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PRESENTATION

Christopher Caso - *Crédit Suisse AG, Research Division - Research Analyst*

All right, everyone. Good morning, so welcome back. So again, I'm Chris Caso, covering semiconductors here for Crédit Suisse.

Our next presentation is Texas Instruments, which I'm sure you all know. Here from TI is Haviv Ilan, the Chief Operating Officer of TI. So Haviv, thanks for attending.

Haviv Ilan - *Texas Instruments Incorporated - Executive VP, COO & Director*

Thank you.

QUESTIONS AND ANSWERS

Christopher Caso - *Crédit Suisse AG, Research Division - Research Analyst*

And maybe as I kind of jump right in, and we're speaking about it a little before, what's -- on all investors' minds right now is the cycle and kind of what's the same and what's different in this cycle. And I think what's interesting for TI is you guys have been through a number of cycles yourself, you certainly do not manage the business around the cycle.

And I think that's been some of the controversy this year, is that you are looking out for a 10-year plan. But perhaps you can give some perspective, and you've been through some cycles yourself about perhaps what you may see similar and different to past cycles from what you have right now because you have seen some weakness in some areas and some areas, some strength?

Haviv Ilan - *Texas Instruments Incorporated - Executive VP, COO & Director*

Chris, thanks. I'll start with a high-level comment about what you described how we do cycles and we've had plenty of them. I had (inaudible) more. And in general, we do -- we never ignore the cycle. We watch it, but we do spend 90%, 95% of our time on how to get prepared for the next opportunity or looking beyond the cycle, especially with many of the actions we take, they have long lead time in terms of how do they convert the results.

So if you think about getting capacity in place, getting our inventory in the right levels, that's where I spend a lot of my time and not ignoring the cycle, watching it, but it's going to do what it wants to do. We have to think beyond that, and that's where the energy of the company is, it has to be. Specifically, the cycle has been in some ways different because maybe not all markets are behaving the same.

And we've seen PE and notebooks, so personal electronics and notebooks starting in Q2, they've talked about, we are seeing spreading weakness in industrial into Q3. And then automotive is still holding, but I'm not going to try to predict what it's going to do and when. But my high-level view is that they're usually correct. So that would be my guess, if I have to, as Dave mentioned during the last call -- last earning's call.

Christopher Caso - *Crédit Suisse AG, Research Division - Research Analyst*

Yes. And saying that, not necessarily because you know something, but perhaps because you don't know and not...

Haviv Ilan - *Texas Instruments Incorporated - Executive VP, COO & Director*

We don't know exactly. I mean you simply not know, but do they usually behave the same? Maybe yes. So it would be a high-level guess.

Christopher Caso - *Crédit Suisse AG, Research Division - Research Analyst*

Right. Maybe you could dig into industrial a little bit. And you said one of your competitors' analog devices had reported recently, and they talked about some stabilization and they had started to see some cancellations back in the summer and expressed some caution on that.

And more recently, the optimism was that there was some stabilization in orders. I didn't exactly get that from you folks on your recent earnings call. So I wonder if you maybe contrast what the -- what you're seeing and maybe is it somewhat different than we heard from ADI?

Haviv Ilan - *Texas Instruments Incorporated - Executive VP, COO & Director*

Yes. I think I don't have a lot to add here to what Dave said in October. We left to let the quarter run its course and then we'll see what it did in January when we bought back. I will say that industrial, again, if you look at the secular growth in industrial, we are excited about it, and that's why we spend so much time preparing for that next opportunity because content addition in industrial less visible than what you see in automotive, but it's across all the sectors, all the end equipment.

We are excited about that, and it will drive -- it's a big engine that will drive the industry in the next 10 years and beyond. I think it's in the early phase of change and adoption of semis. I will also say that our position in Industrial and Automotive has been stronger than it ever was. We finished 2021 at above 60%. So again, as I said, our eyes on what it can do in 2025, 2030 and getting the company ready for that opportunity.

Christopher Caso - *Crédit Suisse AG, Research Division - Research Analyst*

Right. And that seems to be precisely why you're embarking on the CapEx program that you are and spending for that, what Dave has told me in the past, which is a mantra in the company, as you'd rather be 3 years early than 3 months late...

Haviv Ilan - *Texas Instruments Incorporated - Executive VP, COO & Director*

Absolutely.

Christopher Caso - *Crédit Suisse AG, Research Division - Research Analyst*

Right. And unfortunately, over the last 1.5 years, the whole industry, and certainly, I put myself in that shoes of -- I was surprised at the resiliency of the macro post-COVID. And there was some opportunity that was lost due to shortages happen when the capacity in place. And I suppose that's why you're embarking on this program.

Haviv Ilan - *Texas Instruments Incorporated - Executive VP, COO & Director*

Yes. And again, we have embarked on the program even before the cycle. Think about our RFAB2. We have started that investment back in the previous cycle, and we didn't get a lot of cheering at the time why are you investing in a downturn time. But -- could RFAB2 been even earlier for us and would serve us even during that cycle? The answer is yes.

So again, we want to be prepared for the next opportunity. But in general, if you go to the TI performed in a cycle and what we have seen, I think we've done okay. The beginning of the cycle was little counterintuitive to us internally, but Rich was very convinced. Let's run the factories open and at full capacity in the second quarter of '22 -- of '20, sorry, demand was vanishing during that time. There was no demand.

And it served us very well. We've built a nice level of inventory that served us almost through the middle of '21, but we ran out, ran out of gas, and that's part of the lessons learned to your point of how we prepare for the next one. So getting capacity ahead of demand and having it at the right level, but also at the right location and this concept of, we call it, geopolitically dependable capacity that can ease customer minds of where the parts are coming from. And can I rely on TI for the long term. That's a very important parameter.

The second one is, as I mentioned before, getting the right level of inventory because our parts, most of them have this unique attribute of diversity and longevity. So building ahead that inventory die by die, part by part at the right levels, according to the future potential demand of them could serve us very well for the next opportunity. So I spend the majority of my time on a couple of these actions.

Christopher Caso - *Crédit Suisse AG, Research Division - Research Analyst*

Right. If we go back to what you said around middle of 2021 when you started to run out and you ran the fabs hard before that, but then things got tighter. At that time, TI was often one of the first companies that your customers have talked about of being short. And of course, you're the largest in the industry.

So perhaps that's it. Do you feel that you -- the shortages that happened in 2021 and 2022, put you in any competitive disadvantage? Or is it just simply a function of you're the biggest guy in the block. So in an industry that's short, you're the first one customer is going to speak about because you're the largest?

Haviv Ilan - *Texas Instruments Incorporated - Executive VP, COO & Director*

First, I think there is a parameter of that, statistically, I mean, the breadth of our products, the number of customers and also our decision to support all of them. So in a way, you can say, "Hey, let's now select the customer base we're going to support and maybe make life a little easier." But we said, no, we're going to support all of your customers, even if you're a smaller industrial customer in Europe and you don't have the voice or the pockets that the big customer has.

We took that approach. It's a very hard one because you kind of have maybe more folks to take care of. And statistically, you have maybe even more challenges, but the team has done very well. And not only that we grew in all markets, we biased the growth into industrial into automotive across a very high breadth of customers, and I think it will serve us very well.

But even more than that, customers, especially in industrial and automotive are paying for more attention to these issues because, first, their bill of material is now more based on semis compared to before because equipments are being redesigned with more electronics in them.

And us having the plan that we have with our RFAB2 in production with Lehi ramping in Q4 this year, that's a great strategic advantage for us because customers do care about this capacity coming online, especially on the 130-to-145-nanometer, think about analog product, think about flash-based products for embedded, having that capacity and already ramping now and having it the right locations, it's a great advantage, and I think customers are turning to us and we'll see that materializing in the years to come.

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Christopher Caso - *Crédit Suisse AG, Research Division - Research Analyst*

I want to pivot to that a bit and speak about your manufacturing strategy is different than most of your competitors. And what your competitors have been doing largely now is moving into sort of a long-term supply agreement situation with customers, the large customers. And that's being back up since mostly competitors use some degree of foundry being backed up as long-term and supply agreements from the foundry. How is TI's approach give you an advantage?

Because you have the captive capacity. So perhaps that makes it less important for you to enter a long-term supply agreement because you don't have a secondary agreement with a foundry partner, it's your own capacity. But the other side is you want to keep your fabs loaded as well. So how does TI do that? And how is it different than what maybe ADI might do?

Haviv Ilan - *Texas Instruments Incorporated - Executive VP, COO & Director*

No, Chris, I think it is different in the sense that we own our manufacturing plan, we put an aggressive plan to have, as we said, capacity ahead of supply. And we tell our customers, you don't need to write these long-term agreements with TI.

Now we do have discussions with customers that when they understand the level of investment and they understand where the capacity comes from, I do believe they turn to us, but we don't harden that discussion because I think it's simply not good customer service because customers would have changes in the next 5 and 10 years, and they want to have that flexibility.

I think it's just better customer service, to have the capacity ahead of their demand, having the right level of inventory, so they can count on us as they grow their business. And then you talk about those many customers, and we have tens and thousands of them that you can write LTAs with all of them. And some of them don't have the financial means even to commit to such a deal.

And I think serving these customers is as important to us. So I do believe that, again, we've stayed very disciplined to our competitive advantage of controlling our supply chain, controlling its cost, it's just -- and we've done it for years. I mean we've come with this strategy 10, 15 years ago, but I think customers get it now, and they do realize that what we do is going to serve them very well.

Christopher Caso - *Crédit Suisse AG, Research Division - Research Analyst*

So maybe to paraphrase and correct me if I am wrong, it's case of TI is making that investment in ahead of demand. And whereas -- because you do it yourself, you can make that decision on your own and see where the market is going, whereas perhaps the competitors have to convince the foundry that -- to make that investment have to make some commitment to it, whereas you control that decision on your own.

Haviv Ilan - *Texas Instruments Incorporated - Executive VP, COO & Director*

It's controlling the decision. Also, the confidence we have is high and part of that confidence has grown. I mean we came with that plan earlier in '22 during the capital management call. And since then, we talked with so many customers.

So since then, our excitement, our confidence in our plan has grown, it is a big debt. It's a big spend to build a 300-millimeter wafer fab. It's not an easy investment. But again, the secular growth of what the market will do and our position in these markets and our ability to control our supply plan, I think, will pay dividends in the long term. So I agree with what you said.

Christopher Caso - *Crédit Suisse AG, Research Division - Research Analyst*

What leverage do you have? And I think the investor concern that kind of goes around with fab is well, what happens and what happens if we hit a downturn, you're making that capital investment. You have to go through a period of underutilization. Are there ways that you mitigate that in the event of a downturn event, it's not different this time. We do see automotive and industrial slow? Or is that a case of TI is just willing to take that risk right now? Looking at it over the 10-year lens that it's going to be better for you over a 10-year period.

Haviv Ilan - *Texas Instruments Incorporated - Executive VP, COO & Director*

Good question. From a high level, it's kind of the letter, meaning we can time our investment to the cycle because by the time the market wants to go up again, it's going to be too late to meet investments. So we -- and the lead times of building these factories are years. This is not measured in quarters.

So we do have to stay very disciplined about it. And again, we don't ignore the cycle, but we don't let it lead our strategic decisions. But having said that, there is always tactics. So these factories are very efficient. So running our material or parts there versus old technologies is important.

We announced the closure of our last 150-millimeter wafer fabs, so we can -- the forte of through of running the factories or either building the inventory to the levels you want or just getting the nice cost advantage when you run the variable cost to run a wafer in a 300-millimeter wafer fab which is just so much better, we will take this tactical decisions. So we are thoughtful about it. But again, can't led the cycle slow us down and getting ready for the next one.

Christopher Caso - *Crédit Suisse AG, Research Division - Research Analyst*

Right. Maybe pivot a bit. And one of the things I always think is interesting with analog companies is the R&D process and the product selection process. We always felt that was a differentiator, just making investments in the right place in the right time, not chasing a market, being ahead of it. Maybe you could speak to how TI does that?

Haviv Ilan - *Texas Instruments Incorporated - Executive VP, COO & Director*

Absolutely, Chris. And growing up in R&D and then going into the business, I spent most of my career there. It's actually an exciting process that we run. And our -- is everything that we do, our approach to R&D has always been steady and in long term. Maybe not everything it shows on the P&L because we also had some restructuring in the last 10 years that we had to go through.

But if we just take analog, for example, so we had a very steady hand on the analog investment over 20 years, okay? And continuously grew our portfolio, continuously grow our market share. And the way we do it, and people talk about broad and breadth of products, but the fact of the matter is that each and every product has to be very competitive. It has to be at low cost. It has to be high performance.

And otherwise, over time, you fall out of competitiveness. So we pay a lot of attention on that topic. We have tens and thousands of products into hundreds of product families into 65 product lines and it's a granular detailed work that we do. I think the way we spend R&D is, again, steady hand, but very efficiently. I do believe in the concept of scarcity when you put R&D in play because that's how the team would choose the best opportunity and get the best party, the best return on investment over time. And I think TI is becoming better and better at that.

So again, our commitment to R&D investment has always been there. I will say, if I referred to the past decade. We did have a lot of moving parts, getting out of wireless, the comms business and making some big shifts in R&D. That's more or less -- I mean, there is always fixes and shift you do. But -- most of that work is behind us. So I'm very excited about the future. We are now -- we have based our R&D in the areas we want to have. The last work we've done was on the embedded side. And from here on, I expect a very steady hand on R&D moving forward.

Christopher Caso - *Crédit Suisse AG, Research Division - Research Analyst*

Right. And you mentioned embedded. That was my next question, is that's one of the areas that you sort of have changed your focus. Is that -- well, I mean, one is from an R&D and investment standpoint, is that done? And then what does that mean for sort of embedded growth going forward? Does that become a smaller piece of revenue over time as some of the R&D has been reallocated?

Haviv Ilan - *Texas Instruments Incorporated - Executive VP, COO & Director*

So again, the embedded R&D was not reduced. It was, as you said, reallocated into the best opportunities and I'll describe it in a high level. We've done that 3 years ago, I think. We embarked upon it and most of that hard work is done, meaning get your R&D based on the best product portfolio, and we think about it as how do you align your investment to your competitive advantages.

So manufacturing technology, can you build this product internally? Lehi is a great example. It will enable us that 65-nanometer flat, 45-nanometer part, that's where embedded is mainly based in. Think about the breadth of our portfolio. Can we concentrate on product that have this idea of they can serve multiple customers, multiple end equipment, multiple sectors.

And that's where we are taking that investment and then use the channel advantage to get them into customers and design the need. So that work is from restructuring from an R&D retuning is done. It's a hard part, as I said, the product is starting to come out, and that's where the excitement is. We are seeing the early indicators of that business can be performing very nicely for our future. I have very high confidence with what I hear from my sales team. And how they reallocate their resources to go and put their energy around these parts. And it will be a great contributor to free cash flow growth.

Now we are not trying to match margins to the analog product. We do think about how that embedded business generate cash for us and free cash flow per share growth, and it came. So I don't want to tell you an exact timing, it most of the hard work to your point is, I think, is behind us.

Christopher Caso - *Crédit Suisse AG, Research Division - Research Analyst*

Okay. I guess maybe I'll take a pause here. If there's any questions in the audience or let you think about them in a second. Randy, you want to ask one there?

Randy Abrams - *Crédit Suisse AG, Research Division - MD and Head of Taiwan Research in the Equity Research Department*

A short-term question on China, how you're seeing the low end of the market, pricing competition, inventory demand if that has much impact in the mid- to long term, how much you see the impact of localization or local suppliers ramping up?

Haviv Ilan - *Texas Instruments Incorporated - Executive VP, COO & Director*

So China market and how much of it (inaudible), I think we reported that shipping to China, it's about 50%. But if you look at revenue, we ship to customers headquartered in China, it's about 25%. That would be the number. So that's your first part of the question. And again, China has been a very competitive market for us for several years now.

And yes, we do see competition there, local competition, as you said, and these are hungry aggressive companies that we compete against. But the market is growing and it's big and we want to play there. So we are competing. And we tell internally to our team, say China is going to be harder, but it's still a great opportunity.

So we are very committed to that opportunity. I will say that, again, the competitive advantages for us in China play a big factor. So you mentioned price, but controlling our manufacturing and our costs. I mean, we are competing with fab-less and [AT] less companies, okay? And these folks, the foundries that they use or the AT don't give the pass for free, okay? There is a margin stacking there.

So I think we can be very competitive on cost. The breadth that we have is just incomparable. So I -- most of this competition and I have 65 product lines in the company. The typical competitor in China, usually attacks half a product line or a couple of product families just because it's very hard to build that product. It takes time and expertise and technology in many, many years.

And the breadth is helping us because when you engage with the customer and you have a set of parts of the offer, that it's a big advantage. And when you move into this, the market that we serve automotive, but especially industrial, you do have to reach many of the customers. And that's -- you need the scale here.

This is why you see most of these competitors kind of more narrow or more vertical in terms of their product offering and the same on the markets they attack because they do look for a high level of concentration of revenue per socket, if you will, because otherwise, you need the scale and the breadth to go attack it. And that's how we address the competition there.

I always say to my team, if you're going to be on par with the same price, same performance, same level of service, as a local competition, you will lose, okay? So you do have to be ahead. So if it's a tie, it's going to go away. But I think our ability to compete in China is strong, and I think it's even growing with the investments we are making.

Randy Abrams - *Crédit Suisse AG, Research Division - MD and Head of Taiwan Research in the Equity Research Department*

Follow-up question. Just on the pricing environment. Some of your competitors that use more foundry, they're selective price increases and they're passing it on. How do you see TI just industry pricing and your pricing outlook into next year?

Haviv Ilan - *Texas Instruments Incorporated - Executive VP, COO & Director*

Yes. So I'd like to separate cost and price, right? So to me, pricing is set by the market, and we always had a steady hand on that, thinking about the long-term opportunity for us to share gain -- to gain share, and we that's how we price. We price with a very steady hand like everything we do.

Now when the market turns up and prices go up, we react. We don't -- we just -- we don't ignore that. And pricing did contribute to some of the growth in the last couple of years. But our approach is always make pricing a non-barrier for customers to adopt us, but that's not how we gain share.

Customers turn to us not because low price. They turn to us because what we have, our capacity, the breadth of the product portfolio, the performance, the breadth of the technology and the process technology we have, and that's how high-performance analog work. So I don't think that's going to change in the future.

Christopher Caso - *Crédit Suisse AG, Research Division - Research Analyst*

If I could follow on that, though, because the reason and what most of your competitors say is they've raised prices because their input costs have gone higher, foundry costs, in particular. And if you're using TSMC, TSMC had to raise price in order to make investments in lagging edge because they needed to get the same margins between both.

In your case, your investment -- your costs are still going higher. The used tools that you've got in the financial crisis that does no longer available. So your price is going up, perhaps do you feel that your costs are going up at a lesser rate such that you can either be more pricing -- say price aggressive, but more attractive to customers. Or that you don't have to follow those same steps? Is it does it work out to be a competitive advantage for you?

Haviv Ilan - *Texas Instruments Incorporated - Executive VP, COO & Director*

Yes. I think there is a competitive advantage on the way we control our costs, and I'll touch upon it in a minute. But at the end of the day, why did prices go up, it's always like supply and demand mismatch right. Demand was high, supply was scarce and then that's what happened. And does it fix over time? It depends on how fast it does. It depends because you're right, the investments are the intensity of the investment is higher.

The access to used tools for a company like TI also is -- if I look at Alpha-1 versus Alpha-2, it's a big difference. And even Lehi that we bought a year ago, it's a mix because we got a shell and we got some used tools, but you also had to augment the factory with new tools because you can't find the used tools like it used to before.

However, the return over the long term is still wonderful. So even with new tools, that is a great investment or a great ROI for TI. And that's why we are embarking upon that investment. Now regarding do we have a better control of our cost, I think we do. I mean if you just -- you mentioned foundries look at their margins and what they did, right? So we -- when we control our input costs, and we are not immune or insulated for inflation, but when you own your manufacturing capacity, I think it's a competitive advantage. And I think it will serve us in the years to come, and it will fall through to your question.

Christopher Caso - *Crédit Suisse AG, Research Division - Research Analyst*

But do you think, the longer term, that this elevated cost of manufacturing analog now is now sort of a permanent phenomenon such that we're not going to go back to where we were 5 years ago where these used tools were available. This is something that's permanent. And therefore, the pricing increases that we've seen in the permanent because one of the investor concerns is the pricing is going to come back down once demand slows down.

Haviv Ilan - *Texas Instruments Incorporated - Executive VP, COO & Director*

Yes, I would say, and again, the way we plan forward and still decided to make the investment, we believe capacity investment or capacity or capital intensity, let's call it, it's not going down. So I think that's a fair assumption. That's how we make assumptions, and that's how we decide to make decisions whether we want to invest or not.

And what the industry will do will determine pricing, meaning -- is there going to be -- if I'm worried of oversupply. I'm not very worried about it. What we know is that to support our growth or our ambitions, we need to make the investment because there is no free capacity out there that you can just grab your -- put your hands on. So we want to control our destiny. We do want to make the investment. I think it will pay off and that's the direction we are taking, Chris, I don't know, hopefully, that helps.

Christopher Caso - *Crédit Suisse AG, Research Division - Research Analyst*

Yes. No, it does. And one final one. And with regard to kind of how this affects cash flow going forward. Certainly, cash flow is how you manage the company. And now that we've kind of set this investment level, it doesn't sound like necessarily that the capital investment needs to go higher from where you are right now.

And I suppose that as you start to utilize the new fab and such, we should start to see the cash flow results starting '23, '24 as we're kind of at this new level of CapEx revenue grows whatever as we get through whatever downturn we're going to see, and you start to see that in your free cash flow. Is that an accurate description?

Haviv Ilan - *Texas Instruments Incorporated - Executive VP, COO & Director*

Yes. Again, the unknown is what the cycle wants to do and what the shape of it going to be. But if you look beyond, if you just take a trend line. This is where, as you said, these investments, you don't need to wait 10 years for that to fall through to your point, meaning once you put the investments, fab is moving wafers, the variable cost to run them is very attractive and that's what we intend to do.

Now free cash flow is a parameter not only of your CapEx, it's also what revenue will do, for example. And that's where we -- as I said before, we have to think about it in the long term. The -- but when we run the what if, assuming that our assumption that the market can grow in a higher rate because of the secular changes in industrial and automotive because of content addition.

And if that sits on a certain trend line that we believe in, and we make that investment, and I'm not talking about a specific here, but free cash flow per share can grow very nicely. And it will have to come from top line growth, mainly because there is not a lot of margin leverage we have left. But our confidence of that investment falling through and being a great -- producing great results on free cash flow per share is very high. And maybe we'll -- we'll end with that. I know we are out of time.

Christopher Caso - *Crédit Suisse AG, Research Division - Research Analyst*

Yes. That's a good way to end. We thanks -- thanks for joining us today...

Haviv Ilan - *Texas Instruments Incorporated - Executive VP, COO & Director*

Thank you, Chris.

Christopher Caso - *Crédit Suisse AG, Research Division - Research Analyst*

Appreciate it.

Haviv Ilan - *Texas Instruments Incorporated - Executive VP, COO & Director*

Pleasure. Thank you.

Christopher Caso - *Crédit Suisse AG, Research Division - Research Analyst*

Thank you.
