



Q&A Concerning Medium Term Plan Progress

Reference: Medium Term Plan Progress

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Note:

PKG = Package substrate

HDI = High density interconnect—a printed circuit board with a high wiring density that serves as a motherboard.

Subtractive method = A circuit fabrication technique that uses a general copper foil.

MSAP = Modified semi-additive processing—a circuit fabrication technique that uses our MicroThin™ product (ultra-thin copper foil).

L/S = Line width & space—describes how fine and how densely spaced together the wire lines of a printed circuit board are.

CVC = Corporate Venture Capital

Q.

Regarding copper foil for HDI applications, you mentioned that there would be an increase in new smartphone customers. Are these already confirmed?

A.

As for your question about the new adoption of HDI MicroThin™, there has unfortunately been no progress since last time when we explained that some Chinese and Korean smartphone manufacturers are starting to use it. We hope on further thinning of copper foils spurred by the full-scale spread of 5G models. However, we have not seen any new orders at this point.

Q.

Regarding ultra-thin copper foil, for instance, I think that Intel's package would become larger. Do you think larger packages will be a boon for your ultra-thin copper foils?

A.

As for your question about Intel's packages, I am sorry, we still do not know how much of an increase there will be for MicroThin™ used in packages resulting from larger packages. We do not have any quantitative information at this point. We intend to get a better grasp of this in the future.

Q.

As for the catalyzed GPFs, would the introduction of catalysts with filters improve the profit structure? In other words, would an increase in sales of catalyzed GPFs improve the product mix?

A

Based on a comparison of GPF and three-way catalyst, GPF's profitability isn't substantially higher on its own. However, we think that GPF will be a differentiation factor against competitors. We believe this differentiation will be a growth driver.

Q.

Regarding MicroThin™ for HDI applications, although you talked about a larger substrate size this year, but is there a risk that the size would conversely shrink from the next year, just like when HDIs were first adopted?

A.

As you say, the substrate size per unit has increased in the next fiscal year's model compared to last year—however, the substrate size and shape hinges largely on each smartphone manufacturer's concept. Therefore, we do not know if this trend of increased size will continue next year. As you say, there is a risk that the size and shape would revert back.

Q.

How much do you think the per-unit consumption of MicroThin™ for PKG application would increase if, for instance, antenna in package were used in 5G smartphones?

A.

We already see an uptick in the number of units ordered for communication modules. The demand may increase when millimeter-wave compatible antenna in package is used. Although there is no antenna in package used right now, it is rumored that three will be used in new models. Although we cannot give a quantitative figure of how many will be used, we believe that the number will increase.

Q.

Regarding all-solid state batteries, I think it's possible to view that there is an advantage to oxide electrolytes for small button-type batteries. What are the advantages of oxide electrolytes for these small batteries?

A.

Recently, several companies have released oxide solid electrolytes. As for how they differ from sulfide electrolytes, sulfide electrolytes have a higher ion conductivity and can be used for higher-capacity batteries. Products that use these characteristics effectively include batteries scheduled to be released by Maxell, such as batteries used in very high or low temperatures, high vacuums, some automobiles, and other types of applications. However, the capacity of oxide electrolytes is not very large. Hence, it may be used for compact applications, but we think the difference with sulfide electrolytes is clear. In that respect, it is impossible to consider using oxide electrolytes for automotive applications at this point. We hope you will understand that the likely winner is sulfide electrolytes for automotive applications.

Q.

As for 5G-related product sales on page 14, it says that the level of sales from FY2019 to FY2020 increased from 110 to 140, up 27%. It says that you expect a substantial 57% YoY growth in the next fiscal year. Specifically, which product groups do you think will expand sales? Also, if possible, could you explain the breakdown of this indicator of 220 in FY2021 based on the composition ratio of each product group?

A.

I will explain about the 5G-related products. Regarding the growth from 140 to 220 between 2020 and 201 on page 14, the biggest factor is copper foil. We expect the next fiscal year growth in high-end electrolytic copper foil for 5G. We also expect FY2021 growth in copper powder for MLCC. We expect around 40% growth from FY2020 in copper powder. We forecast around 80% growth from current levels in high-end electrolytic copper foil for 5G.

Q.

As for recycled raw materials and by-products, you mentioned that the progress is slightly behind the plan, but I believe the level of production of recycled lead material and lead by-product has increased steadily. When comparing the FY2016 plan with the FY2019 plan, could you tell me quantitatively how much of this increased level of recycling has positively impacted profits? Also, if you have plans for how much growth can be achieved in terms of future growth potential, please comment on that, too.

A.

Currently, we do not have the numbers to answer your question. The metals that are ultimately produced from recycled materials are bismuth, antimony, tin, and other such materials that are collected. But the profitability hinges in part on the purchasing conditions of the raw materials, and we aim to make improvements in this regard. We hope to be able to explain it in an easy to understand way in the future.

Q.

Regarding Q2 results, I believe the substantial increase for production volume in the copper business, the use of advantageous raw materials, and recycled processing have been major factors behind the increased profits and upwardly revised guidance. Please tell me in more detail how each of these factors contributed to higher profits and the upward revision. Also, please explain if you think this can continue.

A.

First, it is a fact that the first-half results were too good. That is, Hibi Smelter, which is a copper smelter, was brought back to our Company. The metals that are collected as a by-product of copper include gold and silver. That was a factor behind the improvement in our collection rate. On top of that, the market prices were high. But it's unclear whether those conditions will last. That is something that requires discernment on our part. Our impression is that the results were too good in the first half.

Q.

I would like to hear your views on future financials based on the current plan. You've decided this time to sell your interests in Caserones, which was a major factor behind earnings volatility. I believe the fact that this volatility would be reduced from now on is a step forward. On the other hand, you also commented that you would be concentrating management resources in your areas of strength. Thus, I believe you will continue to select and prioritize your businesses. The sale of interests would result in a slight deterioration in financials because of the major loss that would ensue. What are your thoughts on the financial balance in terms of managing free cash flows in the next fiscal year and beyond?

A.

Near term, what we will do this year is to generate cash by reviewing assets. We will especially consider turning some assets into cash, though this will be limited to certain equities or assets. We will take these steps to improve our financials.

As for our plan for the next fiscal year onward, we expect an equity ratio of 29%. Up to now, we had recognized the record of Caserones using the equity method. Thus, even if we were to book losses, we weren't able to book tax effects. In other words, these losses were booked as losses, but didn't have the tax effect that would offset those losses. By selling our interests, we assume that there will be a slight return in taxes that will improve our financials. We will work to generate steady business profits. On top of that, we will improve our equity ratio through tax effects. And we aim to do so at an accelerated pace. These are the initiatives with the greatest numerical impact, and we will likely explain this to all of you again in the future.

Q.

You talked about the creation of new businesses spearheaded by a newly established corporate sector. I'd like to know the core axis of business-enhancing activities carried out by the Business Creation Sector. Specifically, what kind of KPIs are you considering? I'd also like to know the timeframe and whether you expect to reap the benefits of efforts made up to now. What kind of products are you specifically considering in relation to all-solid state batteries or fan out panel level package?

A.

We created three units in the headquarters that are very close to commercialization. These units are directly under the supervision of the headquarters. Quality assurance and sales functions are attached to these units, as well as other groups for developing the processes for mass production. And we aim for the market launch of these units during the current fiscal year. Thus, one of our current KPIs is to have customers buy these units as products. In addition to these three units, they are unrelated to the units being developed in collaboration with various startups through a CVC, which you all know about. Those units will take a little longer, and we intend their scope to be wide-ranging. As for how much these units will roughly contribute to earnings, these units include all-solid state batteries, HRDP®, and bonding materials centered on copper paste. Progress is underway with the aim that the units will start contributing to profits by the final year of the next medium-term plan.

Q.

Regarding the market launch and full-scale commercialization of all-solid state batteries, is it correct to understand that the sale of solid electrolytes or the sale of consumer products will [Inaudible]? I assume that you would want to sell them together with electrode materials in terms of future business development. Please share your views on the direction of business development?

A.

Although we explained electrolytes for all-solid state batteries just now, we are concurrently conducting the development of electrode materials, including positive and negative electrodes. But, for now, the product that is ready to be launched is the electrolytes for all-solid state batteries used in special applications. We are conducting the development of positive and negative electrodes, but we still don't have an idea when they will be launched. We are just accelerating basic development.

Q.

Regarding the restructuring of your business portfolio, I believe the issue, which can be said to be the biggest concern, has been resolved due to the sale of interests in Caserones. Is this the end of the portfolio restructuring for the time being, or do you have any plans for reviews on an ongoing basis?

Specifically, do you think there is room for further restructuring of the portfolio, such as the door lock business and Affiliate Coordination Segment?

Furthermore, my impression is that Mitsui Mining & Smelting has not undertaken significant cross-shareholdings reductions in the past. But, you are working on reducing them this year. What is the reason for this? Is it because of the need to generate cash, or is it a keener awareness of improving asset efficiency in light of governance code revisions? Please give me the background of these moves.

A.

Regarding the restructuring of our business portfolio, we will continue to consider and execute restructuring. Naturally, there will likely be changes with a smaller earnings impact. The latest restructuring isn't the last one, but there will not be another one with such a large earnings impact. We will continue to consider ways of raising our asset efficiency and which businesses to focus on toward that end.

There was also a question about asset reduction and cross-shareholdings. The reason behind these moves has been the coronavirus crisis, and, as you stated in your question, the governance code revisions. It has become significantly easier to gain an understanding from companies where we hold shares.

Compared to other companies, the amount of our cross-shareholdings is small. Still, we have made progress in discussing the unwinding of several names during the current fiscal year. At the end of the current fiscal year, when you see our securities report, I think you will be able to know that we disposed of some shares.

Q.

I'd like to get a more detailed update on the current status of MicroThin™. I believe it was one of the turning points whether the line and space would be 20/20. What is the current situation and the status of the competition? I'd like to know the trends of domestic competitors who have entered the HDI field. In addition, I'd like to know about competitors in the conventional technology of subtractive processing and MSAP. Please update me on the latest situation.

A.

First, in terms of the line and space of MicroThin™ for HDI applications, we have long held the view that there will be a shift to MSAP, or the adoption of MicroThin™, when the line and space reach the turning point of 30μm / 30μm.

The line and space of substrates used by a US smartphone manufacturer are 30μm / 30μm, meaning that they use MicroThin™. Unfortunately, the line and space of substrates used by Chinese and Korean manufacturers have not yet reached 30μm / 30μm. As a result, they are continuing to use the subtractive method. This doesn't depend entirely on the number of mounted components. It also depends on the substrate's size and the battery size affecting the substrate size. Frankly, we understand that these manufacturers are still able to figure out ways to circumvent thinning.

Thus, one of the key points in the competition between MSAP and subtractive method is how much advancement is made in thinning, and how fast it makes progress.

As for the other question about the competition around MicroThin™ for HDI applications, there hasn't been a change in the situation where end customers are buying products from multiple companies rather than just one Company, as I have explained before. Therefore, it doesn't mean that we are losing market share. We see progress as usual in dual purchase against the backdrop of a shift to dual-sourcing.

Q.

Regarding how to view the growth potential of the catalyst business do you think the market for catalysts used in motorcycles and four-wheeled vehicles will grow due to the likely tightening of gas emissions regulations? On the contrary, I would also like to know about the market's growth potential, taking into consideration the impact on the demand for catalysts resulting from progress in the spread of EVs. Also, please explain what kind of strategy you have in terms of leveraging your strengths in catalysts for motorcycles and four-wheeled vehicles to capture demand.

A.

Concerning tighter regulations, there still aren't regulations enforced in places like Africa and Pakistan. As such, we believe there are still markets that will grow in terms of motorcycles. On the other hand, there are debates about the shift to four-wheeled vehicles in India. We think that tighter regulations will still spur demand and sales growth in the motorcycle market. As for the shift to EVs, I think it is necessary to think about fully-electric vehicles and hybrids separately. If all vehicles were to become electric vehicles, that means customers will completely cease to use catalysts. Thus, rapid advancements means that demand will evaporate for catalysts alone. As for hybrids, the temperature of gas emissions would drop, meaning that the same performance is required under harsher environments. The stricter requirements for catalysts and technology by hybrids are likely to be opportunities for us to expand our business.

Q.

I'd like to know your views on zinc prices and TC in the Metals segment going forward. I don't mind if it's just a general idea. Could you briefly explain your thoughts on what kind of scenarios would lead to an increase or decrease in prices?

A.

Based on the numbers you see in this graph, if you look at these two extremes of the highest zinc price and lowest zinc price, then I think you can get a general idea that zinc's market price moves up and down in the USD2,000 to USD3,000 range.

The main use of zinc is to prevent rust on iron, so demand fluctuates depending on the sales volume of automobiles and the building structures that use iron. Generally, the supply-demand relationship can be seen from automobile sales, the global economy, and constructions. As for the supply side, the zinc mines are mainly located in South America, Australia, and China. Given that production has slightly been affected by the coronavirus, mining operations have been somewhat narrowed down. Demand has also dwindled, but if you balance the supply and demand factors, you reach the price of around USD2,400 or USD2,600.

It remains difficult to predict what will happen going forward, and there is still a possibility of a second or third wave of the coronavirus. Some people say that the impact will last next year, too, and the economic recovery after coronavirus will be in 2022. Therefore, we think the price will depend on the balance between supply and demand against this backdrop. As for the formulation of our business plan, we think it would be reasonable to expect a price of around USD2,400.

Meanwhile, in terms of the TC, the take rate of mines increases when mines become tight, so our treatment charge falls. Thus, as shown here in the graph, our treatment charge is currently around USD300 based on such supply-demand balance factors. We think this level will likely continue for some time. We don't know what will happen going forward, because it depends on how much recovery is made from the coronavirus, but this is the general level we expect.

Q.

Regarding ITO, you mentioned cost reductions and price increases. Could you give us more detail on the content?

Please tell us if there is a possibility that capacity enhancements will be resumed at the Hikoshima Plant

A

I will explain the cost reductions and price increases of ITO targets. The cost reductions will involve a review of all kinds of manufacturing processes. It will also involve the adjustment of capacity to a scale that matches demand.

We have been reviewing the business model with customers for many years. We will step further into these reviews to shave off the fat. Sorry, you asked for the details, but we can't go any further into details than that.

As for price increases, we are continuing steadfast negotiations while gaining the understanding of customers to return the price level that has been falling to the appropriate level. My answer was very qualitative, but that is the status of actions being taken.

As for the resumption of capacity enhancement at Hikoshima, this depends on the sales volume of copper powder that we mentioned earlier. If demand for MLCC were to return or grow in the future, then we will consider it on each occasion.

Q.

I'd like to ask about the 5G-related copper foil business. You mentioned that there is a possibility that high-end copper foil may fall short of the plan, depending on the impact of US-China trade friction. It is reported that Mr. Biden won the presidential election, though there may still be litigations. If Mr. Biden were to become president, then I think that US-China friction will go in the direction of easing. I'd like to know your views on the copper foil business in relation to US-China friction, the impact on the overall business, and the impact of Mr. Biden becoming president.

A.

We only know what's been reported in the newspaper, but we think the US's hardline stance against China will generally be unchanged. Most reports say that there may be a difference in how Mr. Biden approaches the issue, but the general trend will be the same. We also see it along those lines.

In particular, we have several businesses in China, including car door lock, catalysts, and copper foil. We will thus continue to follow developments carefully, though the circumstances are unclear. We mustn't have too many preconceptions or prejudice. Thus, it depends on how we can make sure not to impair the corporate value and expand the business even amidst such obscurities. At present, we are thinking of these matters while the outlook is blurred.

Q.

Regarding environmental investments, the government clarified its policy to achieve carbon neutrality. You also mentioned Mitsui Mining & Smelting reviewed its emissions. Do you think environmental capital, such as renewable energy, will increase in the future? I would like to know if you will increase production capacity and capital once you have a better idea of when environment-related products and products for all-solid state batteries will be commercialized. Please also comment on the speed at which this will be implemented.

A.

As for your question regarding investing in the environment and renewable energy, the metal smelting and copper foil industry, in which we belong, is one of the highest energy-consuming industries. We use a lot of energy to create products that we deliver to customers. That raises the question of how much we intend to tackle social sustainability. Of course, we have long been carrying out energy-saving activities since the past, and we will accelerate these efforts. That said, there are limits to energy saving, so we need to think of other ways that our business can contribute, such as energy creation. We are already involved in hydropower and geothermal power. The center of our attention right now is to think of these matters more realistically. However, we're not at the stage of discussing these matters quantitatively or as a



specific plan. We will make thorough considerations going forward, and once we are ready, we will be eager to share them with you at that time.