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EDITED TRANSCRIPT

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PRESENTATION

Christopher Brett Danely - *Citigroup Inc., Research Division - MD & Analyst*

Okay. I think we're on. I can hear the crowd, feel the crowd. Good morning, good afternoon, good evening, wherever you are. I'm Chris Danely, your friendly neighborhood semiconductor analyst here at Citigroup.

Next up is Analog Devices, one of our topics by rated name for quite some time. I understand we're starting a little bit late. So I'll forgo my usual lengthy introduction. And just introduced -- introduce Prashanth Mahendra-Rajah, the CFO; and he's also joined by Mike Lucarelli, the Grand Poobah of Investor Relations.

Gentlemen, thanks very much for joining. I know last week, you had a capital allocation call Prashanth, and then formally closed, I guess, the Maxim acquisition. To start off, could you please provide a brief recap of that, and then we'll go on from there.

Prashanth Mahendra-Rajah - *Analog Devices, Inc. - Senior VP of Finance & CFO*

Great. Yes. Good morning, Chris, and good morning, everyone, for -- thank you for joining for the ADI session of the Citi Conference. So Chris, you're right. We closed the Maxim deal and we wanted to give ourselves just a couple of weeks to get our ducts organized. And so we had our capital allocation call last week. So the quick recap of that is as we move forward now with this enterprise that's on its way to surpass the $10 billion in revenue, the focus really is on taking the strong cash flow generation and returning that to investors.

So if I go through all the elements of it, from a debt standpoint, we're very comfortable with the outstanding debt that we have right now, look for us to continue to refinance that as and when opportunities present themselves. We're targeting a leverage ratio on average of about 1.5, but I expect that we're going to be well below that for some period of time, and then we'll see opportunistically if there's a right time to take on more debt.

From a dividend standpoint, we're targeting 40% to 60% of our free cash flow to be returned or a dividend payout ratio. We've historically grown our dividend. I think it's always an odd number for us.

Michael C. Lucarelli - *Analog Devices, Inc. - Senior Director of IR*

17x

Prashanth Mahendra-Rajah - *Analog Devices, Inc. - Senior VP of Finance & CFO*

17x over the last 16 years, right? So very, very consistent growth in dividend. We expect that we will continue to be a regular increase in dividend, and we see that really as the cornerstone to our capital allocation policy.

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And then the rest of that cash generation is really to be used for share repurchases. What we've done last week is following the deal close, the Board authorized an incremental $8.5 billion of share repurchases, bringing our total authorization to $10 billion. We've committed to do $2.5 billion of that over the next couple of months through an ASR, which was launched last week.

We expect to do another $2.5 billion of that before the end of next calendar year. So we'll have -- we'll eat through about half of that authorization and then maybe another 18, 24 months to get through the balance of that authorization, but look for us to be really active buyers of the stock. We're excited about the combination with Maxim, and we see this as really a great opportunity for investors to kind of join us in our commitment to what this company can do.

QUESTIONS AND ANSWERS

Christopher Brett Danely - *Citigroup Inc., Research Division - MD & Analyst*

Excellent. Just to run through some of the points on the Maxim acquisition in the announcement last week. So right off the bat, you said it would be accretive earlier than expected. Can you talk about what's driving the earlier accretion?

Prashanth Mahendra-Rajah - *Analog Devices, Inc. - Senior VP of Finance & CFO*

A few things. One, as part of the negotiations with Maxim, we agreed to suspend their dividend payment. Over the year that it took to get us through the approval process, Maxim had a very strong year, and we ended up with a bit more cash on their balance sheet as well as ours. That allowed us to be a little more aggressive in the share repurchase that we announced last week.

And then second, because it took a little bit longer to get that deal approval, we had more time from a planning standpoint to get into the wiring of how we're going to execute on those synergies. So we're able to deliver the synergies a bit faster than we had originally planned, and that helped pull forward that accretion by about 6 months.

So we're going to be modestly accretive in -- by the fourth quarter of '22, and then look forward to increase as more synergies begin to layer in. And then we also will have the continued benefit of the share repurchase activity that I talked about.

Christopher Brett Danely - *Citigroup Inc., Research Division - MD & Analyst*

Great. Yes. So on the share repurchase, it seems like the ASR was perhaps a little bigger than most of us expected. And then you also increased the buyback. Maybe talk about the reasons for that.

Prashanth Mahendra-Rajah - *Analog Devices, Inc. - Senior VP of Finance & CFO*

Really, I think it's a commitment. And it goes back to that capital allocation philosophy that this is an enterprise that has significant cash flow generation. We have a very small capital expenditure requirements. We're comfortable with the debt we have. So all that cash is really available for shareholders. So we're plowing it back into the stock as quickly as we can. And I think you'll see that for -- not just for the next couple of months, but really on an ongoing basis.

Christopher Brett Danely - *Citigroup Inc., Research Division - MD & Analyst*

Fair. And I've had a few of your larger shareholders ask me this. Can you give us some insight or talk about the thought process into how you, I guess, arrived at how much cash flow you're going to put towards the buyback and then how much you're going to put towards the dividend?

Prashanth Mahendra-Rajah - *Analog Devices, Inc. - Senior VP of Finance & CFO*

Yes. Really, it's -- we look at the -- the dividends still remains kind of the cornerstone of how we think about capital allocation. We have had a lot of conversations about what's the right model for targeting that dividend growth. I recall for the last couple of years, our dividend growth, Mike, was a CAGR of 12%?

Michael C. Lucarelli - *Analog Devices, Inc. - Senior Director of IR*

11%.

Prashanth Mahendra-Rajah - *Analog Devices, Inc. - Senior VP of Finance & CFO*

11%. Thank you. 11%. So we've been really aggressive on the dividend growth as we move through this combined enterprise, we do want to be conscious of having a little more flexibility in those annual dividend increases. So we felt targeting a payout ratio and frankly, in conversation with a number of shareholders that seem to align with how they would like to think about the company's policy, it helps them from understanding their own modeling in terms of how to think about capital return. So we've given ourselves a range there. We will look to continue to increase the dividend, operate within that range. And then as I mentioned, all additional cash is really to reduce share count.

Christopher Brett Danely - *Citigroup Inc., Research Division - MD & Analyst*

Yes. And it seems to me that at least -- maybe it's just me, it seemed to me that the tone on the call and going through our capital allocation and everything, it strikes me, is this is sort of the quota to your M&A. You guys have made 2 large acquisitions and 1, I guess, relatively smaller acquisition. Do you feel like you're pretty much done? Like there's no other M&A possibilities out there, nothing else you really want? Is the book closed there?

Prashanth Mahendra-Rajah - *Analog Devices, Inc. - Senior VP of Finance & CFO*

Yes. I guess I'll say a few things. First, for the near term, it is 100% focused on delivering both the cost synergies and setting us up to deliver revenue synergies. So that really is how we think about the coming quarters. Over that period, I would not rule out the occasional tuck-in where a small technology makes sense to bring into our ability to take that to scale.

So I always exclude tuck-ins from that. But beyond that, really, the focus is get Maxim done and then let Vince kind of architect what do we do longer term as we get beyond this. So that's probably a better question. I know you're having dinner with Vince tonight. So that's a good question for you to ask him.

Christopher Brett Danely - *Citigroup Inc., Research Division - MD & Analyst*

Great. Yes. He said I can have dinner with him any time as long as I pay for it. I do get this question quite a bit from investors really throughout the acquisition and, say, you guys already bought Linear, you have a large power management business, you're buying another power management business. Why Maxim, why more power management? Is there any risk of overlap there, if you can just address that?

Prashanth Mahendra-Rajah - *Analog Devices, Inc. - Senior VP of Finance & CFO*

Yes, yes. So they are very complementary, very complementary. You need to think of Linear really as a standard products business that focused on the broad market. So lots of small customers. And really, that was -- Linear's model was to find the customers that were not being served as well by the larger power players and target that group with a standard product and, of course, extraordinary margins.

So very much focused on the long tail standard products. Maxim's power business is really more focused on the verticals, a little more customized and focused on bringing it into areas like the data center where they have a particularly strong position, automobile and really, as we're learning a very nice set of products -- power product for consumer, low power that helps with the high battery efficiency that's needed for IoT.

So very complementary in how they sit. As I worked with the Maxim folks over the last couple of days of this week, they're pretty excited about getting access to the micro modules that Linear has developed and expanding that into their portfolio. So we're already hearing a lot of internal chatter about where the technology road maps can be quite complementary.

Christopher Brett Danely - *Citigroup Inc., Research Division - MD & Analyst*

And it's been a little over a year from when you announced it till the close. And I know you can't go in there and start ordering people around, but I would imagine you had some knowledge, some access, anything you've learned about Maxim that surprised you in the last year, either up or down?

Prashanth Mahendra-Rajah - *Analog Devices, Inc. - Senior VP of Finance & CFO*

On the upside, they have had some important wins that we were privy to because of limitations and how much information could be shared while we were still competitors in waiting regulatory approval. So now we have much better access to their design win pipeline and been impressed by a couple of the wins that have come across there.

We are more impressed than I think we were even at due diligence about an internally developed manufacturing process they have that is targeted for 300 millimeters that has some pretty measurable cost advantages. They have very few products that have actually launched on this because they're really using it more -- much of their products are being designed on but haven't gone to production. So we're pretty excited about doing the same for our products that are in development.

I would say we are surprised at the strength of the combined company in BMS. I think both companies being a bit paranoid had maybe a little bit underestimated our strength in BMS. And now that you have the ability to share that information, we feel very good about how well we're positioned in automobiles and how those road maps are going to come together to really create some power for the combined company.

Christopher Brett Danely - *Citigroup Inc., Research Division - MD & Analyst*

So I'm getting some questions. (Operator Instructions) One that keeps getting asked is do you think that the sort of combined gross margin of you guys, plus Maxim, can get back to the previous peak where ADI was?

Prashanth Mahendra-Rajah - *Analog Devices, Inc. - Senior VP of Finance & CFO*

I do. I do. I don't want to put a time frame on that, but I think that comes from a couple of different areas. Really as a combined enterprise, we are going to have more pricing power, more purchasing power. And once we get kind of through this chaotic supply-demand imbalance, I think you'll be able to see kind of the normal strength that comes with that scale.

I feel that there that, as I mentioned, there are some manufacturing synergies that have yet to be fully mapped out, and that will also be productive. And then I think as going back to the rationale for the deal, there are certain areas of the customers' board where ADI always gets the first fall. And our ability now to sweep more of that content with a larger basket will allow us to be more effective and all of that should translate into more scale.

I want to say we -- I think we mentioned on the call, we're going to probably have an Investor Day in the early part of 2022. So I'll hold our model for then. But don't expect us to really be giving you an investor model that has very -- even more impressive gross margins. We're very comfortable with 70% plus, really industry-leading, and our goal is to drive the top line growth with those strong margins and make that drive more cash flow.

Christopher Brett Danely - *Citigroup Inc., Research Division - MD & Analyst*

Sure. Another question on that is, how is the sort of distribution channel network strategy differ between ADI and Maxim? And what are the plans there?

Prashanth Mahendra-Rajah - *Analog Devices, Inc. - Senior VP of Finance & CFO*

Right. So we shared at the -- I think in the capital allocation call, Vince got a question, and we said that we are intending to rationalize our use of distribution. So there will be -- there will likely be 1 distribution partner. We have not made that determination yet, and I wouldn't want to get ahead of ourselves as both those companies are also publicly traded. But I think we can tell you that we're going to go down to one, and we're in the process right now of having those conversations.

With scale, we will be able to -- we'll be able to handle more of our customers direct, but there will still be a very sizable portion that runs through distribution. We value distribution in its ability to reach that long tail of industrial customers, and particularly customers in more hard-to-reach geographic locations as well.

Christopher Brett Danely - *Citigroup Inc., Research Division - MD & Analyst*

Yes. I know you guys went through some distributor consolidation a while ago. Can you maybe just run through that again for the crowd? And then also, how did it work with Linear?

Prashanth Mahendra-Rajah - *Analog Devices, Inc. - Senior VP of Finance & CFO*

Sure. So I can do that, but I'm going to have Mike do it because that's predated my joining of ADI. So just so I don't get the timing of the events wrong.

Michael C. Lucarelli - *Analog Devices, Inc. - Senior Director of IR*

Yes. So with Linear, when we closed Linear, we moved to 1 global distributor, well, we moved to Arrow. It took about a year after that to kind of move all the products through Arrow, I would say. And it was ongoing. It wasn't just because of Linear. Linear was Arrow shop-only. ADI was at an Arrow shop, and we decided the best path forward to reach the most customers and grow our business the best on the top line from a broad market perspective was moving to Arrow.

And I think, as Prashanth said, we're going through that process again to understand which one has the best reach and the best ability to grow our business profitably.

Prashanth Mahendra-Rajah - *Analog Devices, Inc. - Senior VP of Finance & CFO*

Wherever we land on that, I think that it will end up being a win-win for ADI and for the distributor because there is a -- there's obviously a consolidation step that comes with this.

Christopher Brett Danely - *Citigroup Inc., Research Division - MD & Analyst*

Yes. And then I know after the Linear acquisition, you, at least, gave a relative growth rate of ADI versus Linear. Will you be doing the same thing with Maxim? And how would you expect those relative growth rates to trend maybe for the first year or 2 years or 3 years or however time line you want to go out?

Prashanth Mahendra-Rajah - *Analog Devices, Inc. - Senior VP of Finance & CFO*

Yes, I'm going to hold off on committing to anything right now. I think there's more work that we want to do in getting our arms around where those revenue synergies are going to come from. We feel good that much of the headwind that Maxim has faced in consumer is behind them. So I think that you'll get a more true picture of Maxim's ability to grow on a go-forward basis. And then we'll supercharge that with really the combination of our sales force being able to have more in their basket to work with as well as kind of the ADI strategy to do more solution-selling versus component-selling.

Christopher Brett Danely - *Citigroup Inc., Research Division - MD & Analyst*

Okay. And with all these shortages and people scrambling around for capacity, could you maybe go through the manufacturing strategy of the combined entities? And maybe give us a sense of ADI, foundry versus internal Maxim, foundry versus internal and then how that's going to work going forward or at least what the goal is?

Prashanth Mahendra-Rajah - *Analog Devices, Inc. - Senior VP of Finance & CFO*

Yes, yes. So on an internal risk external across all stages of manufacturing. ADI legacy 50-50. On a combined basis now with Maxim, it's closer to 60-40, I think is the way to think about that. We see multiple opportunities as we look at the manufacturing footprint on where we can be more -- where we can find some efficiencies. Maxim has got some great locations that have capacity that we know we can do more at.

We look at Maxim's use of third parties and it's a very different footprint than what ADI uses. So that's also attractive for us in terms of diversifying our manufacturing. We feel good about our kind of negotiating influence with suppliers in certain areas.

So overall, I think that will be part of the Phase II level of synergies that we'll disclose more about in the coming, I guess, in the next quarter or 2.

From a longer-term trajectory, what I think -- I would say I'm most excited about is Maxim's got a 300-millimeter process that is homegrown and it is very flexible in which founders you can operate it in. So that gives us the ability to move more of our ADI design work onto that same manufacturing process and then allows us to have a bit more flexibility and optionality as we think about which foundries we run that process at.

And through that, I think we're going to be able to drive significant scale. So there's -- that we'll be able to get the advantage of scale to drive significant leverage. So I'm optimistic about, over the longer run, how that helps the overall margin profile for the company and allows us to really use that flexibility to drive revenue growth.

Christopher Brett Danely - *Citigroup Inc., Research Division - MD & Analyst*

That's interesting. So -- go ahead.

Prashanth Mahendra-Rajah - *Analog Devices, Inc. - Senior VP of Finance & CFO*

Go on, Chris. I was going to tell you (inaudible) manufacturing type for the back end. On the back end, both ADI and Maxim are more internal on the test sides. We're probably 70%, 80% internal on test. And on the assembly side, it's the opposite or more external, maybe 70% to 80% external on the assembly side. And that's really just a function of where the value add is.

On test, test is a secret sauce in Analog, knowing what to test and how to test it is very much part of the IP of what allows you to be cost efficient in Analog. So that's something that we like to keep in-house because we know how to be efficient and effective in test. And for the assembly side, that's really a scale game, and we're comfortable with third-party vendors to handle that activity.

Christopher Brett Danely - *Citigroup Inc., Research Division - MD & Analyst*

Just one question on the Maxim 300-millimeter process. I believe ADI has one, too. Is it possible for you to take an ADI product on your 300-millimeter and then port it to the maximum 300-millimeter process? Or is it possible to take, I guess, new designs in your pipeline and port them over to their process?

Prashanth Mahendra-Rajah - *Analog Devices, Inc. - Senior VP of Finance & CFO*

It is. It's more likely to be used for new designs versus existing products. Again, the challenge of the analog business and particularly the ADI portfolio, is when you have as many SKUs as we have, nothing is at such a volume level where it makes sense to really run it like jelly beans. These are -- these tend to be more batch driven. And therefore, we are -- the amount of effort required to do a redesign on an existing product. Normally, the volumes won't support it.

Christopher Brett Danely - *Citigroup Inc., Research Division - MD & Analyst*

Yes. I've never heard ADI's products being referred to as jelly beans. That's a new one. On the sort of the combined entity, I would assume that since your foundry volume is going up, that you would get some better pricing? Is that possible? Is that true? Is that -- is there any potential there?

Prashanth Mahendra-Rajah - *Analog Devices, Inc. - Senior VP of Finance & CFO*

We're in early stages of discussions on that. So I think it's probably premature. Obviously, the supply demand imbalance is putting stress across the supply chain. So we need to let that play out and get past this unique area to get to really what is more steady state to be able to answer what a long-term strength of scale give us.

Christopher Brett Danely - *Citigroup Inc., Research Division - MD & Analyst*

Sure. And then on that larger scale, I know you guys are getting pretty big now. Your main competitor, I forget their name, has their own 300-millimeter fab. It would seem that you're getting pretty close to being able to fill your own 300-millimeter fab. Could you maybe talk about the puts and takes of doing something like that? And then is that a roll out or is it a possibility?

Prashanth Mahendra-Rajah - *Analog Devices, Inc. - Senior VP of Finance & CFO*

No. It is -- with ADI, it has always been a make-versus-buy decision. And with scale, the business rationale for a make gets better. But we are also conscious if there is significant government subsidies going in around the world into developing foundry capacity, and we want to be mindful of the buying opportunity that presents for us as well as more foundries are established with the help of government subsidies, whether in the U.S. or elsewhere and what incentives might be available for them, does that overcome the benefit we might see versus an internal manufacturing decision.

Christopher Brett Danely - *Citigroup Inc., Research Division - MD & Analyst*

Yes. And then...

Prashanth Mahendra-Rajah - *Analog Devices, Inc. - Senior VP of Finance & CFO*

So we'll continue to evaluate that and keep investors apprized as we go through that.

Christopher Brett Danely - *Citigroup Inc., Research Division - MD & Analyst*

Great. And then also on your sort of split between internal-external, how do you see that trending going forward? And I ask that because I talked to some of your customers. And I guess, there -- they sort of blame some of these shortages on too many people chasing too many foundries or too many people chasing not enough foundries.

Would you think that you might take a little more capacity internally or change that mix more internally? Or maybe go externally and add some foundry partners. How do you think that sort of plays out?

Prashanth Mahendra-Rajah - *Analog Devices, Inc. - Senior VP of Finance & CFO*

Yes, I do think that we are probably likely to shift a little more internally, and that's because we have -- we're getting some clean room capacity as a result of the acquisition that we're going to see what's the right way to optimize that. So you probably will see a little bit more -- some internal, if we're at steady-state volumes.

But it's hard to say how that mix plays out with the volume -- with the overall volume growth that we see and whether that volume growth is on products that are made internally. So for a steady-state basis, yes, probably a bit more internally, but mix can have an impact on that.

Christopher Brett Danely - *Citigroup Inc., Research Division - MD & Analyst*

Yes. And if you did take more product internal, would that mean higher gross margins as well since you're not paying the extra foundry tariff?

Prashanth Mahendra-Rajah - *Analog Devices, Inc. - Senior VP of Finance & CFO*

It depends on multiple variables. So I wouldn't want to commit. We've talked about the synergies we got from Linear, which included closing down that Hillview fab. And in closing that Hillview fab down, the volume for that Hillview fab, some of it went internal and some of it went external. But overall, we were able to drive cost synergies from that. So it isn't as straightforward as, if you can make it internal, you can get a better price point.

Christopher Brett Danely - *Citigroup Inc., Research Division - MD & Analyst*

And then I've asked this question to other semi companies before. Do you think that these severe shortages were going through right now, is this just a symptom of COVID? Or do you expect similar instances for subsequent upturns? And is ADI looking at doing anything differently, whether it's higher inventory internally, higher inventory in the channel? I know certainly, there's some of that being discussed out there.

Prashanth Mahendra-Rajah - *Analog Devices, Inc. - Senior VP of Finance & CFO*

Yes. Chris, I think the dynamics that got us to where we are today in this supply-demand imbalance was a combination of -- there has been a strong semiconductor content growth across so many manufactured items on all different end markets and applications.

And that content growth was not as apparent because over the last couple of years, there have been some different parts of the economy growing at different rates. So you had tremendous growth in consumer electronics at a time when automobiles were not selling and so on and so forth.

You're in a period now where really all manufacturing sectors are booming. And with all manufacturing sectors booming, you really see the benefit of that content growth. So the likelihood that on a go-forward basis in this world that we will have prolonged growth in all end markets, that's unlikely.

So I do think that there will be some leveling out just across the industry as more of the -- more of those end markets kind of go through their normal cyclical point and get to leveling out. I think the content story states, and that is what investors have to appreciate is.

The content growth in manufactured products, the amount of semiconductor content going in is only going to go up. We may not be -- we may see end market cyclicality, but underlying that end market cyclicality will be just share gain for semiconductor versus other components in manufacturing.

Christopher Brett Danely - *Citigroup Inc., Research Division - MD & Analyst*

And if you look at the shortages out there, is it still most acute in automotive? And do you think it gets worse before it gets better? Do you think we're starting to get a hold on it, either ADI or as an industry?

Prashanth Mahendra-Rajah - *Analog Devices, Inc. - Senior VP of Finance & CFO*

Yes. For -- let me answer for ADI specifically, they are a hotspot. So it moves -- it really feels like that Whack 'Em All game where it pops up with one particular product or one particular step of manufacturing, and that may impact a couple of segments or a couple of end markets. And then once we address that, it will move somewhere else.

So it really is -- the focus of manufacturing is now constantly what is the rate determining step across all of our products and what can we do to increase capacity and reduce that bottleneck. And then that bottleneck will move somewhere else, and then we'll go attack that.

From an industry standpoint, I think that we're going to be in this for a bit longer. I -- last -- earlier this year, I think we had -- ADI had said, it was probably going to go into the early part of '22, and we kind of hold that view. It is -- it's probably mid '22 before we see the normalization.

Christopher Brett Danely - *Citigroup Inc., Research Division - MD & Analyst*

Sure. And I guess using the Whack 'Em All analogy, are you seeing more moles popping up now than you did last quarter as far as these hotspots? Or are you seeing more hotspots out there or is it about the same?

Prashanth Mahendra-Rajah - *Analog Devices, Inc. - Senior VP of Finance & CFO*

I would say that it now would feel relatively consistent. One of the metrics that we use is escalation calls. What's the frequency of customers calling for escalations? And that's an important metric because our view is that if customers were building inventory, they're not going to be escalating. So you escalate when you are at risk of a production issue. So escalations are continuing, but I would say they're at a stable, elevated level.

Christopher Brett Danely - *Citigroup Inc., Research Division - MD & Analyst*

Sure. It'd be nice if you include that as a line item on your P&L when you guys report the quarter, by the way, put it in the Qs or something. And are you seeing basically the worst areas or shortages in automotive? Or is it across the board? Is it everywhere? Is it any easier at any one particular area or end market? Or maybe give us a little color there.

Prashanth Mahendra-Rajah - *Analog Devices, Inc. - Senior VP of Finance & CFO*

Yes. I would say that the automotive customers have a good megaphone. So they've done a nice job of amplifying the constraint that it's pausing their manufacturing and the subsequent impact on jobs. So they are probably getting -- they're the loudest, but I don't know that they are any worse than other industries, but they're just more organized, the larger customers, and they're more sophisticated in drawing attention to the supply chain problems.

Christopher Brett Danely - *Citigroup Inc., Research Division - MD & Analyst*

Yes. I feel like a doctor. Everybody is asking me when they should buy a car. Maybe go into your, I guess, capacity expansion plans, taking sort of Maxim out of the equation, what's ADI doing to try and grab as much capacity or extra capacity as possible? Are you expanding your, I guess, foundry repertoire and bringing on new foundry partners? Does that even work? Trying to ramp up the fab. Maybe talk a little bit about that?

Prashanth Mahendra-Rajah - *Analog Devices, Inc. - Senior VP of Finance & CFO*

Yes. Yes. So we made a decision for legacy ADI to start putting orders on semi cap equipment companies in the third calendar quarter of 2020. So we were fortunate that we got in line early to help bring some of the tools that were necessary for us to expand the production capacity that we have, and that's helped us to generate sequential -- quarterly sequential improvements in revenue.

One of the challenges, I think, that we are getting our arms around now is is Maxim didn't make the same type of investments. So we've got some investments to make on Maxim's behalf. And frankly, the challenge is going to be the waiting line for some of that semi-cap equipment is longer than we'd like it to be.

So there's probably going to be some challenges there for us to be able to get what we need. I think one item that will help us is -- most of those semi cap equipment companies, while we are their customer to procure equipment, we are also their supplier to provide technology. So we will use those relationships to see how we can help each other out.

Christopher Brett Danely - *Citigroup Inc., Research Division - MD & Analyst*

Got it. By the way, there's been some talk of all these shutdowns or COVID issues in Malaysia. Are you experiencing any back-end issues? Is back-end -- any problems out there?

Prashanth Mahendra-Rajah - *Analog Devices, Inc. - Senior VP of Finance & CFO*

We did have a bump in our third quarter, and there was a period of third quarter that Mike and I thought guidance could have been at risk. But the manufacturing team made up for it. And as you guys know, we printed above the midpoint, but they happen from time to time. I think the experience that the manufacturing team has now is they know how to respond to these much faster. So there's a lot of logistical and organizational things that we've learned from 2020 that are now being implemented.

So we can take these on with stride much, much easier. And we know how to contact trace, how to sequester, how to bring in additional workers to offset that and where to hold inventory. So all those lessons learned from 2020 are allowing us to manage these, the surprises as they come and feel good about holding to our commitments.

Christopher Brett Danely - *Citigroup Inc., Research Division - MD & Analyst*

Sure. We only have a few minutes left, so I better take a couple of audience questions (inaudible) the clients tend to yell at me.

One is there's like 2 or 3 on this sort of subject. I'll aggregate them. With all this capacity coming online, do you guys worry about too much capacity coming online?

Prashanth Mahendra-Rajah - *Analog Devices, Inc. - Senior VP of Finance & CFO*

We don't. Again, the -- it's a -- these are not commodity products. So we're talking about building capacity for -- or we're talking about leveraging capacity for products that are designed in with customers. And if it goes back to the old story we always talk about. The Analog content, as it represents a percentage of the bill materials is very low.

And it is usually not in a customer's interest to design us out to replace us with a lower cost alternative, just given that we represent a relatively insignificant part of the BOM, provide significant value, their engineering dollars are usually spent elsewhere. So more capacity would ideally put -- in a theoretical world, would put downward pressure on pricing.

But we haven't seen that over the course of the analog industry, right? Because it's always been a very, very high-margin business, and it's a reflection of the value that we create and the stickiness of our products.

Christopher Brett Danely - *Citigroup Inc., Research Division - MD & Analyst*

Yes. It's nice to be in a business with crazy high barriers to entry, indeed. A finance question from the virtual crowd, I guess, what is your historic CapEx to sales? And are you going to have to spend or elevate your CapEx going forward?

Prashanth Mahendra-Rajah - *Analog Devices, Inc. - Senior VP of Finance & CFO*

Yes. So our historical model has been around 4%. This year, I think we're probably going to land at 5%, north of 5%.

Michael C. Lucarelli - *Analog Devices, Inc. - Senior Director of IR*

Close to 5%.

Prashanth Mahendra-Rajah - *Analog Devices, Inc. - Senior VP of Finance & CFO*

Close to 5%. I think, is where we're tracking it. It's both a spend number and a revenue number, which is why I don't know the percentage off the top of my head.

Our view is, for the coming year, it's likely to be a little bit elevated again because of the investment we have to make for Maxim, but we feel very good that kind of longer term, get us past 2022, and you should be able to see the benefits of scale and that percentage of revenue would continue to improve, and that will be accretive to cash flow.

Michael C. Lucarelli - *Analog Devices, Inc. - Senior Director of IR*

And I think one important point is also the catalysts we put in place is for the back end for the test business. For us, we do internally. And that's for near-term demand and long-term demand also. Those products there are fungible across markets and technologies. So we've increased CapEx some 4% to 5%, but it's really for the long term of our business and the growth aspirations we have on the test side mainly.

Christopher Brett Danely - *Citigroup Inc., Research Division - MD & Analyst*

Yes. And by the way, in terms of your back-end capacity, how much is internal versus external?

Prashanth Mahendra-Rajah - *Analog Devices, Inc. - Senior VP of Finance & CFO*

We share that, Mike?

Michael C. Lucarelli - *Analog Devices, Inc. - Senior Director of IR*

Actually, I don't know it on a combined basis with Maxim. In -- I would say I know for ADR proper. If you look at what on the back end, the test is about 70%, 80% internal, and assembly is the opposite. It's about 70%, 80% external, I think Maxim is similar.

Christopher Brett Danely - *Citigroup Inc., Research Division - MD & Analyst*

Yes. They are really quite in there. On the test side, bringing it more internal, would that help alleviate any of these shortages or anything out there? Or does that not really matter?

Prashanth Mahendra-Rajah - *Analog Devices, Inc. - Senior VP of Finance & CFO*

Not really matter. I mean the -- as Mike said, with the majority of our tests being internal, it's really about getting all of test driven, getting them online. You probably remember that when we did Linear, we were trying to move Linear's test facility in Singapore to a combination of Malaysia and the Philippines.

We simply haven't had enough downtime to move the equipment, right? So the tools need to be on the water for a couple of weeks to get to their new locations and we can't take them down to move them. So we're continuing to run Singapore. At some point, we'll be able to bring in the rest of the cost synergies.

Christopher Brett Danely - *Citigroup Inc., Research Division - MD & Analyst*

Yes. One more on, I guess, sort of raw material costs. Could you comment on wafer pricing? Are you just passing those higher costs to customers? Or is that hampering your margin efforts?

Prashanth Mahendra-Rajah - *Analog Devices, Inc. - Senior VP of Finance & CFO*

It's -- our plan and, to date, our success has been to hold margins by matching the cost increases that we're getting with the prices out to our customers, and that's our plan on a go-forward basis. So we are intending to manage this to be margin neutral.

Christopher Brett Danely - *Citigroup Inc., Research Division - MD & Analyst*

Great. And with that, we're out of time. Thanks again, guys. Appreciate it,

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Prashanth Mahendra-Rajah - *Analog Devices, Inc. - Senior VP of Finance & CFO*

All right. Thank you. Thanks so much.

Michael C. Lucarelli - *Analog Devices, Inc. - Senior Director of IR*

Thanks, everyone.