, 12 months ago. I think in a rising rate environment, I probably have been asked more about when does the consumer tip into a recession, even in growth areas like the internet, more over the last 12 months than I ever have at any other point in my career. I've never quite seen a recession in waiting like this for as long as it has been in the minds of investors.

And generally, in multiple pockets of consumer discretionary behavior, ride sharing, food delivery, travel, e-commerce, we had CEOs on stage last week who expressed demand is sustaining at elevated levels. Pricing is sustaining at elevated levels. Supply on the labor side is sustaining above where it was a year ago when a lot of these platforms had to pay higher wages and pay incentives to bring people back into their marketplace driven
workforces because the labor environment was so tight.

So, you literally have this balance of sustained consumer spending, supply of labor to meet the commerce initiatives that's creating a nice balance of supply and demand. I thought Uber's CEO Dara Khosrowshahi struck the balance well. And he said on stage with me that this was the best he had ever felt about his business in multiple years going back to before the pandemic.

**Allison Nathan:** So, there's an expectation that this resilience will continue?

**Eric Sheridan:** There's still fear and cautiousness among investors. I would say investors have not yet pivoted to what I would call a risk-on mindset. When you think about it, you cover a range of companies from very large liquid ones, all the way down to small, less profitable ones. There's still a lot more interest in the large, scaled, profitable companies inside the sector. And building offensive portfolios around those types of names as opposed to just you need to own every stock and valuation being less sensitive.
Which goes to another theme, that I think was pretty persistent at the conference last week, which is management teams striking the right balance of growth and margin, was something every investor wanted to hear about. All of us on the GIR side wanted to ask management teams about that. So, that was probably one of the other big hot button topics in terms of businesses as they go into 2024.

**Allison Nathan:** And in fact, one of the key themes seems to be more of a "show me the profits" type of theme. And so, do you think that companies have made progress in that focus on profitability?

**Eric Sheridan:** They definitely have. And if we rewind the clock a little bit, we went through earnings season for Q3 of last year in October and November. And there was stagnating growth and rising investments. And to Kash's earlier point, there wasn't yet the generative AI theme to excite investors about secular growth in the broader technology sector.

Nothing is worse for the technology sector than decelerating growth, rising expenses. That is something
that will compress multiples very quickly. And you saw, probably, the biggest de-grossing of the sector I've seen in my career outside of a bubble bursting like '99 in the December/January timeframe.

You've hosted any number of people inside Goldman Sachs on forums like this Allison that have talked about the sell-off in tech that occurred from November to January/February over that four-month period at the end of '22, beginning of '23. Companies got the message. You saw reductions in force. You saw slowdowns in hiring. You saw unprofitable projects being cut.

But what I noticed at the conference last week were companies that said the idea of cutting costs for the sake of cutting costs is more behind us than ahead of us.

You didn't yet see "we're going to go back into full-blown hiring and full-blown investments." But definitely a narrative shift to now is the time to invest for growth in a responsible way. So, you're going to see this mix of growth into next year that's married with rising margins, but maybe not the outsized improvement in margins driven by efficiencies that we've seen over the last six to nine months.
Allison Nathan: And let's dig a little bit more into AI. Of course, as you both mentioned, the key topic of the day, the month, the year. And we've talked a lot about moving from the excitement phase of this new technology to more of the build phase. Eric, talk to us a little bit about how companies are looking to deploy AI in their products and strategies at this point and how much progress they've made since just this first idea came to the market less than a year ago.

Eric Sheridan: Yeah. I think both Kash and I have stories to tell about how this technology will be deployed to the outside world. And then the link between our two jobs inside Goldman is the hyper scalers or the Cloud computing landscape where you're seeing a rising demand dynamic around needing computing to promote generative AI.

With respect to the consumer, you're seeing in the shape of products like Bard from Google and ChatGPT from OpenAI and the consumer has gotten used to interacting with these bots and engaging and creating content. And there's a big of a rising narrative of how those products might change
consumer internet habits.

The most interesting dynamic over the last six months is they haven't been changed all that much just yet. We're still searching on the internet. We're still opening mobile applications. We're still going to browsers. So, initial fear that it led to a big drawdown in stocks like Alphabet and Amazon in the months of March and April of earlier this year have abated as those companies have said it looks like some of the big shifts in consumer internet habits are going to take longer durations to play out.

The analogy here would be the shift from desktop computing to mobile computing. At one point in time there was a lot of fear of disruption in consumer internet habits. But it actually played out over a much longer duration than the initial fear factor from investors years ago.

The bridge between Kash's world and mine is Cloud computing. There needs to be more computing power for all the development cycles that are going on. Alphabet as a company as a leader with Google Cloud, their CEO was at the conference last week. AWS within Amazon or within my coverage universe. And we see stable to rising trends
generated by AI that could be an interesting growth narrative as we turn the page into '24.

**Allison Nathan:**  And Kash, maybe you could speak to a bit more about how the software companies are attempting to monetize AI and where they are in that process.

**Kash Rangan:**  Practically every software company that presented at the conference, we had a total of, like, 50 plus, and personally I was running point at about 27 - 28 presentations. And the topic of generative AI was touched upon proactively or reactively during every one of these presentations.

It's got massive consequences for productivity, whether it's the sales domain or the customer support domain or marketing domain or developer. Practically, every professional worker, their roles and responsibilities, including our roles and responsibilities stand to be profoundly reshaped over the next several years.

And I think software companies have increasingly started to put out products in the marketplace. Microsoft has Copilot. Adobe just put out a product called Firefly. The list
goes on. However, the one thing that I would say is that maybe the industry and Wall Street got a little bit excited about the timing with which AI products would hit the marketplace. And the timing of AI, in fact on revenue and profitability at Microsoft, Adobe, Salesforce, Servicenow, all that got a little bit too compressed in terms of expectation.

The reality is that products are not shipping yet. Even the great Microsoft Copilot is not shipping yet. There are 600 customers that have access to a limited control release. And we're going to see a parade of product releases hit the market starting Q4 of this year, Q1, Q2, Q3, Q4 of next year. So, as these products hit the marketplace and we start to see the early read on productivity, I think the next leg is how do you build an investment case as to how these budgets can be justified? Something’s going to have to give, right? There aren't infinite IT budgets and tech budgets to advance AI projects. So, this where the best products are going to shine, the ones that have the maximum impact on productivity. Whether it's the front office or the back office. Their products will get sponsored and their budgets will be taken to the top of the priority stack.

And we're going to have to wait for another one to two
quarters before we can start to see the real impact to productivity and the bottom line.

Allison Nathan: So, what indicators or metrics are you most closely watching to begin to identify what is really moving the needle on productivity as these products are released over the course of the next year?

Kash Rangan: Once the beta program is done, and I think Microsoft's Copilot beta program is well underway, 600 customers having access to this exciting technology, companies will be publishing the results of these surveys. Now, if you talk to very large firms, they have had access to the private data. And they have done their own [UNINTEL] studies and have released numbers, which I have heard anecdotally, the developer domain where the technology, the Copilot technology has to really spit out code. So, we don't need to be programmers. I'm generalizing at a super high level. But that has a result of a boost in productivity to roughly 15 to 20 percent.

So, if we look at the cost of a developer and we look at the number of developers a firm has, you're looking at several tens of millions of dollars, maybe hundreds of millions of
dollars in savings. So, once this gets manifested in the mainstream, then you're going to see real adoption start to happen because who would not want to save tens of millions of dollars or hundreds of millions of dollars?

**Allison Nathan:** And so, as we were discussing, Eric, these stocks that are so exposed to interest rates and then you have this generative AI coming in, they re-rated lower. They re-rated higher. If we look at the universe today, where are we? And are you optimistic on valuation from here? Or is a lot of this already in the price?

**Eric Sheridan:** I am optimistic and among the companies in our coverage universe that are going to get this balance right as we talked about before of generating double digit revenue growth, much better than what people feared in the October to December '22 timeframe. But against a rise in margin narrative. So, there'll be investments for growth, but reallocation of resources in a responsible way to drive growth with an eye towards more profitability inside their broader mix. And I think those are the companies who are going to be rewarded with rising multiples.
It is interesting, though, the down draft in earnings estimates that occurred when people were worried at the end of '22 about slowing growth and rising investments has also led to an earnings revision cycle this year. So, certain stocks, their earnings estimates one years out are double than what they were in December of '22. And yes, their stocks are up a lot. But the multiples have only gone up a little bit.

The V-shaped downward draft and recovery in the stock market over the last 12 to 15 months has been just as much about earnings estimates as it has been about the multiple. And I think as investors get more comfortable with that narrative and aligning good multiples against good multiple versus growth stories, you can still see stocks work in my sector.

Allison Nathan: And Kash, as you've been saying, a lot is yet to be seen and proven in your sector. So, ultimately, how much is already priced into the stocks you cover? Or is there runway for a lot more upside from here as these productivity results are revealed?

Kash Rangan: Yeah. I think if you look at the
[UNINTEL] stock prices, there has been a bit of a pull back and a realization that a lot of what investors have come to expect, and frankly even analysts talk we have come to expect are we're not going to be seeing the result of that very short-term.

So, you've seen companies put up good numbers. But just not raise expectations for next year because of generative AI. The stock prices go down despite a good [UNINTEL].

I think you've seen a healthy correction. And that might even continue a little bit more, especially because management teams that come out of calendar '23 are not going to jump up and down getting excited enough to raise guidance or call for accelerating revenue growth at this stage of the cycle. So, there could be some room for disappointment.

But make no mistake, the longer-term trends are certainly in place. And even if we didn't have generative AI, there is a cyclical component to this recovery that IT as a percentage of GDP, IT as a percentage of capex, software as a percentage of IT, Cloud as a percentage of software, it's all going structurally higher over the next four to five years.
So, where are we with respect to valuations? Look, valuations are a function of growth. The best companies in my space that have the most attractive growth opportunities and put up the best growth and margins to Eric's point do command an extremely high multiple of 14, 15 times revenue, sometimes 40 - 50 times [UNINTEL]. So, I think the tech investor is very discerning. They don't treat this as a basket. They are looking for individual ideas.

You don't own the entirety of the universe. You're looking for singularly positively well leveraged companies to major technology trends. And if you have to pay up to own a winner, historically that's been the best way to achieve alpha in technology.

**Allison Nathan:** Eric, Kash, thanks so much for joining us.

**Eric Sheridan:** Thank you, Allison.

**Kash Rangan:** Thanks. It has been great fun.

**QUESTION:**
Thanks for listening to another episode of Goldman Sachs Exchanges, recorded on Friday, September 15th, 2023.

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