

## Record of Telephone Conference Concerning FY2019 Q2 Results

Reference: FY2019 Q2 Results

Note:

PKG = Package substrate

HDI = High density interconnect

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).

### **General Performance**

Q.

When inventory factors are excluded, earnings seem to be declining in this second half. What are the factors of decline in the Engineered Materials and Metals segments?

A.

Earnings are down in the Engineered Materials segment primarily because of a sharp drop in sales of copper foil products, particularly MicroThin™, to HDI makers. Other factors include lower sales prices for catalysts and a higher R&D spend. In the Metals segment, earnings are down 1 billion yen from the H1 level. This result is related to the fact that performance in the first half was disproportionately dependent on profits from Kamioka hydropower station. Another factor was that we absorbed regular maintenance costs incurred by a joint venture, Pan Pacific Copper.

### **Engineered Materials Segment**

Q.

Discounting inventory factors, the segment's ordinary income in Q2 was around 700 million yen higher than it was in Q1. Can you give us a breakdown of the Q on Q changes by copper foil, engineered powders, and other key product categories?

A.

It was copper foil that exhibited a Q on Q improvement, reflecting a rising demand for MicroThin™ and general copper foils. Engineered powders remained unchanged, the demand having yet to pick up.

Q.

Tell us about the market for MicroThin™ and general copper foils. How much more progress have you made since last time? Also, of your results and forecasts for copper foil, how much is sales to PKG makers and how much to HDI makers?

A.

Regarding the market for general copper foils, we are seeing flourishing demand among manufacturers of communications infrastructure. This demand is driving up foil sales in this half. Regarding the market for MicroThin™, there is no new uptake among PKG makers as yet. As for HDI makers, we initially expected an increased uptake among Korean and Chinese HDI makers this half, but this has not materialized yet. That is one of the reasons why HDI-related sales for this half are down. Given the flourishing demand for general foils in relation to 5G infrastructure, 5G-related demand is now in full swing. In H1, around 25% of total MicroThin™ sales were to HDI makers. For H2, the figure will be around 15%, meaning that the full-year figure should come to around 20%.

Q.

You said that you don't expect to see many MicroThin™ orders from HDI makers in South Korea and China. Why not? What products are these firms using instead? Also, tell us more about the forecasted uptake among Chinese firms.

A.

Korean HDI makers have switched their procurement strategy. We initially expected them to start using MicroThin™ in this half in two of their models for next year, but they ultimately opted for an alternative in one of these models. This change was apparently in response to the trade dispute between Japan and South Korea. Instead of MicroThin™, they are using a subtractive method. This method is inferior to MicroThin™ in terms of yield rate, but the firms adopted it nonetheless, probably because they balked at the risk associated with using a Japanese supplier.

The Chinese firms stopped using MicroThin™ in this half. The exact reasons are unclear.

Q.

Your assumption was that MicroThin™ sales would drop significantly in this half from the H1 level. Is that because of slimmer sales to North American HDI makers? How is current performance stacking up against forecasts?

A.

You're right. The assumption was that unit sales in North America would peak in H1 as usual and then drop in H2. Sales dropped significantly further than we initially expected. The main reason is that MicroThin™ is being used in fewer circuit board layers.

Q.

How is performance impacted by the fact that Korean and Chinese HDI makers have stopped using MicroThin™?

A.

Not that much really. The impact translates to between 10 and 20 percent of our total HDI-related sales.

Q.

How is MicroThin™ doing in non-smartphone markets such as data centers?

A.

Although we are yet to break into new applications, sales are growing as expected. The main applications at present are in server memory and GPUs.

Q.

MicroThin™ unit sales, which amounted to 132 in Q2, will be down to 100 in H2. Is that primarily because sales North American sales peaked in H1?

A.

Yes. Another factor is that, in Q2, Korean PKG makers ordered more than they would ordinarily, as they wanted to stockpile.

Q.

Given that there was such a rush to stockpile in Q2, one would expect a reactionary decline in orders this half. However, the orders are not declining. Why is that?

A.

The stockpiling did indeed boost sales in Q2, and yes, this would ordinarily lead to a reactionary drop. The reason such a drop hasn't occurred seems to be because the PKG makers in question are yet to reduce their inventory levels. They probably want to keep stocks high to offset the risk of a protracted dispute between Japan and South Korea.

Q.

Was there no similar flurry of orders for general copper products by Korean manufacturers of flexible printed circuits (FPCs)? Also, tell us the H1 results or the full-year forecasts for sales to manufacturers of communications infrastructure and manufacturers of FPCs.

A.

There was no reported stockpiling rush among FPC makers. In H1, sales to manufacturers of communications infrastructure were up 5% year on year, while those to FPC makers were down 5% year on year.

Q.

About MSAP, how far has the uptake declined, and what are the reasons?

A.

Whereas the product was previously used in six of the layers in ten-layer motherboards, this year it is being used in just four layers. The likely reason is that clients have become more cost-conscious.

Q.

Do you think the Japan—South Korea trade dispute will continue to disrupt business with Korean clients in the foreseeable future? Under what circumstances could MicroThin™ sales recover next year?

A.

There are several perspectives concerning the prospects for MicroThin™. Regarding sales to HDI makers, this will depend on PCB designs. If the designs for next-gen boards force clients to procure more sophisticated materials, then Korean HDI makers will probably return to us. As for sales to PKG makers, the ongoing transition to 5G should lead to a steady increase in sales.

Q.

Copper foil sales to manufacturers of communications infrastructure are increasing with new 5G applications. Will general copper foil sales to such manufacturers drive up earnings next year and beyond?

A.

Such manufacturers are showing considerable interest in our general copper foils, both high-end and middle-range ones. Sales should start contributing to earnings from fiscal 2020.

Q.

Will engineered powders recover in this half? How are the unit sales in this half compared to Q2?

A.

Sales to electronics makers should pick up this half, but the level will remain low. That said, whereas clients were reducing their inventory levels throughout the second half of FY2018, such inventory adjustments seem to have bottomed out.

**Other**

Q.

You downwardly revised the forecast for profit attributable to owners of parent to the same extent as you downwardly revised the forecast for ordinary profit. What factors did you consider?

A.

The main reason is that a lower profits would not significantly reduce the taxes we pay. Our estimated tax bills are small anyway, as our group companies are treated as a single entity for tax purposes.