The Daily Check-In with Goldman Sachs
With Tammy Kiely, Co-head of Technology Investment Banking and host Liz Bowyer, Head of Brand and Content Strategy
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Liz Bowyer: Hi Tammy.

Tammy Kiely: Hi Liz.

Liz Bowyer: You're Co-head of Technology Investment Banking at Goldman Sachs and have spent many years advising clients in the semiconductor industry. One of the biggest stories in that industry right now is the shortage of semiconductors. What's happening?

Tammy Kiely: So, it's super well publicized that the semiconductor industry is going through a supply crunch right now. And really, what happened was this went back to the start of COVID. And COVID is clearly the biggest contributor to what's happened here. You know, at the start, we saw a lot of softness in the automotive market and then other consumer exposed applications. And so, not surprisingly, if you are an automotive maker or a big consumer electronics maker, folks tended to pull in their orders or reduce them. And so, the overall demand had gone down quite a bit.

And if you look at just the automotive market, for example, in April and May of 2020 the year over year revenues were down over 20 percent in each of those months. This is a pretty dramatic swing. When you combine that as well with the fact that you actually did have a lot of factories that had some initial disruption as folks were sorting out who are essential workers, what workers can we have on the floor, what are going to be the safety protections that we put in, you also had that further complicating the ability to get products manufactured.

Liz Bowyer: And so, what does this mean? What are the effects of the shortage that we're seeing?

Tammy Kiely: That's a great question. The latest figures I have seen have average lead times in the industry, so, place an order until you actually can get it of 14 weeks. And anything more than 13 weeks is generally viewed to be in the danger zone. So, we're definitely in the danger zone.

Liz Bowyer: And where are you seeing the most pressure points across the industry?

Tammy Kiely: Yeah, so, interesting we are seeing the most challenges and most supply constraints on more trailing edge or older technologies. So, things like micro controllers, power devices, products along those lines. And these are products that run rather than five nanometers where you have a lot of the most advance CPUs and GPUs running today, these are products that run on 28 nanometers or 40 nanometers. And these are areas where most of the manufacturers of products of these types of products are running their factories using fully depreciated equipment. You know, these tools have been around for over a decade. And so, their cost model as well, it's very much variable cost. Their cost structure is based on them running these products on fully depreciated equipment. And so, there also has not historically been real incentive to continue to buy more old equipment brand new. And then you're adding depreciation to your cost structure.

And so, there's also an element here that has driven the economic behavior and the investments by companies that are producing products in these areas.

Liz Bowyer: And this problem isn't something that can be solved overnight in the semiconductor industry, right? This requires some time to address.

Tammy Kiely: Yeah, adding new capacity in the industry is complex and it takes time. You know, typically to build a new factory and then install all it, if you're starting from scratch, takes two years. And so, these are not things that can be addressed very quickly. Even if you are fortunate to have extra factory floor space, it often takes more than six months to install equipment as well as to get the equipment up and running. And so, again, these are just things that take a long time to actually resolve.

Liz Bowyer: So, Tammy, many manufacturers in recent years have prided themselves on their lean inventory practices. But what do you think this semiconductor shortage might mean for some of those companies?

Tammy Kiely: I definitely think many companies will start to rethink where are the critical vulnerabilities in their supply chain. You know, one case study here is with Toyota. And Toyota has been one of the auto OEMs that has actually fared the best with the shortage. And it's attributed largely to the fact that just about ten years ago with the Fukushima disaster, they had

massive supply issues with respect to semiconductor. And so, Toyota has been methodically going through what are the key semiconductors that they need? And have made sure, very methodically, that they have access to the right parts in the right timeframe. And this is a company that was known for having very lean inventory and just in time approaches. You know? But ten years ago, they definitely learned a lesson about the need to have good resource planning in place.

Liz Bowyer: Tammy, we talked about this a little bit last time. That there's a real geopolitical lens to the semiconductor industry. Is that playing a role in what's happening now?

Tammy Kiely: With respect to a geopolitical perspective, the current shortage has a lot more to do with COVID than any geopolitics. I think there is a bit of a conflation out there in terms of is the current issue a function of US/China tensions, or is it something else? And it really is something else. It was really about COVID.

You know, there is some smaller element of geopolitics in here that is affecting where we are specifically seeing shortages and with which companies. You know, obviously with some of the regulatory restrictions put on Huawei that's very much reduced their ability to actually sell handsets. And so, we are seeing volumes going to other Android participants, which has put pressure on key suppliers in the Android ecosystem such as Qualcomm. But again, this is a much smaller contributor to the overall challenges being faced from a supply perspective.

Liz Bowyer: So finally, Tammy, how do you think this chip shortage might play out for the rest of the year? And what kind of effect do you think that might have on prices?

Tammy Kiely: So, that's a great question. Most people in the industry think that this supply shortage, particularly for certain parts, could easily last through year end. And again, this is because of the long lead times that are required to put in new capacity. And quite frankly, even to make semiconductors. We have been seeing in some places some price increases, particularly around the areas of micro controllers, for example, and other critical components. So, I definitely think you will see some price-- we are seeing some price increases in this current environment. But I would say the other dynamic that many companies are spending time thinking about and focusing on is do the orders overshoot? So, how much double ordering is going on today as companies are trying to stockpile and make sure they

aren't ending up in a shortage position again? And so, as much as we've had a very V-shaped recovery from a demand perspective, looking forward, I do think we see some risk in the industry that this could overshoot as well. And again, that's something that we are all watching very closely.

Liz Bowyer: Thanks Tammy.

Tammy Kiely: Thanks Liz. Always great to see you.

Liz Bowyer: You too.