Applied Materials (AMAT) Q2 2023 Earnings Call Transcript - May 18, 2023

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Applied Materials (NASDAQ: AMAT)
Q2 2023 Earnings Call
May 18, 2023, *4:30 p.m. ET*

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Prepared Remarks:

Operator

Welcome to the Applied Materialsearnings conference call During the presentation, all participants will be in a listen-only mode. Afterwards, you will be invited to participate in a question-and-answer session. I would now like to turn the conference over to Michael Sullivan, corporate vice president.

Please go ahead, sir.

Mike Sullivan -- *Corporate Vice President*

Good afternoon, everyone, and thank you for joining Applied's second quarter of fiscal 2023earnings call Joining me are Gary Dickerson, our president and CEO; and Brice Hill, our chief financial officer. Before we begin, I'd like to remind you that today's call contains forward-looking statements, which are subject to risks and uncertainties that could cause our actual results to differ. Information concerning the risks and uncertainties is contained in Apply its most recent form 10-Q filing with the SEC.

Today's call also includes non-GAAP financial measures. Reconciliations to GAAP measures are found in today's earnings press release and in our quarterly earnings materials, which are available on the IR page of our website at appliedmaterials.com. Before we begin, I have a calendar announcement. On July 11th, Applied plans to host a Semicon West technology breakfast from 7:30 a.m.

to 9 a.m., Pacific Time. We plan to announce a major new platform and lead a heterogeneous integration panel featuring executives from AMD, Intel, and Qualcomm, along with Besi and the EV Group. You can register by visiting the events page of our IR website. There won't be a webcast, so we hope you'll join us in San Francisco.

And with that introduction, I'd like to turn the call over to Gary Dickerson.

Gary Dickerson -- *President and Chief Executive Officer*

Thank you, Mike. Applied Materials delivered strong results in our second fiscal quarter, with revenues in the high end of our guidance range. Across the business our teams are executing well, successfully managing a dynamic near-term environment, making progress with our longer-term strategic initiatives, and introducing enabling new products and solutions for our customers. Despite macro headwinds, our outlook remains favorable, and we expect to outperform our markets in 2023, thanks to our balanced market exposure, our strong position at key technology inflections, which is driving demand for our differentiated products, especially in metal deposition, CVD, etch, implant, thermal processing, and ebeam, and our growing service business, which is increasingly subscription-based.

In my prepared remarks today, I'll cover our perspective on the market, both the near-term dynamics and our longer term, secular growth thesis, how Applied is positioned to outgrow the industry this year and over the longer-term, and finally, the investments we are making to create more value for our customers and productively scale the company. In 2023, challenging and evolving macro conditions are impacting the semiconductor industry both negatively and positively. Demand that is directly driven by consumer electronics is clearly weak, while demand, driven by inflections in technology and strategic, regional supply chain investments, remains robust. This contrast can be seen in our customers' investment levels.

Weakness in PCs and smartphones is a key factor for memory customers who have significantly reduced their investments in 2023. Measured as a percentage of total wafer fab equipment, memory spending is tracking at its lowest level in more than a decade. In leading-edge foundry-logic, we have also seen customers trimming their spending plans for the year. We see these changes as timing adjustments, as these companies remain fully committed to their long-term roadmaps to win the race for technology leadership in this market.

Push-outs in leading-edge investments are being offset by increased strength from customers who serve the IoT, communications, automotive, power, and sensors markets. Over the past quarter, we've revised our 2023 ICAPS forecast upwards with demand being driven by two interconnected factors. First, ICAPS customers are delivering critically enabling technology for large, global inflections that will play out over the next decade. These include clean energy, electric vehicles, and industrial automation.

These inflections are driving significant innovation. At Applied, we have released more than 20 major new ICAPS products since we formed our ICAPS group four year ago. Second, there is a clear trend toward regionalization of supply chains as countries seek to build resilient local capacity to support industry

verticals that are central to their economies. We currently see around $400 billion of government incentives being deployed globally over the next five years, a significant portion of which will be directed toward ICAPS markets.

While China currently leads in ICAPS spending, we see other countries increasing their investments at a higher rate. In fact, the fastest-growing regions for our ICAPS business in 2023 are the U.S., Europe, and Japan. Looking beyond 2023, our long-term growth thesis for the industry remains unchanged. Semiconductors are the foundation of the digital economy, which is driving demand and puts the industry on a path to become a trillion-dollar market by the end of the decade.

At the same time, chip technology complexity is increasing significantly as traditional 2D scaling slows and the industry transitions to a new PPACt playbook to drive improved performance, power, area-cost, and time-to-market. Increasing complexity means that wafer fab equipment can grow at a higher rate than semiconductor revenues. And then, within equipment spending, major technology inflections are increasingly enabled by materials engineering, expanding the available market for Applied Materials. I'll highlight a few examples of how major materials engineering inflections contribute to our growth.

First, Gate All Around transistors are a great example of a new 3D device structure that is enabled by materials engineering in areas where Applied has leadership products including epi and selective removal. In addition, we have developed differentiated conductor etch solutions specifically for Gate All Around applications. We expect shipments of our Gate All Around products to begin ramping in 2024 as leading customers move into high volume production. For Applied, this inflection creates an incremental opportunity of around $1 billion for every 100,000 wafer starts of capacity.

And we expect to gain five points of transistor market share in the overall transition from FinFET to Gate All Around. Second, in wiring, we are seeing significant innovation in new materials. Adoption of new low-resistance metals for contact and interconnect enabled us to grow our PVD revenues at three times the rate of wafer fab equipment in 2022. High-speed data connectivity remains a key focus for all of our customers, fueling further growth at future nodes.

Third, Applied technology is providing our customers with new tools to drive their scaling roadmap. Recently, we launched Sculpta, a breakthrough pattern-shaping technology which provides a simpler, faster, and a more cost-effective alternative to EUV double patterning. It decreases customers' capital cost by about $250 million for each layer of adoption per 100,000 wafer starts. We are already shipping repeat systems and expect this business to grow to multiple hundreds of millions of dollars of annual revenue in the next several years.

The final example is advanced packaging. While we are still in the very early phases of industry adoption, this inflection is already a great growth area for us. Our packaging revenue has doubled in the past three years to over $1 billion. We have strong leadership positions in key enabling technologies including Through-Silicon-Via, micro-bumping, and hybrid bonding.

We believe we can double revenues again in the next few years with further adoption of 3D multi-die packaging. The increasingly complex solutions our customers are deploying to move from one technology node to the next are also a key growth driver for our service business. Customers are seeing value in our solutions to support their R&D, rapidly transfer and ramp new technologies, and drive device performance, yield, output and cost in high-volume manufacturing. Our service business is on track to grow in 2023 even with lower utilization rates in certain nodes and after absorbing the impact of U.S.

export control rules. More than 60% of our service revenue is generated from subscriptions in the form of long-term agreements. These agreements are growing at a faster rate than the installed base and have a high renewal rate of more than 90%. Given our confidence in the trajectory of the industry and Applied Materials, we are taking actions and making associated investments to support our growth, accelerate our customers roadmaps and drive productivity and efficiency as the industry scales.

On May 22nd, we will formally announce a major strategic investment in a new high-velocity innovation platform focused on next-generation equipment and process technologies. As innovation in the industry is increasingly driven by new materials, structures and devices, our goal is to change the way we collaborate with customers, universities, suppliers, and other partners to bring new manufacturing technologies to market faster and optimize the overall economic returns. We look forward to sharing more details next week. Before I hand the call over to Brice, let me quickly summarize.

While 2023 is a challenging year for the economy in areas of the semiconductor market, Applied's business performance remains resilient, thanks to our broad exposure to secular trends, strong product positions at key technology inflections, and our growing service business. Our longer-term outlook is very positive as semiconductors become a larger and more strategically important market globally, and industry trends create outsized opportunities for Applied. To position ourselves for the opportunities ahead, we are making strategic investments in R&D and infrastructure while driving improvements in productivity and speed across the organization. Now Brice, it's over to you.

Brice Hill -- *Chief Financial Officer*

Thank you, Gary. On today's call, I'll summarize our Q2 results, provide our guidance for Q3, and discuss the investment we're making in our R&D infrastructure. Before covering the near term, I'd like to remind you of four key points. First, the semiconductor industry is on track for secular growth, with expectations of a $1 trillion market by 2030.

Second, materials engineering is increasingly critical to our customers' roadmaps. Third, Applied's broad and differentiated portfolio, market diversity, and growing services business make us more resilient today than in the past and set us up to outperform our markets. And fourth we have an efficient business model that generates strong profitability and free cash flow, which enables us to invest in growth and provide attractive shareholder returns. In fact, in March, we signaled our confidence in the long-term growth of the semiconductor market and in our ability to deliver the new materials and manufacturing innovations required to drive the industry.

The board of directors approved a 23% dividend per share increase, which is the largest increase in five years, and supplemented our share buyback program with a new $10 billion repurchase authorization. We believe our free cash flow can continue to grow and support increasing the dividend at an accelerated rate over the next several years, which would double our previous dividend per share. As our services business grows along with our installed base of equipment, it alone produces more than enough operating profit to pay the company's dividend. Moving now to Q2 business highlights, our team did a great job navigating supply and schedule challenges during the quarter, enabling us to grow revenue and earnings per share on a year-over-year basis.

We mitigated most of the supplier cybersecurity situation we described last quarter, and this helped us deliver higher-than-expected revenue in both Semi Systems and AGS. Most of our businesses caught up to demand, and our lead times and inventory levels declined. Growth in our ICAPS business offset year-over-year declines in memory, just as it did in Q1. And our services business generated record revenue, growing year-over-year and offsetting headwinds created by the trade rules announced last October.

Now, I'll summarize our Q2 financial results. Company revenue in Q2 was $6.63 billion, up 6% year over year. And non-GAAP EPS was $2.00, up 8% year over year. These results were in the upper end of our guidance range and only slightly below last quarter's near-record results.

Non-GAAP gross margin was flat sequentially at 46.8%, remaining resilient as we offset headwinds related to trade restrictions, inflation, supply chain, and logistics. Non-GAAP opex rose slightly quarter over quarter to $1.17 billion. Turning to the segments, semi systems revenue grew 12% year over year to $4.98 billion. Segment non-GAAP operating margin was 35.6%.

AGS revenue grew 3% year over year to nearly $1.43 billion. In fact, this was AGS's 15th consecutive quarter of year-over-year growth. Segment non-GAAP operating margin increased sequentially to 29%. In display, revenue was approximately flat sequentially at $168 million and segment non-GAAP operating margin increased sequentially to 12.5%.

Turning to cash flows, we generated $2.3 billion in operating cash flow during the quarter, which was nearly 35% of revenue. We produced over $2 billion in free cash flow, which was nearly 31% of revenue, which demonstrates the efficiency of our business model. Shareholder returns in the quarter were over $1 billion, including $219 million in dividends and $800 million in share buybacks. Now, I'll share our guidance for Q3.

We expect company revenue to be $6.15 billion, plus or minus $400 million. We expect non-GAAP EPS of $1.74, plus or minus $0.18. Within this guidance, we expect semi systems revenue to be around $4.5 billion, which is down nearly 5% year over year. We expect AGS revenue to be about $1.43 billion, which is up 1% year over year.

Display revenue should be around $170 million. We expect Applied's non-GAAP gross margin to be about 46.3%, and we expect non-GAAP operating expenses to be approximately flat sequentially at $1.17 billion. We are modeling a tax rate of 12.3%. Finally, I'll comment on the new innovation platform Gary discussed in his remarks.

We're planning to make a multibillion-dollar investment in new infrastructure over the next several years to significantly expand our capacity to collaborate more closely and productively with our customers as we develop next-generation materials, process technologies, and equipment. We'll provide more details about the amount and timing next week. What I'd like you to know today is that the investment is consistent with our company's existing long-term strategic plans. Also, the scale will depend on our ability to secure government support.

While we expect our capital expenditures to be higher over the next several years, there is no change to our longer-term financial model and our strong commitment to shareholder returns. In summary, Applied Materials is executing well and demonstrating the advantages of our broad and diverse portfolio, markets, and customer base. This year demonstrates how our business has become less volatile and more resilient. We are growing year over year in semiconductor systems and services and generating healthy profitability.

We are in a great position to invest for technology leadership and growth, generate strong free cash flow, and increase shareholder returns. Mike, please begin the Q&A.

Mike Sullivan -- *Corporate Vice President*

Thanks, Brice. To help us reach as many people as we can, please ask just one question on today's call. If you have another question, please requeue, and we'll do our best to come back to you later in the session. Operator, let's please begin.

Questions & Answers:

Operator

[Operator instructions] Our first question comes from the line of C.J. Muse from Evercore ISI. Your question, please.

C.J. Muse -- *Evercore ISI -- Analyst*

Yeah, good afternoon. Thank you for taking the question. So, I was hoping you could speak to the sustainability of spending for lagging edge in China. You know, there are many players that I think we're all aware of like SMIC, [Inaudible] etc.

But it sure sounds like there are 20, 30 emerging new players that are, you know, in the first three rounds of DC funding. And the question we get often is, how sustainable is that spending beyond 2023? So, we'd love to hear the visibility that you have to their build plans and how you're thinking about that spending, you know, beyond this year. Thank you.

Brice Hill -- *Chief Financial Officer*

Great. C.J., thanks for the question. You know, we've looked into this ourselves quite in depth. We're very bullish and the customers are bullish about the end markets that are driving the investments that are being made in China.

So, specifically, we've looked at the equipment that we're selling. We've looked to see that it's being installed. We've looked to see that it's actually being ramped and that's what we do see in China. So, people have asked us about, you know, is there pre-ordering or stocking of equipment? We don't see that.

You're right that it's mostly ICAPS. And it's mostly focused on the end markets that we all know that are growing, the power markets, the video processors, the sensors and power, those types of end markets. When we -- we also think about the government incentives in China, so a lot of -- there is a long tail of investors in China. They are being incentivized.

But they are ramping, installing the equipment, and we don't see any unused areas. Anything to add there, Gary?

Gary Dickerson -- *President and Chief Executive Officer*

No, thank you.

Mike Sullivan -- *Corporate Vice President*

Thank you, C.J.

Operator

Thank you. One moment for our next question. And our next question comes from the line of Stacy Rasgon from Bernstein Research. Your question, please.

Stacy Rasgon -- *AllianceBernstein -- Analyst*

Hi, guys. Thanks for taking my question. I guess to follow up on that, I know you said that like the non-Chinese regions are growing faster, but is that because they're smaller? Like how big -- how much like even qualitatively is China as a percentage of your total ICAPS revenue? And like how much is the China piece of it growing relative to those other regions that are growing faster?

Brice Hill -- *Chief Financial Officer*

Yeah, thanks, Stacy. It is the largest country in the ICAPS space, but I think there are three other countries that are growing faster. And it's not because it's a lot of small numbers, they're pretty significant. So, if you think of North America, China, Europe, you know, people will recognize a lot of the investments that are being made in the mature technologies in those spaces.

So, China is not the fastest grower, but they're the largest country. And when we look across the world and we look at all those investments, you know, there are government stimulus programs that help, you know, encourage the customers to make those investments. But we believe there's real demand behind that. When we look at utilization in the ICAPS space, we see utilization to be in a healthy range.

So, this looks like an ongoing trend. When we -- when we think forward, you know, we had -- if we look back to '22, we had 40-plus percent growth rate in ICAPS. It's only accelerated this year. And our view from all the accounts is that it won't grow at the same rate, it won't accelerate at the same rate, but that demand is stable.

We expect over the coming years that that market will stay about the same size.

Gary Dickerson -- *President and Chief Executive Officer*

Yeah, Stacy, this is Gary. Especially I would say in the U.S. and Europe, when I talked to those CEOs and those companies, they're in a very strong position. And, you know, those investments that they're making will be sustainable over the next several years.

And they are, as Brice said, meaningful.

Mike Sullivan -- *Corporate Vice President*

Thank you, Stacy.

Operator

Thank you. One moment for our next question. And our next question comes from the line of Vivek Arya from Bank of America. Your question, please.

Vivek Arya -- *Bank of America Merrill Lynch -- Analyst*

Thank you for the question. Maybe kind of two very related ones. What's your backlog in semi systems and where does it, you know, get to exiting the year? And then, a number of your peers have suggested that the second half of the calendar year, so essentially your Q4 and Q1, would be better than the first half. Is that similar to the trends Applied is seeing? Or what would create that difference between you and your peer group?

Brice Hill -- *Chief Financial Officer*

OK, thanks for that. First of all, backlog, we still have an elevated backlog. What we've tried to talk about last quarter and this quarter is the dynamics under that. We have caught up in most of the business groups to the underserved demand that we had from the prior year.

So, that's a good thing. Our lead times are returning to more normal. Having said that, the backlog is still elevated. We think that's because many customers are placing orders over a longer period of time.

They're planning longer in the future than they have in the past. So, we -- when you see our backlog published at the end of the year, it'll probably still be at an elevated level. On the second half, you know, we're not guiding the second half. But the story for Applied has been that the ICAPS business has grown so much this year that it's offset weakness in the memory market and, you know, any slowness that we've seen in the leading logic market.

And, you know, we expect that dynamic to continue. You can see in the next quarter that we don't have growth in the next quarter. But overall, we expect that dynamic that we've seen for the business to continue in future quarters. So, we can't call that second half or even '24 yet because the large markets of memory and leading logic are, you know, pretty exposed to macros and pretty exposed to consumer end markets.

We'll just have to see how that looks for Q4 and for next year.

Mike Sullivan -- *Corporate Vice President*

Thank you, Vivek.

Operator

Thank you. One moment for our next question. And our next question comes from the line of Krish Sankar from TD Cowen. Your question, please.

Krish Sankar -- *Cowen and Company -- Analyst*

Hi. Thanks for taking my question. I got a big picture in the quick clarification for Brice, too. One is for Gary.

When you look at all these meetings spending and all the regionalization, it seems like -- is it all tied to really chip back-funding or other factors in play, like permitting or whatever it might be, is causing some relative delay in the leading edge investments? And, Brice, did you say anything about some of the China export control recovery that some of your peers have spoken about in the back half? Thank you.

Gary Dickerson -- *President and Chief Executive Officer*

Yeah, Krish, thanks for the question. On the leading edge, you know, there is an intense competition for leadership. So, you know, all of those companies are trying to drive their roadmaps as fast as they can on power, performance, and cost. So, you know, we certainly see that continuing to play out over the next few years.

What I would say also is that, you know, the perspective that we have right now is that three nanometer is going to be a big node, where there's a lot of tape outs and customer demand. So, you know, we think that's going to be pretty robust. For Applied, we're in a really good position as our customers move to three nanometer. The number of steps for us to go up, I think, is more than 20% and that transition from five to three nanometer.

But, again, you have this really significant competition in that leading edge that, again, we continue to see that that's going to be sustainable going forward. And then, relative to government incentives, there's also a lot of competition there. So, you see every region where we do business today a significant amount of incentives that are being supplied, you know, really for leading edge and for ICAPS. But I think that -- so, that's definitely true.

That will be an adder for our systems and service business over the next few years. But I think the bigger factor in the leading edge is just there is pretty significant demand, and you have significant competition for leadership. And I'll let Brice answer the next question.

Brice Hill -- *Chief Financial Officer*

Thanks, Gary. And, Krish, on the China export controls, we see the same thing as our peers do. We'll be able to ship to some factories in the second half that were, you know, clarified recently.

Mike Sullivan -- *Corporate Vice President*

OK, thank you, Krish.

Operator

Thank you. One moment for our next question and our next question comes from the line Atif Malik from Citi. Your question, please.

Atif Malik -- *Citi -- Analyst*

Hi, Thank you for taking my question. Gary, I have a question on your comment on Gate All Around. You talked about gaining five points of transistor share from FinFET to Gate All Around. My question is, the shared gain, is that because the TAM is growing? Or are the dollars coming out from other areas like lithography? And does that statement include contribution from Sculpta?

Gary Dickerson -- *President and Chief Executive Officer*

Yeah, thanks for the question. So, I would say, Gate All Around, there's both higher process complexity of existing steps, plus addition of new steps. If I -- and we've said that's, again, $1 billion opportunity for Applied. And we're really in a great position because the steps that are growing, the increased complexity is in areas where we have very, very strong products and technology.

And again, we're deeply engaged with every single one of those companies. So, in any of those areas for deposition, selective removal, we have very good visibility relative to overall competitive positions. And not just in the first generation of Gate All Around, but subsequent generations. And so, again, I think we still see the same thing relative to the size of the market.

And the share gain, really, are relative to FinFET, So, what customers were spending for the -- were spending as a percentage of total transistor from FinFET to Gate All Around, that's where the five points of share comes from. And then, relative to the roadmaps going forward, what I would say is that we definitely see an increasing relative contribution in materials engineering. So, if you look at -- certainly, the transistor innovation. Wiring resistance is one of the biggest issues in the whole industry.

That's an area that's growing very fast. I talked about the MVP growth earlier. So, again that -- wiring is a really great opportunity for us. Backside power distribution will be coming.

There, you can get up to 30% area savings without changing the feature size and also improvements in power and performance. In the future, you'll see people stacking nano sheets for another transistor technology in future nodes. So, again, more and more of those dollars are moving to materials engineering as we go forward.

Mike Sullivan -- *Corporate Vice President*

All right. Thank you, Atif.

Operator

Thank you. One moment for our next question. And our next question comes from the line of Mark Lipacis from Jefferies. Your question, please.

Mark Lipacis -- *Jefferies -- Analyst*

Hi, Thanks for taking my question. Gary, for you, you guys got, it seems, way ahead of the curve on it. It's been a phenomenally successful investment for you guys. It's really paying off.

What -- you know, on these calls, you always talk about all these other investments that you made. I think you went through three, four, or five of them. Which one of those has the chance to be the biggest? Is there -- is one of those have a chance to be the size of ICAPS right now. How should we think about, you know, the next big driver for you guys if you were to single out one, if you could, Thank you.

Gary Dickerson -- *President and Chief Executive Officer*

So, Mark -- just thanks for the question, but I just want to understand. Are you talking about within ICAPS? Or are you talking beyond ICAPS?

Mark Lipacis -- *Jefferies -- Analyst*

Beyond ICAPS, all the things that you guys are investing in right now, You guys -- you made, you know, a great decision to invest heavily in ICAPS, and it's paying off in a major way. So, that was oppression investment, you know, from my view. And I'm trying to understand, you're making a lot of investments. You talk about a lot of things that you're investing in.

Of the four or five things that you talked about on the calls that you've been investing in, do any of these have a chance to be as big as ICAPS? Or what has the chance to be as close to ICAPS in terms of the amount of revenue and profitability it could deliver to Applied Materials? Thank you.

Gary Dickerson -- *President and Chief Executive Officer*

OK, yeah. Thanks, Mark. I would say two things. One, as customers are going forward, I mentioned this on the previous question, materials engineering, I think if you look at the percentage of spending going forward, just really tremendous.

Everybody knows that 2D Moore's Law scaling is challenged. And so, the innovations in transistor, innovations in wiring, innovations in memory technologies, all of those areas. And I mentioned the increase in the number of steps and the increase in complexity from one technology node to the next. We're in a really great position, again, relative to what's going to drive our customers roadmaps in the future.

And there's tremendous innovations that will bring there. Sculpta was one example of another way that you can achieve area scaling at a much, much lower cost with this directional edge technology. So -- and there's many material modification steps, double-digit numbers going from one technology node to the next that are growing. Those are areas where we have extremely high share, and we're innovating to drive performance and power and cost for customers.

So, that would be one area I would say. The other one that I'm pretty excited about longer term is packaging. And all the innovation that's going to happen going from system-on-chip to system-in-

package, I think that's going to be a tremendous inflection. That's about $1 billion business for us today, I mentioned earlier that we could see that doubling in the next few years.

I think that -- and there's -- we have a very strong position and the served markets that we have today. We have pretty high share. And there are other areas we're focused on. We mentioned hybrid bonding as one, but there are others that we're focused on that will create really big opportunities.

So, that would be the other area, I think, that whole movement to chiplet and heterogeneous integration?

Mike Sullivan -- *Corporate Vice President*

Thank you, Mark.

Operator

Thank you. One moment for our question. And our next question comes from the line of Toshiya Hari from Goldman Sachs. Your question, please.

Toshi Hari -- *Goldman Sachs -- Analyst*

Hi, good afternoon. Thank you so much for taking the question. Gary, I had a question on your memory business. Clearly, it's going through a pretty rough patch at the moment, consistent with industry trends.

I'm curious, both in terms of your AG's business, as well as your systems business, at what point do you expect your memory business to recover? I know you're pretty close and you're going back and forth with CEOs and CTOs, but just curious on the timing there. And as a quick follow-up, your business in Korea in the quarter was quite strong, if I'm not mistaken. Korea, obviously, is over-indexed to memory. So, I was hoping you could reconcile the weakness you're seeing in memory but the strength in Korea.

Thank you.

Brice Hill -- *Chief Financial Officer*

Yeah. Hi, Toshiya, it's Brice. I'll just say a couple of things, and Gary can add on that. So, on the memory side, we do think it's, you know, sort of historical lows.

We've thought about our long-term balance of memory and logic over time. We do think the market from an equipment perspective should be about one-third memory and two-thirds logic, you know, that two-thirds would be split between relatively evenly between ICAPS and leading edge. So, on the memory, we do think it's at a low. However, in the quarter, you know, we monitor pricing, we monitor utilization, we monitor inventories.

Those are still moving in the wrong direction in this past quarter. So, it hasn't quite turned yet, but we do think, you know, with the ICAPS business growing and with the long-term outlook strong for leading edge, we do think memory will have to turn around. It's hard to call the exact moment, but we expect that to happen. And then, Korea, I think it's -- you know, it's just good shipments in the quarter.

I don't think it portends anything unique from a trend perspective. We see -- we do still see weakness in the market.

Gary Dickerson -- *President and Chief Executive Officer*

Yeah, I don't really have too much to add. Again, we do see long-term foundry logic. We'd mentioned this before, two-thirds, one-third, certainly, continuing strength in the race for leadership in the leading edge and sustainable strength in ICAPS going forward. We don't think it comes back to that two-thirds, one-third, you know, soon.

But longer term, that's kind of where we think that's going to end up.

Mike Sullivan -- *Corporate Vice President*

Great. Thank you, Toshiya.

Operator

Thank you. One moment for our next question. And our next question comes from the line of Harlan Sur from JPMorgan. Your question, please.

Harlan Sur -- *JPMorgan Chase and Company -- Analyst*

Yeah, good afternoon. Thanks for taking my question. Typically, during periods of spending weakness, you start off with the first couple of quarters driving a lot of customer push-outs, rescheduling, cancellation activity. Then, that activity stabilizes, and your shipments soon follow that stable trend, I know last earnings you were still seeing quite a bit of rescheduling and push-out activity on the backlog.

Has this activity stabilized?

Brice Hill -- *Chief Financial Officer*

Hi, Harlan. Thank you. I don't think so. We still saw -- in this quarter, we still saw weakness in NAND and we saw weakness, you know, as defined as push-outs on the leading edge.

And that's partly why you see, you know, our guide for the next quarter, a little bit bumpy, taking account into -- you know, taking into account some of those push-outs. So, I think customers are still reacting to the current environment and checking the roadmaps and trying to optimize those roadmaps. And for us, you know, just to sort of reiterate, over the course of this year, you know, the ICAPS business has been so strong that, you know, it overcame most of that noise. The growth of ICAPS overcame most of that noise, plus we had several business units that were still catching up on back orders.

The first part, the ICAPS strength, we expect to continue, you know, as the year goes on as we've said and be an important component of demand going forward. And, you know, the business units that were behind have mostly caught up, with the exception of implant, where we're still working to catch up.

Mike Sullivan -- *Corporate Vice President*

Thanks, Harlan.

Operator

Thank you. One moment for our next question. And our next question comes from the line of Tim Arcuri from UBS. Your question, please.

Tim Arcuri -- *UBS -- Analyst*

Thanks a lot. Hi. I just kind of wanted to go to this -- back to this China lagging edge topic. And you guys do such good demand, you know, modeling.

And I'm kind of wondering what you think the underlying demand is that's kind of backing all this. You know, the kind of easy conclusion is that this just all kind of coincided with the leading edge bands, and so they're just pivoting to, you know, pouring money into lagging edge. So, when you think about the demand backing this, was this just demand that wasn't being met by the U.S. and the European chip guys? And I asked because, you know, EV is not new and the, you know, penetration is actually pretty high in China already.

And, you know, units haven't been great anyway. So, that's the first part of the question. And then, also, is that really like a this year WFE thing? Or is it all more going to be part of next year's WFE things?

Brice Hill -- *Chief Financial Officer*

OK, great. Thanks Tim. You know, the second part of the question first. So, we definitely think it will be a continuing trend.

So, we raised our expectations of demand in China during the quarter and we raised our expectations over time from China during the quarter. And, you know, as I may have said in the first question, when we track fab projects in China, there's quite a number -- you know, the overall list for the globe is approximately 100 now, and there's a significant amount in China. So, it's mostly in the ICAPS space. And when we think about the end markets, I guess the perspective I have is that they are localizing as much of the supply to these ICAPS end markets as they can.

And so, they are building there -- you know, they are building local supply for -- you know, if you think of sensors, power chips, analog chips, microcontrollers, we believe they're building out those capabilities internally. And I think there's been confirmation recently that some of the imports of those components to China have declined even though demand is growing. So, our perspective is the capacity that's being put in place in China, it isn't extraordinary at this point, if you think of China, you know, trying to build a local ecosystem of capacity that matches their demand function, if you will, over time. They're not there yet.

So, these investments make sense if that's the goal, and we know they have government incentives to accomplish that.

Gary Dickerson -- *President and Chief Executive Officer*

Yeah. Tim, this is Gary. One other thing I would say is -- and we do, as you said, a lot of modeling of each one of those vertical markets within ICAPS. We look at fab utilization, wafer starts, all of those things.

The one other thing I would say is that we look at good chips out for each one of these different factories. And so, you know, when you look at yield as another factor, you know, that's -- you know, when we look at the overall market, you know, it's roughly in line with what we see relative to our assumptions of the growth rates in those different segments. But again, I would look at also the good chips out.

Mike Sullivan -- *Corporate Vice President*

Yeah, thank you, Tim.

Operator

Thank you. One moment for our next question. Our next question comes from the line of Joe Quatrochi from Wells Fargo. Your question, please.

Joe Quatrochi -- *Wells Fargo Securities -- Analyst*

Yeah, Thanks for taking the question. And kind of as a follow-up to Gary's comment, I guess, how do we think about -- if you were to look at domestic China's capital intensity for mature nodes relative to maybe some of your more experienced customers, is that a multiple higher than your more experienced customers. And I guess how do you think about that kind of normalizing over time?

Gary Dickerson -- *President and Chief Executive Officer*

Yeah, I can start, Joe. The capital intensity, you know, since it's mostly ICAPS, what we see in ICAPS is the capital intensity is sort of like leading logic was, you know, five or eight years ago. So, you know, that whole discussion about there being a lack of reuse, especially in China, those are, you know, mostly greenfield sites, they are new equipment sets. So, the capital intensity is fairly high.

And we think that's consistent, by the way, with most of the ICAPS additions going on across the globe. And that's a major factor as to why overall intensity, you know, as we measure WFE intensity to semiconductors is going up over time as the fact that ICAPS is so much higher.

Mike Sullivan -- *Corporate Vice President*

Thank you, Joe.

Operator

Thank you. One moment for our next question. Our next question comes from the line of Sidney Ho from Deutsche Bank. Your question, please.

Sidney Ho -- *Deutsche Bank -- Analyst*

Thank you. I wanted to ask you about the AGS business. Gary, you talked about AG still growing this year despite the many different headwinds. And if you just look at the upside and the AGS in the quarter, can you speak to what drove the upside, given the underutilization across foundry and logic and memory? And, also, I wanted to ask about how do you expect the segment to perform in the second half of the year, now that all the memory suppliers have been taking down the utilization? And is there a range of AGS growth we should be thinking about this year? Thank you.

Gary Dickerson -- *President and Chief Executive Officer*

Yeah, thanks for the question. So, AGS, if you look at the way that business breaks out about 85% is spares and service. And a significant percentage, over 60%, is long-term agreement, subscription types of agreement, with a length of 2.6 years. We're still seeing very, very high renewal rates.

So, one thing that helps us in this type of market environment is a lot of that business is still based on those longer-term agreements. So, that's helping, giving us a level of stability in this type of a market. And then, the other part of AGS, kind of mid-teens, is the 200-millimeter business. That's really focused on ICAPS.

And that business is very robust. So, I would say that, you know, our business, again, relative to the agreements, pretty stable, continuing to grow, strong renewal rates. And then, the 200-millimeter business is also very stable and growing in 2023. I don't know, Brice, if you want to add anything else.

Brice Hill -- *Chief Financial Officer*

I think that's a major, major thing, and we've said that we expect it to grow for the year. So, it's growing year over year, and we expect it to grow for the year. And our outlook does include, you know, you see it's slower, slower growth in Q3. So, our outlook does assume that there'll be lower utilization in some of the factories, so we've accounted for that, Sidney.

But we do expect it to grow year over year.

Gary Dickerson -- *President and Chief Executive Officer*

Yeah, I guess the other thing I would add is that we certainly are growing this year, and we're still on track to this model that we had talked about a couple of years ago with low double-digit growth for AGS longer term.

Mike Sullivan -- *Corporate Vice President*

Great. Thank you, Sidney.

Operator

Thank you. One moment for our next question and our next question comes from the line of Brian Chin from Stifel. Your question, please.

Brian Chin -- *Stifel Financial Corp. -- Analyst*

Hi, good afternoon. Thanks for letting us ask a question. I guess sort of doubling back on sort of ICAPS for the year. Obviously, it's almost like a one-for-one offset to some of the industry weakness in memory and advanced logic foundry.

But I guess can you talk maybe to linearity a bit? Because you have talked about how maybe backlog didn't increase this quarter but still at pretty robust levels. Lead times have sort of normalized. And I think the expectation was that there would be a little bit of a gearing toward the counter first half in terms of that business. I'm kind of curious how you see that still for calendar second half and whether some of this China that's been discussed is part of, maybe, you know, a wildcard relative to how you view that second half.

Brice Hill -- *Chief Financial Officer*

Yeah, thanks, Brian. You know, without getting specific about trends quarter over quarter, it has been gradually increasing. So, you know, if we look back to, I think, Q3 of last year, Q3, Q4, Q1, Q2, I think we have an increased trend across each of those quarters. And so, we're not going to guide the second half.

But I don't think there's -- you know, I don't think there was a front-loaded phenomenon in ICAPS.

Gary Dickerson -- *President and Chief Executive Officer*

Yeah, Brian, the other thing I would add is that, you know, implant, as Brice mentioned earlier, is one of our most supply constrained businesses. We have very significant demand. We've launched around 10 new products in ICAPS over the last few years. So, that business is going to continue to ramp through the year as we close that supply demand gap.

So, that is a significant portion of ICAPS, an area where we have real strength with the customers. The demand there for the inflections is very strong. So, again, that's another factor driving our ICAPS strength.

Brian Chin -- *Stifel Financial Corp. -- Analyst*

OK, great. Thank you.

Mike Sullivan -- *Corporate Vice President*

Thank you, Brian.

Operator

Thank you. One moment for our next question. And our next question comes to the line of Quinn Bolton from Needham. Your question, please.

Quinn Bolton -- *Needham and Company -- Analyst*

I guess I have a clarification and a question. Just a clarification on the China export clarifications that were received. I think some of your larger cap peers have talked about benefits of $200 million to $300 million in the second half. You have higher market share, I think, in China.

Can we expect that those export clarifications probably have at least a $300 million benefit for you in the second half?

Brice Hill -- *Chief Financial Officer*

Hi, Quinn. Since it's a small number of customers, we're not going to be specific about the number. But we definitely see the same situation. We have factories that we will be able to ship to in the second half.

And at least for Q3, that's in our guide.

Quinn Bolton -- *Needham and Company -- Analyst*

OK, and then the question just with the ICAPS strength and relative weakness in advanced foundry logic, you know, I think you've talked about ICAPS being about half of foundry logic. I assume, for '23, that's probably more than half of the business, but wondering if you might be able to give us a range. Where do you think ICAPS falls out for '23, you know, given the relative strength?

Brice Hill -- *Chief Financial Officer*

Yeah, it is larger. The growth has been significant, both last year and this year, as we talked about. And we think it's stable. And then, the only thing we've really guided is long term, we think -- you know, foundry logic is a little bit weakened this year.

So, we think that gets in more of a balance in the long term on the logic side of WFE. But -- so, long term, we would say it's relatively equal. This year, ICAPS is the largest market.

Quinn Bolton -- *Needham and Company -- Analyst*

Thank you.

Mike Sullivan -- *Corporate Vice President*

Thanks, Quinn.

Operator

Thank you. One moment for our next question. And our next question comes from the line of Blayne Curtis from Barclays. Your question, please.

Blayne Curtis -- *Barclays -- Analyst*

Hey, thanks for letting me ask a question. Maybe just to follow up on that last one, I was curious, the leading edge, if you could just walk us through the extent of the push-outs. I'm really just trying to figure out -- you're still seeing quite low utilizations at the leading edge, some of the markets may recover in the second half. But I'm just kind of curious of your visibility into when that leading edge segment may rebound?

Brice Hill -- *Chief Financial Officer*

Hi, Blayne. For the low utilization, it is relatively low. I think it's -- for leading edge factories, I saw somebody quoting around 70%. I think that's probably a good range right now for leading edge.

And the push-outs are really site-specific and project-specific. I don't think they, you know, sense or signal a change in direction of any of our customers in terms of their intent to build out new process technologies And what's ahead for us that's most important is this transition to Gate All Around. And we think that will start in earnest as we get into 2024. And that's one of the big inflections that we think will drive value for Applied.

So, anyway, that's what I would say on the push-outs.

Gary Dickerson -- *President and Chief Executive Officer*

Yeah, I would say that -- a couple of things, one, the three nanometer, we still -- everything that we see, that's going to be an important technology node. And so, certainly, next year, you know, we think that's going to be a meaningful contribution to revenue for Applied. And then, as Brice said, for Gate All Around, we'll see the initial ramping of that spending in a meaningful way also in 2024.

Blayne Curtis -- *Barclays -- Analyst*

Thanks, guys.

Mike Sullivan -- *Corporate Vice President*

Thanks, Blayne.

Operator

Thank you. One moment for our next question. And our next question comes from the line of Vijay Rakesh from Mizuho. Your question, please.

Vijay Rakesh -- *Mizuho Securities -- Analyst*

Yeah. Hi, Gary and Brice. Just a quick question on the government funding. I know you mentioned 400 billion, how much do you expect that to add to global WFE if you look at second half '23 or '24?

Brice Hill -- *Chief Financial Officer*

Hi, Thanks, Vijay. That's the right number, global phenomenon, as you talked about. What we -- the way we think about it is it'll add about 3% to 7% of WFE over the next five years. We don't think that 400 billion will be incremental WFE.

What we think it does is set the locations our customers will be putting their assets in place. And because some of those locations will be new, you won't have quite the economies of scale as they might have in their, you know, their larger facility areas. And that will drive a small amount of incremental equipment since there's a little bit less economies of scale. So, we estimate that to be 3% to 7% over the next five years.

And then, in the very short term, we do see companies that are starting to accrue for some of the tax benefits. We're included in that group. So, I think the incentives are already starting to encourage investment.

Vijay Rakesh -- *Mizuho Securities -- Analyst*

Got it. And then, on the China side, would it be fair to assume that, next year, ICAPS continue to hold up, but memory spending could be down again year on year for China?

Brice Hill -- *Chief Financial Officer*

On the ICAPS side, we do expect it to hold up. And then, memory, I think -- you know, memory is more market-driven. So, what we're saying for both the memory and the leading edge logic for next year, it's going to be more dependent on macro and some of those consumer markets. So, TBD on that piece.

Vijay Rakesh -- *Mizuho Securities -- Analyst*

Got it. Thank you.

Operator

Thank you. One moment for our next question. And our next question comes from the line of Mehdi Hosseini from SIG. Your question, please.

Mehdi Hosseini -- *Susquehanna International Group -- Analyst*

Yes, thanks for giving me a chance to ask a question. For Brice, I'm just trying to better think about earnings, given opportunities with ICAPS and other areas. And in that context, should I assume that if I were to use FY '22, WFE was closer to 100 billion and you guys did almost 7.75 in earnings. In looking forward, can you hit those kind of revenue targets without having WFE above 90 billion? And then, for Gary, I understand the government incentive for them is very good for the industry.

But in the longer term, don't you think that these subsidies could make the cycles actually more volatile? And, perhaps, I could reference, what happened last few years, demand got pulled in, and then we had some correction in [Inaudible]. Just want to understand how you think about these subsidies in the context of form of the -- shape of the cycles and volatilities?

Brice Hill -- *Chief Financial Officer*

Hi, Mehdi, on the earnings question, I think if I understand that, yes, 90 billion would support larger earnings as we go forward because our AGS business will continue to grow. We expect upsides in our display business as we go forward. So, if you're looking to model those, I would look at, you know, modeling the continued growth in AGS and thinking about upsides and display on top of where we are,

you know, today. And that should give you a perspective on, you know, if there's no growth in WFE where the model could get to over the next couple of years.

And then, Gary, on subsidies?

Gary Dickerson -- *President and Chief Executive Officer*

Yeah. I think that the Brice talked about 3% to 7%, Mehdi, incremental spending over the next several years. Certainly, there's a tremendous amount of competition between different geographies. But customers, we think, will invest based on, you know, where they see the demand.

So, the timing of those investments, I don't think they're going to be significantly different than the way they thought about it in the past. The one thing I would say that should be a benefit is that as these companies move into new regions and they're starting up new factories, the initial efficiency of those factories is going to be lower for sure as they're moving into the new locations. And that's also incremental help for our service business because they don't have all the trained personnel and all of the infrastructure in place in those new locations. So, anyway, that's the way we think about it.

Mike Sullivan -- *Corporate Vice President*

OK, thank you, Mehdi. And, operator, I think we have time for one more question or follow-up please.

Operator

Certainly. Then, our final question for today is a follow-up question from the line of Stacy Rasgon from Bernstein Research. Your question, please.

Stacy Rasgon -- *AllianceBernstein -- Analyst*

Hi, guys. Thanks for taking my follow-up. I had a question on the investment plans that you're going to be talking about next week. I know you gave us the details then.

But I was wondering if you could give us just a little bit of a breadcrumbs here on what the purpose of this is. You talked about gains in the Gate All Around by five points. Do you need these kind of investments to get those market share gains? Or is this something that kind of gives you an edge like into the second half of the decade with like resources and support that you can offer that others are not going to be able to offer. Just anything you could tell us in advance of maybe the details next week, that would be helpful.

Gary Dickerson -- *President and Chief Executive Officer*

Yeah, Stacy. Thanks for the question. So, you know, what I would say is that one of the most important factors for any company is the time to innovation, time to commercialization, and innovation success rate. So, we've been, as you know, it takes many, many years from concept to high-volume manufacturing.

And that's, you know, somewhat of a serial process. And so, working with some of our largest customers, you know, we think there's opportunities to drive some of those steps in parallel and significantly accelerate time to innovation. So, that's what we're going to be talking about next week. It's really exciting.

Again, I definitely do think there's opportunities there. And I do believe that materials, inflections, new structure, some of the things I've talked about, that's going to be a bigger and bigger percentage of gains. You know, some of our big customers talk about design technology co-optimization, becoming a much

bigger part of their roadmap for energy efficient computing. So, I think, Stacy, we'll cover more of this next week.

But we have been working with our largest customers on some of these concepts. And I definitely think there's ways to accelerate innovation. And as you know, if you think about how much money companies spend on each R&D dollars on each technology node, there's tremendous opportunity for economic optimization, both on cost and then value creation. Anyway, we'll cover more of that next week.

And then, we will also cover this at the Semicon event that Mike talked about earlier.

Stacy Rasgon -- *AllianceBernstein -- Analyst*

So, is this just like a new [Inaudible] or is it more than that?

Gary Dickerson -- *President and Chief Executive Officer*

I'd say it's more than that. The concepts -- certainly, the scale of what we're talking about is, you know, pretty significantly bigger than what we're doing today. And the concepts of how we're going to work through the entire ecosystem, I think, are pretty exciting.

Stacy Rasgon -- *AllianceBernstein -- Analyst*

Got it. Thank you, guys.

Mike Sullivan -- *Corporate Vice President*

All right. Thanks, Stacy, for your question. Brice, would you like to help us close out the call today?

Brice Hill -- *Chief Financial Officer*

Thank you, Mike. My take away today is while there are areas of weakness in our markets this year, Applied is making good operating progress and outperforming the markets, thanks to our unique breadth and diversity. We're confident about the industry's long-term growth opportunity, and we're in a great position to make significant investments in our future and increased cash returns to shareholders. On Monday, we look forward to detailing the strategic investment we're making to collaborate closely and productively with our customers that Gary just described.

Gary will see many of you at the Bernstein conference in New York on June 1st, and I hope to see you at the BofA conference in San Francisco, June 7th. Mike, please go ahead and close the call.

Mike Sullivan -- *Corporate Vice President*

OK, thanks, Brice. And we'd like to thank everybody for joining us today. A replay of today's call is going to be available on the IR page of our website by about 5:00, Pacific Time. We'd like to thank you for your continued interest in Applied Materials.

Operator

[Operator signoff]

Duration: 0 minutes

Call participants:

Mike Sullivan -- *Corporate Vice President*

Gary Dickerson -- *President and Chief Executive Officer*

Brice Hill -- *Chief Financial Officer*

C.J. Muse -- *Evercore ISI -- Analyst*

Stacy Rasgon -- *AllianceBernstein -- Analyst*

Vivek Arya -- *Bank of America Merrill Lynch -- Analyst*

Krish Sankar -- *Cowen and Company -- Analyst*

Atif Malik -- *Citi -- Analyst*

Mark Lipacis -- *Jefferies -- Analyst*

Toshi Hari -- *Goldman Sachs -- Analyst*

Harlan Sur -- *JPMorgan Chase and Company -- Analyst*

Tim Arcuri -- *UBS -- Analyst*

Joe Quatrochi -- *Wells Fargo Securities -- Analyst*

Sidney Ho -- *Deutsche Bank -- Analyst*

Brian Chin -- *Stifel Financial Corp. -- Analyst*

Quinn Bolton -- *Needham and Company -- Analyst*

Blayne Curtis -- *Barclays -- Analyst*

Vijay Rakesh -- *Mizuho Securities -- Analyst*

Mehdi Hosseini -- *Susquehanna International Group -- Analyst*

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