

COMPANY RESEARCH AND ANALYSIS REPORT

RS Technologies Co., Ltd.

3445

Tokyo Stock Exchange Prime Market

1-Nov.-2022

FISCO Ltd. Analyst

Yuzuru Sato



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Summary

Demand for both reclaimed wafers and prime wafers is strong, leaving room for the FY12/22 results to exceed the upwardly revised forecasts

RS Technologies Co., Ltd. <3445> (hereafter, “the Company”) conducts reclamation processing of silicon wafers, a major material for semiconductor chips, as its main business, and has the largest global market share with approximately 33% (the Company’s estimate) in 12-inch (300 mm) and 8-inch (200 mm) reclaimed wafers, which are the main sizes. The Company entered integrated production and sales of prime wafers in China in 2018, while it is also focusing on developing the semiconductor-related consumable materials business to be the third major income source.

1. Against the backdrop of the strong demand, sales and profits increased significantly in the 1H FY12/22 results

In the 1H FY12/22 (January to June 2022) consolidated results, net sales increased 55.5% year-on-year (YoY) to ¥24,193mn and operating income rose 145.5% to ¥6,051mn, so sales and profits increased and were significantly higher than the initial forecasts (net sales of ¥18,000mn and operating income of ¥3,500mn). Against the backdrop of the strong demand for semiconductors, results were excellent in the wafer reclaim business, while sales and profits also increased significantly in the prime wafer silicon manufacturing and sales business (hereafter, the prime wafers business) from the effects of the increase in the new plant’s operating rate and the higher production volume.

2. Room for the FY12/22 results to exceed the upwardly revised forecasts

Based on the excellent results, the Company has upwardly revised its initial FY12/22 results forecasts (net sales of ¥37,400mn and operating income ¥7,600mn) and is now forecasting that net sales will increase 30.0% YoY to ¥45,000mn and operating income will rise 52.7% to ¥10,500mn. On a fiscal-half basis, the forecast is for earnings to decline in the 2H, but this is because of a conservative review based on growing uncertainty about the external environment. At the very least, order conditions at the beginning of September continued to be excellent in the wafer reclaim business and the prime wafers business, and there has been no mention of any concerns about the future. Also, in the 2H in the prime wafers business, profitability is expected to increase from the improvement of the product mix. The anticipated exchanges rates in the 2H are ¥125/USD, ¥19/RMB, and ¥4.3/NTD, so the yen trending weaker than its current level will also be a positive factor. Based on this situation, at FISCO we think it is highly likely that the full-year results will be higher than the Company’s forecasts. The Chinese subsidiary GRINM Semiconductor Materials Co., Ltd. (hereafter, GRITEK) is scheduled to be listed on the stock market in China around the fall of 2022. Alongside its issuance of shares, the Company’s shareholding ratio will decline by slightly more than 10%, but its policy is to maintain it as a consolidated subsidiary and the effect on results is expected to be negligible.

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Summary

3. Aiming to start mass production of 12-inch prime wafers in 2024

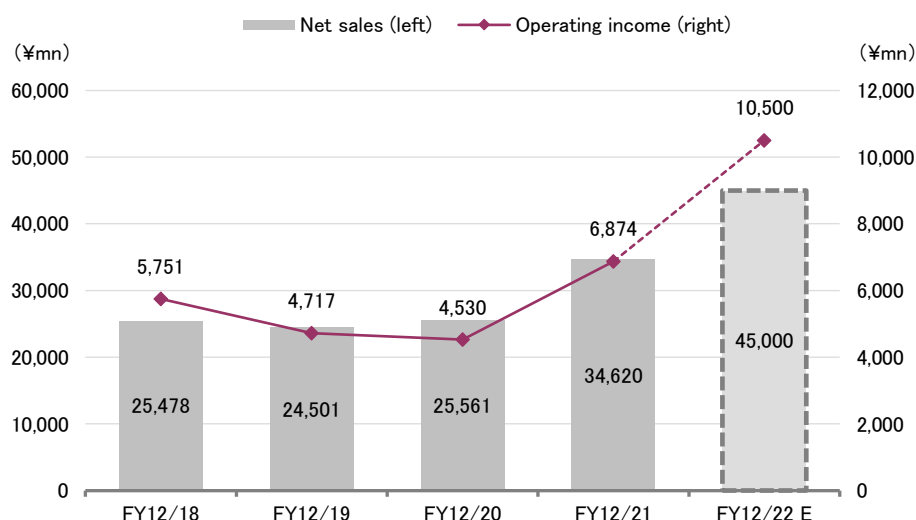
The Company's medium-term results targets are net sales of ¥45,000mn and operating income of ¥10,000mn in FY12/25, but due to the excellent performance of its main businesses and the weakening of the yen, it is expected to achieve these targets three years ahead of schedule. As its growth strategy going forward, in addition to growing the wafer reclaim business and the prime wafers business, its strategy is to work to develop consumable materials for semiconductor manufacturing equipment (dry etching equipment) to be its third business pillar. Its new plant, which is its second base in Japan, started operations in June 2022 and is aiming for sales of more than ¥10bn in the future. Moreover, GRITEK's equity-method affiliate Shandong GRINM RS Semiconductor Materials Co., Ltd. (hereafter, SGRS)* plans to start mass production of 12-inch reclaimed wafers and prime wafers, and in the future it will capture the increasing demand for 12-inch wafers in the Chinese market. As it is an equity-method affiliate, for the time being its effect on consolidated results is negligible, but the Company intends to make it a consolidated subsidiary at the stage when it is generating earnings. The Chinese government has set developing the semiconductor industry to be a national policy and has already revealed its plan to construct semiconductor plants that are compliant with 12-inch wafers at 17 locations. SGRS has also started to construct a new plant in order to begin mass production in 2024 of products compatible with 28 to 40 nm, which is the volume zone for Chinese semiconductor manufacturers. SGRS's target is to become the top manufacturer of 12-inch prime wafers in China and is expected to grow in the future.

* The Company's investment stake in GRITEK is 19.99% and for its consolidated results, approximately 9% of SGRS net income is recorded in equity in earnings/losses of affiliated companies.

Key Points

- Against the backdrop of strong demand for semiconductors, sales and profits increased significantly in the 1H FY12/22 results
- Orders continue to be strong and the weak yen is also having an effect, so FY12/22 results forecasts may be upwardly revised again
- The outlook is for results to continue to grow faster than the growth of the semiconductor industry through expansion of sales regions and business areas

Results trends



Source: Prepared by FISCO from the Company's financial results

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Company overview

Started in the silicon wafer reclamation business and expanding to the prime wafer business and semiconductor-related equipment and materials, etc. business

1. History

the Company was established in December 2010 in order to take over the silicon wafer reclamation business of Rasa Industries, Ltd. <4022>, which had withdrawn from the business, inheriting its equipment and technology. Since then, it has been developing its silicon wafer reclamation business and currently has two plants, the Sanbongi plant in Osaki City, Miyagi Prefecture and the Tainan plant in Taiwan (completed in 2015), which is owned by RSTEC Semiconductor Taiwan Co., Ltd., a subsidiary established in 2014.

Also, in 2017, the Company announced that it would be launching a prime wafer business in China, and in 2018, together with Chinese state-owned company General Research Institute for Nonferrous Metals (currently, Grinm Advanced Materials Co., Ltd.; hereafter, GRINM) and Fujian Cangyuan Investment Co., Ltd. (hereafter, Fujian Cangyuan), it established a joint venture, Beijing GRINM RS Semiconductor Materials Co., Ltd. (BGRS). At the same time, BGRS invested in GRITEK, which was a subsidiary of GRINM that manufactured and sold silicon ingots and prime wafers, turning it into a wholly owned subsidiary. The investment ratios in BGRS are 45% for RS Technologies, 49% for GRINM and 6% for Fujian Cangyuan. Although its investment ratio is below 50%, Fujian Cangyuan is an investment company managed by a relative of the Company's President Nagayoshi Ho, so in actual terms, it owns more than 50%, and moreover, has appointed three of the five directors that comprise the BGRS Board of Directors. Therefore, it effectively holds the management rights and BGRS is deemed to be a subsidiary within its scope of consolidation.

The reason for the complex investment scheme for BGRS is that, if a Chinese company's investment ratio from local capital is 50% or above, it is treated by the Chinese government and local governments as a domestically funded company and is eligible to receive various types of subsidies and other funding. Such companies also receive preferential treatment in areas like capital investment and taxes, giving them competitive advantages over foreign-funded companies. In 2018, together with the city of Dezhou, Shandong, GRITEK established Shandong GRINM Semiconductor Materials Co., Ltd. (hereafter, Shandong GRITEK), a joint venture, as a new manufacturing base (investment ratios: GRITEK 80% and Dezhou 20%).

The Company has also engaged in buying and selling semiconductor-related production equipment and materials since its founding, and is working to expand its business areas. For instance, in 2018, it acquired shares of Union Electronics Solutions Co., Ltd., a semiconductor trading firm, followed by shares of DG Technologies Co., Ltd., which manufactures and sells semiconductor-related consumable materials (quartz rings and silicon electrodes) in 2019 as wholly owned subsidiaries. Furthermore, in 2020, it established Shanghai Union Semiconductor Co., Ltd. and Beijing Gritek & IVT Valve Technology Co., Ltd. to expand sales of semiconductor-related materials, and established SGRS, which handles 12-inch wafer reclaim business and prime wafer business, jointly with GRINM and a fund affiliated with the Dezhou government. (The Company made SGRS into an equity-method affiliate, with a 19.99% investment ratio from the time of its establishment, and currently owns shares through GRITEK.) Through these businesses, the Company is actively developing operations in China.

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Company overview

The Company's strength in reclaimed wafers lies in the large number of times they can be reclaimed through precision inspection and polishing technologies

2. Reclaimed wafers and prime wafers

To appreciate the strengths and growth potential of the Company's mainstay silicon wafer reclaim business and prime wafer business, it is essential to understand the semiconductor manufacturing process and role of silicon wafers as well as the manufacturing methods used to produce them. An explanation is provided below.

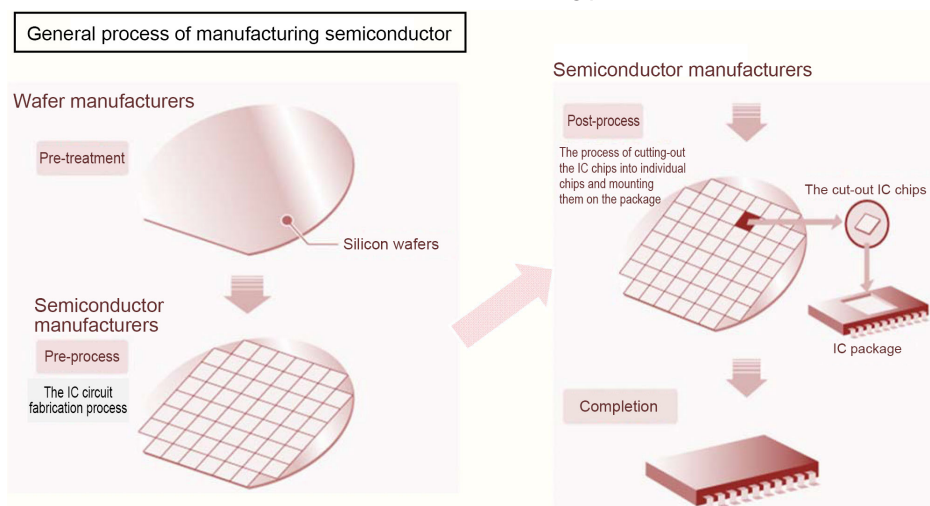
(1) Silicon wafers

A semiconductor is a substance that has electrical conductivity properties halfway between a conductor, which conducts electricity, and an insulator, through which electricity cannot pass. Using these properties, integrated circuits (IC) are manufactured to fabricate highly dense electric circuits. Microprocessing units (MPU), "the brain" of the PC, and memory to store information (such as flash memory and DRAM) are typical examples of semiconductors. They are installed in various applications, including home electrical appliances, telecommunication devices, and automotive electrical equipment, and are also known as the "rice of industry."

Various materials are used in the substrates of these semiconductors according to the required performance, with silicon being among the most widely used. An ingot (meaning a block) of single high-purity silicon is pulled from melted polycrystalline silicon and then sliced into disk-shaped objects called silicon wafers*. Semiconductor manufacturers fabricate detailed circuits on silicon wafers and manufacture semiconductor chips.

* The thickness of a single 12-inch wafer is determined as $775\ \mu\text{m} \pm 25\ \mu\text{m}$, and several hundred silicon wafers can be obtained from a single ingot.

Semiconductor manufacturing process



Source: Prepared by FISCO from the Company's results briefing materials

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Silicon wafers are becoming larger in diameter alongside the progression of manufacturing technologies, and currently they are mass-produced in various sizes, including 5 inches (125 mm), 6 inches (150 mm), 8 inches (200 mm), and 12 inches (300 mm) in diameter. 12-inch wafers are mainly used in state-of-the-art semiconductors that require high integration (miniaturization), but recently they are also being used for power semiconductors. Furthermore, not all silicon wafers introduced into the semiconductor manufacturing line are used to manufacture semiconductor chips. Semiconductors are completed by repeatedly creating fine circuit patterns on the silicon wafer, so the manufacturing process is carried out in tandem with tests and evaluations to check the finishing conditions in each process. The silicon wafers used for tests and evaluation purposes have names such as “test wafers,” “dummy wafers,” and “monitor wafers,” (collectively referred to as “monitor wafers” hereinafter in this report), and are primarily made using reclaimed wafers. Conversely, the wafers that are actually processed for semiconductor chips are all new wafers and are generally called “prime wafers” (called “prime silicon wafers” in the name of the Company’s business segment, but refer to the same thing).

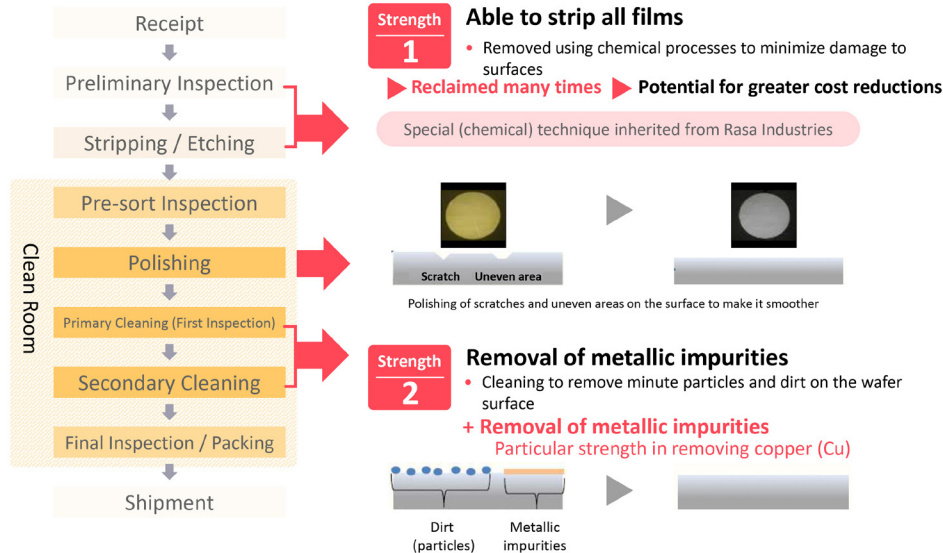
(2) Reclaimed wafers

The volume of monitor wafers used seems to be around 20% of the total volume of wafers input into the semiconductor manufacturing line, and basically, monitor wafers input are new wafers. However, in order to reduce the costs of manufacturing semiconductors even by just a little, semiconductor manufacturers are reusing monitor wafers that have been used once and then reclaimed by a reclamation processing business such as the Company. The price of a reclaimed wafer is around 25% cheaper than that of a new wafer, so the wafer input costs can be reduced significantly simply by using reclaimed wafers as the monitor wafers. Of the total number of monitor wafers, it seems the percentage of reclaimed wafers is approximately 80%.

In the wafer reclamation process, an acceptance inspection is conducted and all elements, such as the insulating film formed in the semiconductor manufacturing process, are removed. After that, polishing is performed in a clean room to ensure that the surface of the wafer is completely flat, followed by precision cleaning, and then shipment. One of the Company’s strengths is its technological capabilities, as in the film removal process, it is able to strip all the film through a chemical process and perform precision polishing that keeps any damage to the wafer’s surface to the absolute minimum. This increases the number of times a wafer can be reclaimed to 20 or 30 times, which is around double the industry average. The thickness of a 12-inch prime wafer is approximately 775 μm , and it is said that up to around 630 μm can be used for a monitor wafer. Therefore, the less the amount of the wafer’s thickness that is removed by polishing in a single reclamation process, the higher the number of times it can be reclaimed. For example, if the wafer thickness is reduced by 10 μm in a single polishing, the number of times the wafer can be reclaimed is only 14 or 15, but if the polishing can be kept down to a reduction of 5 μm , this number increases to as high as 30. Another of the Company’s strengths is that it has technologies to remove metal impurities. In particular, it has been certified by many semiconductor manufacturers to remove copper (Cu) as the only supplier capable of polishing wafers to a degree of cleanliness that is as good as new. Although there is currently not a large demand to introduce processes that require the degree of cleanliness of reclaimed wafers that use copper (Cu), demand may rise depending on environmental changes in the future, such as tightening conditions for supply and demand of wafers and increased costs.

Company overview

Wafer reclamation process



Source: Prepared by FISCO from the Company's results briefing materials

(3) Prime wafers

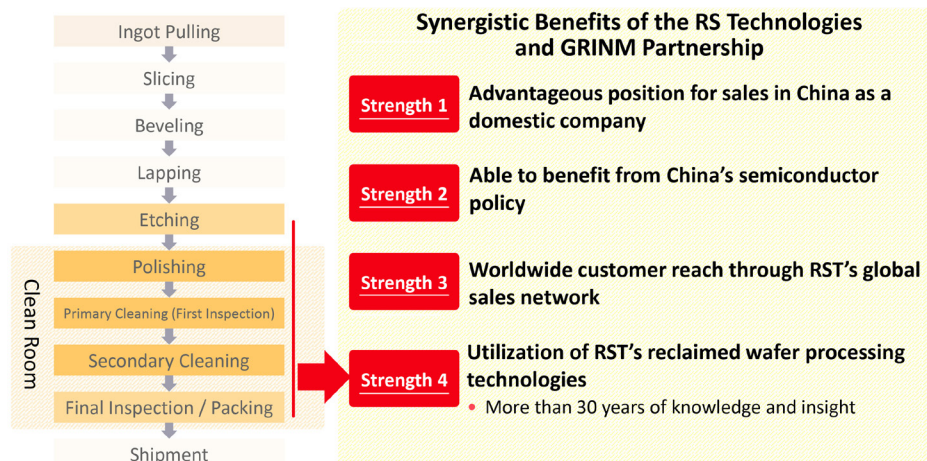
Prime wafer is another way of saying a new wafer. Wafer processing consists of front-end processing, which includes silicon crystal ingot pulling, and back-end processing, which includes slicing wafers from ingots into disk-shapes and polishing the surface of the wafers. While all these processes require advanced technology, the success of silicon wafer manufacturing businesses depends largely on front-end processing yields. Production yield does not merely refer to the number of units that can be produced per hour. The more important factor is the number of good quality prime wafers that can be produced from one silicon crystal ingot. This is because even for new wafers, the grade is determined by quality (homogeneous purity, oxygen concentration, resistance value, etc.) in the same way, and if certain standards are not met, they are sold at a low price as monitor wafers. (The price of a monitor wafer is around 30% cheaper).

Shandong GRITEK of China manufactures and sells prime wafers. One of its strengths is that, as previously stated, it can utilize various preferential treatment systems as a domestically funded company, and that the Company could benefit from various Chinese government measures given that the semiconductor industry is being developed as a national policy. In technology, the Company leverages its industry-leading technology capabilities cultivated over many years in the wafer reclamation business in back-end polishing and cleaning processes. It appears to have its work cut out for now in simply dealing with increases in semiconductor production in China. But looking to the future, it is aiming to improve the quality of its products to the global standard and to sell to the semiconductor manufacturers around the world through the Company's sales network.

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Prime wafers

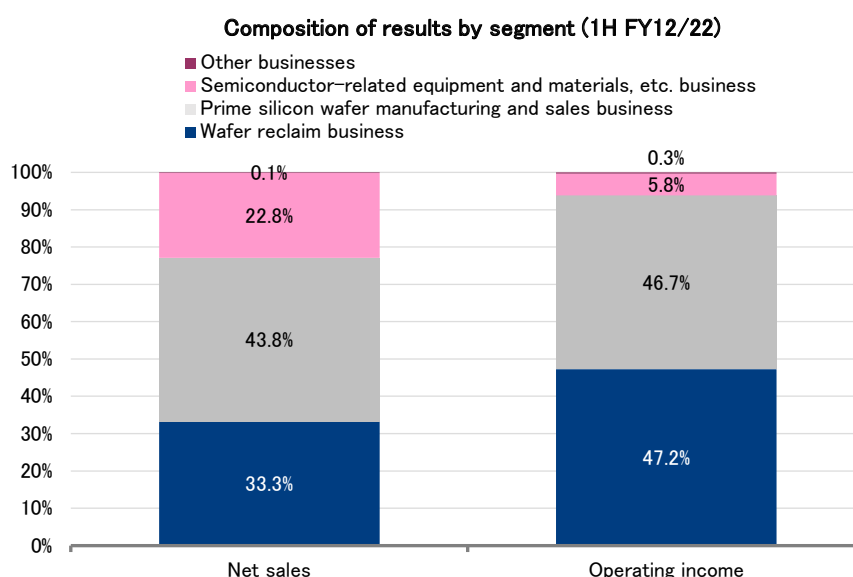


Source: Prepared by FISCO from the Company's results briefing materials

The wafer reclaim business has a leading share of the 12-inch wafer market, at approximately 33%, and its main customers include TSMC, Kioxia and Sony

3. Business description

The Company classifies its business operations into four business segments, specifically the wafer reclaim business, prime wafer business (prime silicon wafer manufacturing and sales business), and semiconductor-related equipment and materials, etc. business, and other businesses, and discloses information on each segment. Looking at the composition of results by business segment in 1H FY12/22, the wafer reclaim business provided 33.3% of net sales and 47.2% of operating income, and the prime wafer business provided 43.8% of net sales and 46.7% of operating income. These two businesses are the Company's core earnings drivers.



Source: Prepared by FISCO from the Company's financial results

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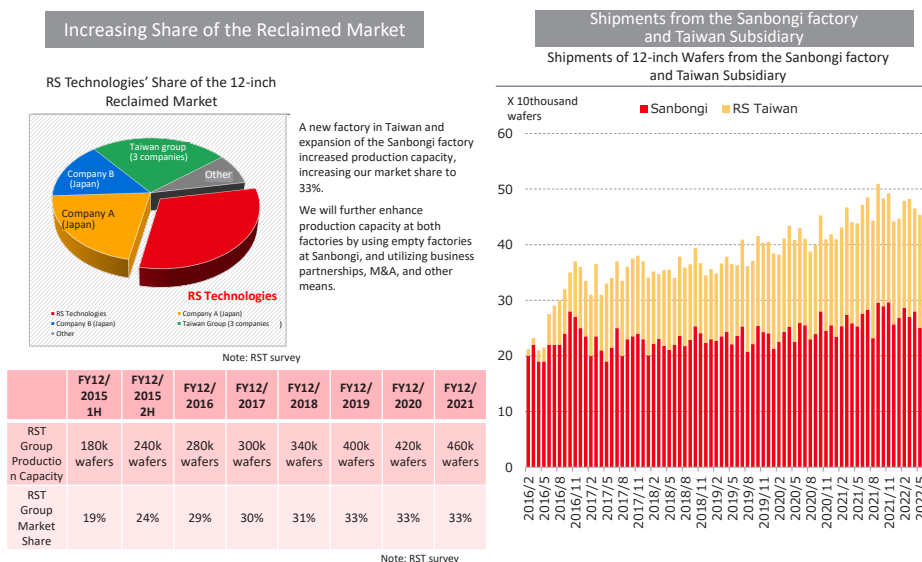
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Company overview

(1) Wafer reclaim business

The wafer reclaim business is conducted by the Company and its Taiwanese subsidiary, but from FY12/22 2Q, the equity-method affiliate SGRS also began mass production of 12-inch reclaimed wafers. Only the Company is conducting this business with three bases in Japan, Taiwan, and China. The monthly production capacity for the mainstay 12-inch wafers at the end of June 2022 was 500,000 wafers in total (an increase of 40,000 wafers on the end of the previous period), comprised of 300,000 wafers in Japan (also has a capacity for 150,000 8-inch wafers) and 200,000 wafers in Taiwan. In terms of the composition of sales, the 12-inch wafer provides the majority, at around 85%. According to the Company's estimate, it has the leading global market share on a volume basis, of approximately 33%. It has two competitors in Japan—HAMADA HEAVY INDUSTRIES Ltd. and MIMASU SEMICONDUCTOR INDUSTRY CO., LTD. <8155>—while its overseas competitors are three Taiwanese-owned companies. These six companies form an oligopolistic market that hold roughly 90% of the global market share.

Monthly output volume in the wafer reclaim business and share of the 12-inch reclaimed wafer market



Source: The Company's results briefing materials

Furthermore, the breakdown of the number of wafers shipped by region (FY12/21) is as follows. For 12-inch reclaimed wafers, Taiwan provides 40.4% and Japan 32.6%, so these two countries provide around 70% of the total. Meanwhile, 8-inch reclaimed wafers stand out for having higher numbers for Europe and the US, at 46.3% and 23.5%, respectively. The Company's main customers include major semiconductor manufacturers, such as TSMC <TSM> in Taiwan, Sony Semiconductor Solutions Corporation and Kioxia Corporation in Japan, Intel <INTC> and Micron Technology <MU> in the US, and STMicroelectronics International N.V. <STM> and Infineon Technologies in Europe. Shipments of 12-inch reclaimed wafers for China were previously from Japan and Taiwan. But this will be sequentially shifted to SGRS, which started mass production from 2022, and the strategy is to use the resulting excess capacity at the plants in Japan and Taiwan to cover the demand from other regions.

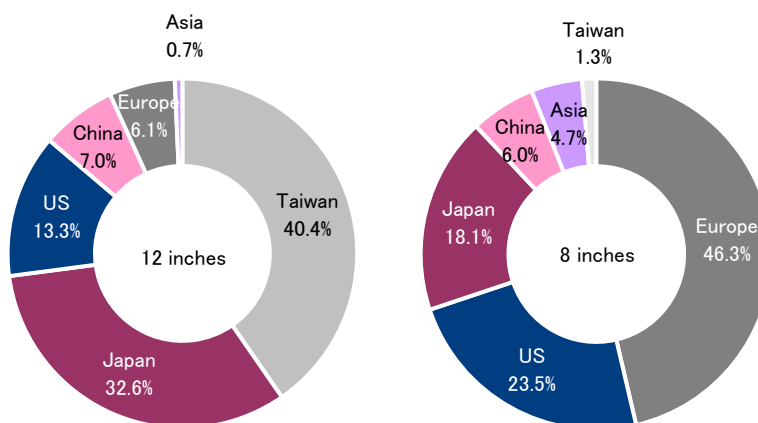
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Company overview

Breakdown of shipment volume in the wafer reclaim business by region (FY12/21)



Source: Prepared by FISCO from the Company's results briefing materials

(2) Prime wafer business

Prime wafer business is covered by Chinese subsidiary GRITEK. A little less than 40% of its sales consist of prime wafers, while consumable material and ingot sales make up the remaining a little over 60%. Prime wafer monthly production capacity at the end of June 2022 totaled 50,000 5-inch wafers, 150,000 6-inch wafers, and 130,000 8-inch wafers at the Dezhou plant. Chinese semiconductor manufacturers are the main customers for prime wafers, and customer volume has risen to 60–70 companies. These customers primarily manufacture analog semiconductors used in consumer electronics, automobiles, and other products. The Company sells consumable materials and ingots in overseas markets as well, and ships some consumable materials to DG Technologies, which makes semiconductor-related consumable materials in Japan.

(3) Semiconductor-related equipment and materials, etc. business

The semiconductor-related equipment and materials, etc. business includes sales of semiconductor manufacturing equipment and semiconductor materials as well as parts that are purchased and sold by the Company and sales by subsidiaries Union Electronics Solutions and DG Technologies. It mainly purchases the semiconductor manufacturing equipment from Japanese semiconductor manufacturers and others (including some used products), and primarily sells them to semiconductor manufacturers in the United States, Europe, Japan, Taiwan, China, South Korea, and other markets around the world.

Union Electronics Solutions is a semiconductor trading firm that mainly handles power semiconductors from Hitachi Power Semiconductor Device, Ltd. and MCUs from Renesas Electronics Corporation <6723>. It opened a Shanghai office in 2020 and plans to expand sales of semiconductor-related products after the spread of COVID-19 infections settles down. DG Technologies manufactures and sells semiconductor-related consumable materials (quartz rings and silicon electrodes, etc) for dry etching equipment, which is a type of semiconductor equipment. Customers include major domestic and overseas semiconductor device manufacturers and domestic and overseas semiconductor manufacturers. As production sites, it only had the Kamisu plant (Ibaraki) but opened the Kurihara plant (Miyagi) in May 2021 to respond to the strong demand and it has started production for some processes, while in June 2022, it completed the construction of the new plant that is able to carry out integrated production. The operations of the new plant will approximately double the monthly production capacity.

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(4) Other businesses

The sales of other businesses are comprised of revenue from electricity sales from the solar power generation business started in 2013 (power generation capacity of approximately 1.59 MW) and technical consulting services and other services provided by the Company in the semiconductor wafer manufacturing process. However, its effect on results overall is negligible.

Business trends

Against the backdrop of strong demand for semiconductors, sales and profits increased significantly in the 1H FY12/22 results

1. 1H FY12/22 results summary

In FY1H 12/22 consolidated results, the Company reported ¥24,193mn in net sales (up 55.5% YoY), ¥6,051mn in operating income (up 145.5%), ¥7,425mn in ordinary income (up 102.7%), and ¥3,335mn in net income attributable to owners of parent (up 429.0%), and all exceeded their initial forecasts and set greatly improved new record highs.

1H FY12/22 results (consolidated)

	FY12/21 2Q		Initial forecast	FY12/22 2Q			
	Results	% of sales		Results	% of sales	YoY	Achievement
Net sales	15,559	-	18,000	24,193	-	55.5%	34.4%
Cost of sales	10,700	68.8%	-	15,690	64.9%	46.6%	-
SG&A expenses	2,395	15.4%	-	2,452	10.1%	2.4%	-
Operating income	2,464	15.8%	3,500	6,051	25.0%	145.5%	72.9%
Ordinary income	3,662	23.5%	4,000	7,425	30.7%	102.7%	85.6%
Extraordinary income	-1,372	-8.8%	-	-324	-1.3%	-	-
Net income attributable to owners of parent	630	4.1%	2,300	3,335	13.8%	429.0%	45.0%

Source: Prepared by FISCO from the Company's financial results

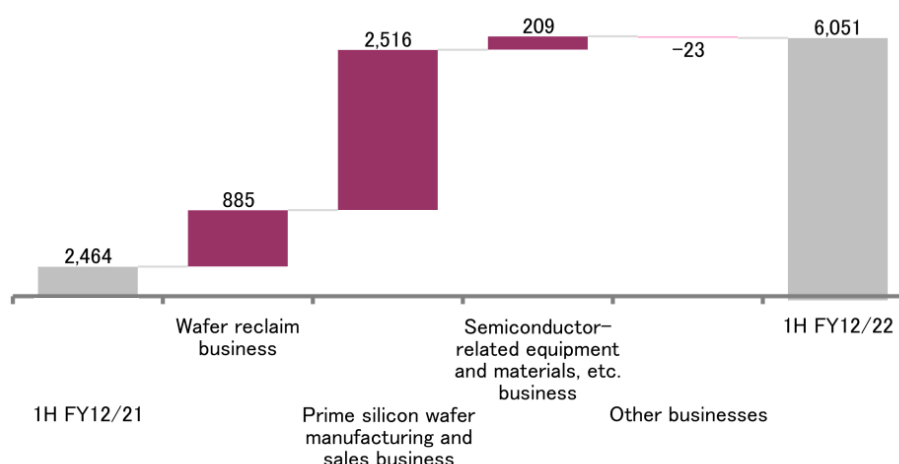
Against the backdrop of the strong demand for semiconductors, results continued to be excellent in the mainstay wafer reclaim business and prime wafers business, while the Company is also benefiting from the weakening of the yen*. In particular, sales and profits increased in the prime wafers business due to the expansion of production at the Dezhou plant, which started operations in October 2020, and it seems that it provided approximately 70% of the increase in operating income in this business. Due to the effects of the higher sales and the improvement to the product mix, the cost of sales ratio declined from 68.8% in the same period in the previous year to 64.9%. The increase in SG&A expenses was kept down to only 2.4% YoY, which was mainly due to the reduction in 8-inch prime wafer prototype expenses that were recorded in the same period in the previous year.

* The average exchange rates during the period in this 1H were ¥109/USD, ¥16.8/RMB, and ¥3.9/NTD compared to the rates in the same period in the previous fiscal year of ¥124/USD, ¥19.1/RMB, and ¥4.3/NTD, so the yen trended weaker by around 11% to 14%. The percentage of sales provided by overseas sales is approximately 80%.

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Business trends

Operating income increase/decrease factors in 1H FY12/22 (¥mn)



Source: Prepared by FISCO from the Company's results briefing materials

In non-operating income and expenses, subsidy income*1 declined from ¥1,102mn in the same period in the previous year to ¥518mn, but the exchange-rate gain increased from ¥22mn to ¥809mn. Also, in the same period in the previous year, share-based payment expenses of ¥1,372mn*2 were recorded as an extraordinary loss, while in 1H FY12/22, an allowance for retirement benefits for officers of ¥350mn was recorded. Alongside the sharp increase in earnings of the Chinese subsidiary, the effective tax rate declined, and net income attributable to owners of parent increased significantly.

*1 In the same period in the previous fiscal year, in relation to the launch of operations at the Dezhou plant, plant relocation expenses (from the Beijing plant to the Dezhou plant) of approximately ¥300mn were recorded. Also, employee recruitment expenses, 8-inch wafer prototype expenses, and other expenses were recorded as subsidy income.

*2 The difference between the price per share for the transfer of a portion of GRITEK shares owned by BGRS to GRITEK's employee shareholding association as part of the preparations for the GRITEK IPO in February 2021 and the fair value acknowledged by the corporate auditor was recorded as share-based payment expenses.

Looking at the results by major companies, the Company's non-consolidated net sales increased 19.8% YoY to ¥8,001mn and operating income rose 37.3% to ¥1,812mn. In order to respond to the strong demand from customers, it increased the monthly production capacity of 12-inch reclaimed wafers by 20,000 wafers on the end of the previous period to 300,000 wafers and of 8-inch reclaimed wafers by 20,000 wafers to 150,000 wafers, so the sales volume grew, and in addition the profit margin rose due to the improved productivity. In the Taiwanese subsidiary, net sales increased 71.2% to ¥4,635mn and operating income rose 64.6% to ¥1,254mn. Sales and profits grew significantly, as it increased its monthly production capacity of 12-inch reclaimed wafers by 20,000 wafers on the end of the previous period to 200,000 wafers, while in addition, it received orders for new monitor wafers from specific customers. New monitor wafers are shipped mainly as processed silicon wafer products after they are purchased, polished, and cleaned, and their price is around 2 or 3 times higher than normal reclaimed wafers, so they are a factor increasing the average sales unit price. It seems that the Taiwanese subsidiary is using its increased production facilities to respond for shipments of new wafers. Recently, the tight supply-demand conditions for 12-inch reclaimed wafers have continued and it has hardly handled new monitor wafers, but sales have become possible because the Taiwanese subsidiary has been able to secure a certain volume of them. In the 2H also, the outlook is that new wafer sales will continue at around the same level as in the 1H.

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Business trends

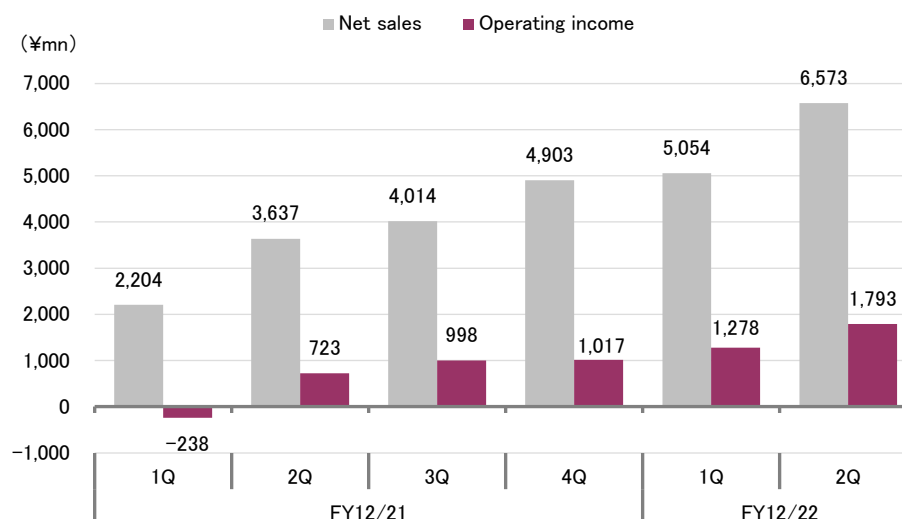
In the Chinese subsidiary, results grew rapidly, with net sales increasing 99.1% YoY to ¥11,627mn and operating income growing 533.2% to ¥3,071mn. The main factors behind the significant increase in net sales were the rise in the new plant's operating rate and the improved product mix for 8-inch prime wafers, and also because sales, including 6-inch prime wafers, ingots, and consumable materials, grew even more from the 1Q through to the 2Q. The 8-inch prime wafer monthly production capacity is 130,000 wafers and their sales were 100,000 wafers, while the 6-inch prime wafer monthly production capacity is 150,000 wafers and their sales were 200,000 wafers in the 1Q and 240,000 wafers in the 2Q. To respond to this strong demand, one part of the 8-inch prime wafers' manufacturing line was allocated to 6-inch prime wafers. Looking at how net sales trended on a fiscal quarterly basis, they increased by around ¥1.5bn from the 1Q to the 2Q, from ¥5,054mn to ¥6,573mn, and of this amount, approximately ¥1bn was from the increase in sales of ingots and consumable materials and the remainder, of around ¥400mn, was from the higher sales of 6-inch and smaller prime wafers. The production certification status of 8-inch prime wafers was that the percentage had increased from between 30% to 40% (product basis) at the end of June 2021 to 75% at the end of June 2022. In the initial forecast, the plan was to acquire certification for basically all of the products, but the schedule of plant inspections has been delayed due to COVID-19 so acquisitions of certification have been pushed back.

Business performance trends by company in 1H FY12/22

	The Company		Taiwanese subsidiary		Beijing subsidiary		Other subsidiaries	
	Results	YoY	Results	YoY	Results	YoY	Results	YoY
Net sales	8,001	19.8%	4635	71.2%	11,627	99.1%	-70	-
Operating income	1,812	37.3%	1254	64.6%	3,071	533.2%	-86	-
Operating income margin	22.6%	2.8pt	27.1%	-1.1pt	26.4%	18.1pt	-	-

Source: Prepared by FISCO from the Company's results briefing materials

Chinese subsidiary



Source: Prepared by FISCO from the Company's results briefing materials

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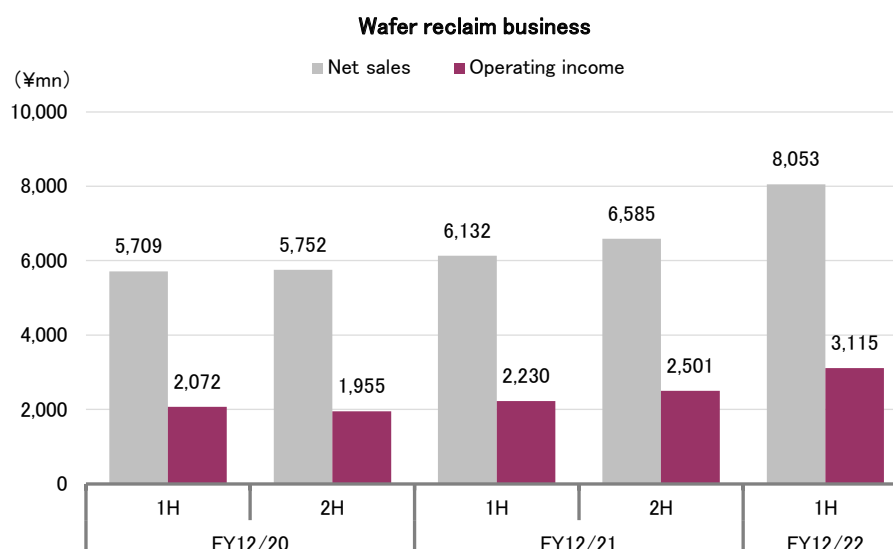
Business trends

Results continue to be excellent in all business segments

2. Developments by business segment

(1) Wafer reclaim business

In the wafer reclaim business, net sales increased 31.3% YoY to ¥8,053mn (includes internal sales and the transfer value, same below) and operating income rose 39.7% to ¥3,115mn. The main factors were the increased production capacity of 12-inch reclaimed wafers at the Japan and Taiwan plants to respond to strong customer demand amid the continued expansion of the semiconductor market, the spread of higher sales prices, and the growth in sales of new wafers to specific customers in Taiwan. Sales prices are different depending on the customer, but looking at the average price increase rate, it was around 5% for 12-inch wafers and approximately 10% for 8-inch wafers.



Source: Prepared by FISCO from the Company's results briefing materials

(2) Prime wafer business

In the prime wafers business, net sales increased 93.5% YoY to ¥11,571mn and operating income rose 448.5% to ¥3,077mn. As previously stated, progress was made in customer certification for 8-inch prime wafers, while in addition, the effects of the higher volume, including the further growth in sales of 6-inch prime wafers and ingots, and also the higher operating rate, contributed greatly. Other factors causing sales and profits to increase were that the average sales unit price rose by nearly 10% YoY against the backdrop of the tight supply-demand conditions, and also the weakening of the yen. The average exchange rate of the yen weakened by around 14% against the Chinese yuan, and this was a factor boosting the results of the Chinese subsidiary when converted to yen.

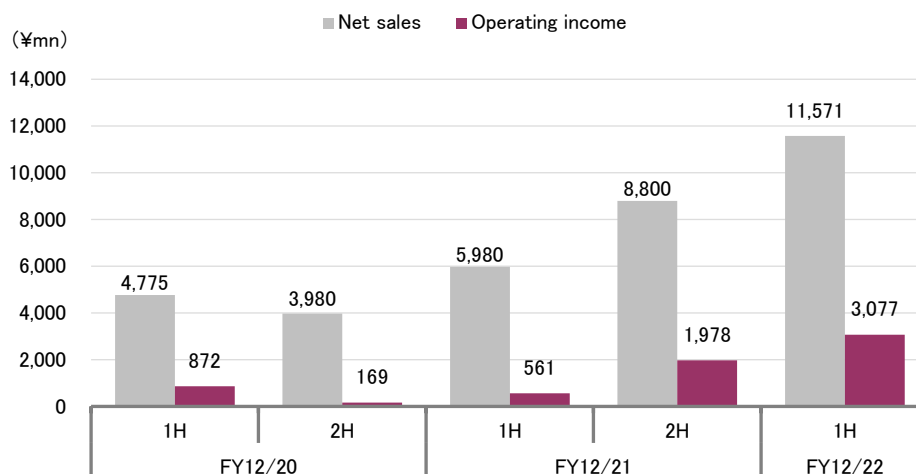
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Business trends

Prime wafer business

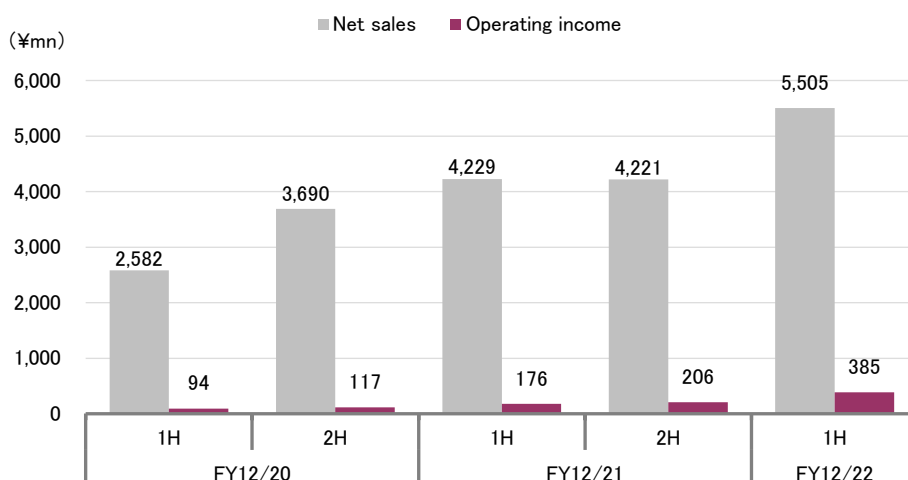


Source: Prepared by FISCO from the Company's results briefing materials

(3) Semiconductor-related equipment and materials, etc. business

The semiconductor-related equipment and materials, etc. business recorded ¥5,505mn in net sales (up 30.2% YoY) and ¥385mn in operating income (up 118.8.0%). This was attributable to a large increase in semiconductor-related equipment procurement sales due to reinforced sales operations, as well as strong sales of consumable materials for dry etching equipment handled by DG Technologies against a backdrop of strong demand. In consumable materials, the Company launched a new plant in May 2021, its second in Japan (Kurihara City, Miyagi Prefecture), which has started manufacturing for some of the processes, and these efforts to increase the production capacity led to excellent sales.

Semiconductor-related equipment and materials, etc. business



Source: Prepared by FISCO from the Company's results briefing materials

Alongside the growth of earnings, the financial structure is improving

3. Financial condition and management indicators

Looking at the financial condition at the end of FY12/22 2Q, total assets had increased by ¥15,236mn on the end of the previous period to ¥94,234mn. The main factors behind these changes were that in current assets, there were increases of cash and deposits of ¥6,997mn and notes and accounts receivable of ¥4,194mn. In non-current assets, property, plant and equipment increased ¥3,367mn due to the active investment to strengthen capacity, while investments and other assets rose ¥266mn.

Total liabilities increased ¥3,137mn on the end of the previous period to ¥27,183mn. In current liabilities, there were increases of notes and accounts payable-trade of ¥2,808mn, income taxes payable, etc., of ¥448mn, and trade accounts payable of ¥205mn, while in non-current liabilities, provision for retirement benefits for directors increased ¥349mn. Net assets increased ¥12,099mn to ¥67,050mn. This was mainly because retained earnings rose ¥3,012mn, primarily due to the recording of net income attributable to owners of parent, and also due to the increases in foreign currency translation adjustment of ¥3,083mn because of the weak yen, and non-controlling interests of ¥5,981mn due to the growth of earnings at GRITEK and the weak yen.

Looking at the management indicators, the equity ratio, which reflects soundness, changed direction and increased, rising from 36.2% at the end of the previous period to 36.8%, while the interest-bearing debt ratio declined from 28.4% to 23.4%. In addition, net cash (cash and deposits – interest-bearing debt) increased by ¥6,990mn on the end of the previous period to ¥26,640mn, which is a record high level, and the Company can be said to be strengthening its financial foundation.

The consolidated subsidiary GRITEK is scheduled to be listed on the Shanghai Stock Exchange STAR Market for newcomer companies (referred to as China's NASDAQ) in the fall of 2022. The issuance of new shares is expected to raise funds of around 1bn yuan (approximately ¥20bn). In the consolidated results immediately after it is listed, it is anticipated that cash and deposits will increase even more. The Company's shareholding ratio will decline from around 47% (including indirect holdings) to approximately 40%, but its policy is to maintain it as a consolidated subsidiary. The plan is to allocate the funds raised from the listing to investment to increase production capacity, including of 8-inch and smaller prime wafers.

Consolidated balance sheet

	FY12/19	FY12/20	FY12/21	FY12/22 2Q	(¥mn) Change
Current assets	32,760	32,626	45,851	57,518	11,667
(Cash and deposits)	22,156	19,082	27,766	34,764	6,997
Non-current assets	15,873	26,123	33,146	36,715	3,569
Total assets	48,634	58,750	78,997	94,234	15,236
Current liabilities	7,252	12,630	14,218	17,031	2,812
Non-current liabilities	5,400	5,754	9,827	10,152	324
Total liabilities	12,652	18,384	24,045	27,183	3,137
(Interest-bearing debt)	3,634	3,136	8,116	8,123	7,060
Net assets	35,981	40,365	54,951	67,050	12,099
[Stability]					
Equity ratio	42.7%	40.5%	36.2%	36.8%	0.6pt
Interest-bearing debt ratio	17.5%	13.2%	28.4%	23.4%	-4.9pt
Net cash	18,521	15,946	19,649	26,640	6,990

Source: Prepared by FISCO from the Company's financial results

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Forecasts

Orders continued to be strong while the weak yen is also having an effect, so the FY12/22 results may exceed the Company forecasts

1. FY12/22 forecasts

For the FY12/22 consolidated results, the Company has upwardly revised its initial forecasts and is now forecasting that net sales will increase 30.0% YoY to ¥45,000mn, operating income will grow 52.7% to ¥10,500mn, ordinary income will rise 41.5% to ¥12,500mn, and net income attributable to owners of parent will increase 87.6% to ¥6,200mn. The main reasons for the revisions were that results were higher than forecast up to the 2Q and also that the Company reviewed the anticipated exchange rates* in the 2H. The progress rates for the full fiscal year forecasts up to the 2Q were 53.8% for net sales and 57.6% for operating income. Earnings are forecast to decline slightly in the 2H, but this is due to the Company's conservative review in the face of growing uncertainty about business conditions in the future because of the confusion caused by the Ukraine situation, rising energy prices, and the prolonged COVID-19 pandemic.

* In the initial forecasts, the anticipated exchange rates were ¥110/USD, ¥17/RMB, and ¥3.8/NTD, which it has revised to ¥125/USD, ¥19/RMB, and ¥4.3/NTD.

FY12/22 consolidated results forecasts

	FY12/21		FY12/22				
	Results	% of sales	Initial forecast	Revised forecast	% of sales	YoY	Progress rate up to 2Q
Net sales	34,620	-	37,400	45,000	-	30.0%	53.8%
Operating income	6,874	19.9%	7,600	10,500	23.3%	52.7%	57.6%
Ordinary income	8,832	25.5%	8,900	12,500	27.8%	41.5%	59.4%
Net income attributable to owners of parent	3,303	9.5%	4,800	6,200	13.8%	87.6%	53.8%
Earnings per share (EPS) (¥)	255.56		371.29	479.59			

Note: The anticipated exchange rates in the 2H are ¥125/USD, ¥19/RMB, and ¥4.3/NTD

Source: Prepared by FISCO from the Company's financial results

However, up to early September, ordering conditions continued to be excellent in both the wafer reclaim business and the prime wafers business, and it seems there has been no mention of any negative factors for the future as well. Furthermore, when considering that in exchange rates, the yen is weakening more than anticipated, at the very least it is forecast that earnings in the 3Q will be at levels close to in the 2Q (net sales of ¥13,125mn and operating income ¥3,433mn), and at FISCO we think it is highly likely that results will be higher than the full- year forecasts. Non-operating income and expenditure is forecast to be a positive factor of ¥2.0bn for the full year, which is the same level as in FY12/21. Subsidy income is expected to decrease by ¥800mn on the previous period to ¥1bn, but this decrease will be cancelled out by the recording of foreign exchange gains (¥809mn in the 1H). In terms of the monetary effects of exchange rate fluctuations on results, previously the weakening of the yen by ¥1/USD was a factor increasing sales by ¥20mn to ¥30mn a year, but it is thought that this amount has increased slightly, including from the growth of earnings at the overseas subsidiaries.

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Forecasts

It seems that the semiconductor industry has entered an adjustment phase in the short term, as seen in the downward revisions of results forecasts by Micron Technology <MU> and Nvidia <NVDA>. But the reason why this situation will have basically no effect on the wafer reclaim business is that demand for reclaimed wafers is not linked to the production volume of semiconductors, so even if the production volume of semiconductors falls, demand for monitor wafers will trend solidly. For example, should the operating rate of a semiconductor plant fall from 100% to 70%, the volume of input prime wafers will decline 30%, but the volume of input monitor wafers will decrease by only around 5%. When the operating rate declines, semiconductor manufacturers conduct various inspections in order to improve the yield, and they require monitor wafers for these inspections. In fact, in the past 20 years, adjustment phases have occurred in the semiconductor market on numerous occasions, but the only time that demand for reclaimed wafers clearly declined was during the global financial crisis from the fall of 2008 to 2009. At that time, the semiconductor industry fell into a recession and one after another the major manufacturers stopped production at their plants, which led to a decline in demand for reclaimed wafers. In other words, as long as the semiconductor market does not deteriorate to the extent that one after another semiconductor plants stop production, we can expect demand for reclaimed wafers to trend solidly. Also, the reclaimed wafers industry is an oligopolistic market in which 3 Japanese companies and 3 Taiwanese companies hold an approximately 90% market share and is therefore an environment in which sales prices are unlikely to collapse, which is a factor that makes it highly recession resistant. At FISCO, we think that even though the semiconductor market has currently entered an adjustment phase, its bottom will be shallow and it is highly likely that the wafer reclaim business will continue to perform strongly in the 2H as well.

Conversely, in the prime wafers business, the customers for 6-inch and 8-inch wafers are Chinese semiconductor manufacturers, and it seems that these customers are affected by production trends, but at present, inquiries continue to be strong during the busy conditions. The Company's share of the prime wafer market is still low, but this is thought to be because it is not necessarily linked to the movements in the industry as a whole. For 8-inch wafers also, the product mix is expected to improve by raising the product certification acquisition rate from the present rate of approximately 75% to close to 100% by the end of the year. Currently, of the monthly production of 100,000 wafers, around 75% are shipped for prime use, while the remaining 25% are shipped for monitor use, whose unit price is around 30% lower. Sales are forecast to increase and profitability to improve from raising the prime-use rate.

In addition, DG Technologies, which conducts a consumables materials business for semiconductor manufacturing equipment, completed the construction of an integrated production plant in June 2022 and as a result, its monthly production capacity has grown and net sales are expected to increase by 20% to 30% YoY, in line with the initial forecast. Conversely, the operating income margin was forecast to increase from low single digits in the previous period to high single digits, but it is highly likely to stay at the same level as in the previous period. This is because of the rise in the purchase price of silicon, which is used as a material, due to the weak yen. There is a time lag before higher costs are transferred to product prices, so the effects of the price rises are likely to appear from FY12/23 onwards. Also, the new plant is introducing the latest automated processing equipment, which is expected to improve productivity. The Company plans to approximately double the monthly production capacity, while gradually strengthening production facilities.

Forecasts

The outlook is for results to continue to grow faster than the growth of the semiconductor industry through expansion of sales regions and business areas

2. Progress made in the medium-term management plan

In the four-year medium-term management plan that the Company announced in February 2022, the targets for FY12/25, the plan's final fiscal year, are net sales of ¥45,000mn and operating income of ¥10,000mn. But as previously stated, it is highly likely to achieve these targets in FY12/22, so it plans to review the medium-term results targets and announce them again when it announces the FY12/22 financial results.

Medium-term management plan

(¥mn)

	FY12/21 Results	FY12/22		FY12/23 Plan	FY12/24 Plan	FY12/25 Plan	CAGR (FY12/21 - FY12/25)
		Initial forecast	Revised forecast				
Net sales	34,620	37,400	45,000	39,700	42,400	45,000	6.8%
Operating income	6,874	7,600	10,500	8,300	9,300	10,000	9.8%
Operating income margin	19.9%	20.3%	23.3%	20.9%	21.9%	22.2%	-
Ordinary income	8,832	8,900	12,500	9,700	10,800	11,600	7.1%
Ordinary income margin	25.5%	23.8%	27.8%	24.4%	25.5%	25.7%	-
Net income attributable to owners of parent	3,303	4,800	6,200	5,600	6,300	6,800	19.8%
Earnings per share (EPS) (¥)	255.56	371.39	479.59	433.28	487.45	526.14	19.8%

Note: The anticipated exchange rates are ¥110/USD, ¥17/RMB, and ¥3.8/NTD, and it is assumed that the semiconductors market's annual growth rate will be 5%

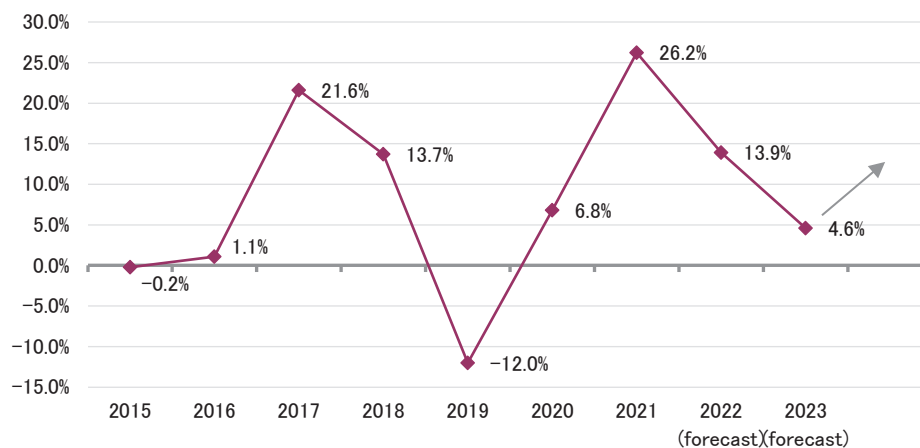
Source: Prepared by FISCO from the Company's results briefing materials

In the market forecasts announced in August 2022 by World Semiconductor Trade Statistics (WSTS), the 2022 semiconductor shipment amount growth rate (based on US\$) was downwardly revised from the previous most recent forecast of 16.3% to 13.9% and also the 2023 forecast from 5.1% to 4.6%. The main reasons for this were the rising prices of energy and food triggered by the Ukraine crisis, the decline in the consumption mindset worldwide because of the lockdown in China, and the supply-demand balance for some semiconductors beginning to soften as distribution inventories of PCs, smartphones and other products piled up. In particular, a movement to adjust production has started due to the decline in memory prices. Conversely, there remain products with tight supply-demand conditions, such as power semiconductors, and it is not the case that the market conditions for semiconductors as a whole are deteriorating. It is predicted that in 2023, against the backdrop of the sluggish growth of the global economy and the fall in memory prices, the semiconductor growth rate will continue to decelerate. But at FISCO, we expect that the growth rate will once again accelerate from 2024 onwards due to the economic recovery.

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Forecasts

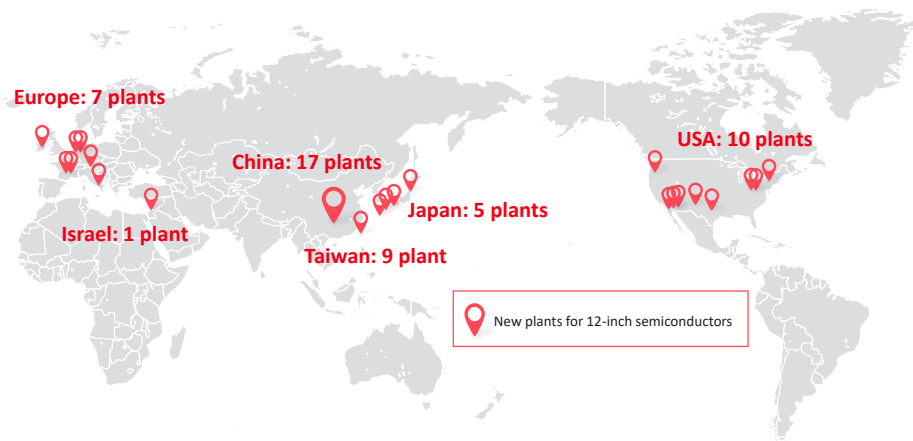
The semiconductor market growth rate



Source: Prepared by FISCO from WSTS materials

Even in this situation, the Chinese market can be expected to achieve high growth in the future, with a double-digit annual growth rate. According to the Company's survey, going forward there are plans to construct 49 semiconductor plants compatible with 12-inch wafers around the world, and by region, the most are planned for China at 17 plants. It is difficult to manufacture cutting-edge semiconductors due to export regulations on manufacturing equipment by the US government, but because in the design rules, legacy semiconductors of 28 nm and larger are not affected by these regulations, their production is forecast to increase. If all 49 plants become operational, demand is forecast for more than 2 million 12-inch prime wafers per month and more than 400,000 reclaimed wafers per month (calculated as 50,000 wafers per month per plant). This will be an excellent opportunity for business expansion for the Company, which has production bases for both products in China. In the Chinese market, the 12-inch prime and reclaimed wafers business is being conducted by SGRS, and the Company plans to incorporate it as a consolidated subsidiary at the stage when it is generating earnings and it is expected to greatly drive the Company's results in the medium to long term.

New semiconductor plants compliant with 12-inch wafers



Note: RST survey

Source: The Company's results briefing materials

We encourage readers to review our complete legal statement on "Disclaimer" page.

Forecasts

(1) Wafer reclaim business

In the wafer reclaim business, the plants in Japan and Taiwan are increasing their production capacities to respond to the strong demand for 12-inch reclaimed wafers. In addition, SGRS's Dezhou plant has started mass production and its strategy is to capture demand in China. The Company is the first company to mass produce 12-inch reclaimed wafers at three bases (in Japan, Taiwan, and China).

The schedule for increasing the production capacity is that in Japan, the 2022 monthly production of 300,000 wafers will be increased to 320,000 wafers in 2024, and in Taiwan, it will be increased from 200,000 wafers to 260,000 wafers. In China, the plan is to maintain the 2022 production of 50,000 wafers, but depending on the conditions, it may increase up to 100,000 wafers from 2024 onwards. Compared to the initial forecasts, 10,000 wafers have been added to Taiwan's monthly production capacity due to strong requests from the main customers. Looking at the capital investment amount in the Group as a whole, it peaked at ¥4.7bn in FY12/21 when capital investment was implemented to start mass production at the Dezhou plant, and the forecasts are for capital investment of ¥2.3bn in FY12/22 and ¥2.2bn in FY12/23. In FY12/24, this may change depending on the Dezhou plant's capital investment plan.

The monthly production capacity of 12-inch reclaimed wafers for the Group as a whole will increase by around 1.15 times, from 550,000 wafers at the end of FY12/22 to 630,000 wafers at the end of FY12/24 (if excluding the Dezhou plant, by approximately 1.16 times to 580,000 wafers), and when converted to an annual rate excluding the Dezhou plant, it will increase by 7.7%. In the medium-term management plan, it is assumed that the annual growth rate of the semiconductor market as a whole will be 5%, which is considered to be an appropriate level as the growth rate of 12-inch reclaimed wafers is relatively high. The operating income margin in FY12/21 was 37.2% and the Company plans to maintain it at around the same level in the future as well. In China's 12-inch reclaimed wafers market, local companies will appear as new competitors in the future, so price competition may temporarily intensify. But on considering that there will be no change to the Company's competitive advantages in terms of its technologies and quality, at FISCO we think that it will be able to maintain its market share in China at a level of above 30% in the medium term.

Plan to strengthen production capacity for 12-inch reclaimed wafers

Plant	Monthly production capacity at period-end			
	2021	2022	2023	2024
Sanbongi plant	280,000 wafers	300,000 wafers	310,000 wafers	320,000 wafers
Tainan plant	180,000 wafers	200,000 wafers (190,000 wafers)	230,000 wafers (220,000 wafers)	260,000 wafers (250,000 wafers)
Dezhou plant	-	50,000 wafers	50,000 wafers	50,000 wafers
Total	460,000 wafers	550,000 wafers (540,000 wafers)	590,000 wafers (580,000 wafers)	630,000 wafers (620,000 wafers)

Note: Figures in parentheses are plan targets as of February 2022

Source: Prepared by FISCO from the Company's results briefing materials

Capital investment plans

Plant	Monthly production capacity at period-end			
	2021	2022	2023	2024
Sanbongi plant	0.9	0.9	1.0	0.2
Tainan plant	0.8	0.9	1.1	1.0
Dezhou plant*	3.0	0.5	0.1	Undecided
Total	4.7	2.3	2.2	1.2

* The Dezhou plant is a plant of equity-method affiliate SGRS (investment ratio: 19.99%), and the Company was responsible for about 20% of the capital investment

Source: Prepared by FISCO from the Company's results briefing materials

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Forecasts

(2) Prime wafer business

In the prime wafers business, the prime wafer monthly production capacity at Shandong GRITEK's* Dezhou plant is 130,000 8-inch wafers, 150,000 6-inch wafers, and 50,000 5-inch wafers. For 8-inch wafers, it is aiming to complete product certification for all customers during FY12/22 and to reach full operations while increasing production efficiency. Also, the plan is to allocate the funds raised from GRITEK's share listing to increasing the monthly production capacity in the future. This is not only to respond to the growth in demand for 8-inch and other prime wafers in China, but it also has in its sights utilizing its cost competitiveness to develop the business in markets other than China. In fact, it has been highly evaluated by European and US manufacturers for its cost competitiveness, and the situation is that it can conduct sales as long as it has the monthly production capacity. Therefore, the business for 8-inch and smaller prime wafers is also forecast to grow in the medium term.

| * Investment of 80% by GRITEK and 20% by the Dezhou government. |

Conversely, SGRS, which handles 12-inch prime wafers, has installed a test line with a production scale of 10,000 wafers per month in its Beijing R&D building and is working to improve quality, while it is also constructing a new plant in Dezhou City. The plan is for the plant's mass production line to start operations in 2024 at the earliest and to acquire product certification from customers. The initial monthly production capacity has yet to be determined, but it is highly likely to start with a production scale of 50,000 wafers per month. Building a monthly production capacity of 50,000 wafers will require funds of ¥25.0bn, but according to the investment ratios, it seems GRITEK will be responsible for around 20% of this amount.

Regarding sales strategy, the plan is to meet the quality standard for prime wafers with a circuit width of 28 nm to 40 nm, the volume zone for the Chinese market, and to start with sales to Chinese semiconductor manufacturers. As the policy to expand production capacity, it is considering not only new investment, but also options to acquire manufacturing equipment at low costs, such as through M&A, and it is first aiming to acquire a top share in the Chinese market by implementing a low-price strategy. Also as the next step, it plans to meet the quality standard for 14 nm to 20 nm prime wafers, the volume zone for the global market, and its strategy is to conduct sales to major semiconductor manufacturers by utilizing price competitiveness achieved through production in China. In its wafer reclaim business, the Company conducts transactions with the majority of the major semiconductor companies, so if it can meet quality standards and construct a stable supply structure, it is considered that adoption of its products will proceed smoothly due to its competitive pricing advantage. The Company is targeting acquiring a 30% share of the 12-inch prime wafer market in the future.

In the Chinese market, 12-inch prime wafers are being sold by major overseas companies. Despite large amounts of capital investment by local Chinese companies, the current situation is that they have failed to meet quality standards and have not reached the stage of mass production. It seems they are struggling to achieve ingots with homogenous purity and quality (oxygen concentration, resistance value, etc.) and high yields. The Company has invited engineers from major silicon wafer manufacturers to share their expertise with local staff, and it sees quality to be on a level at least as high as in other Chinese local companies. For the polishing and cleaning processes, which are the processes after manufacturing, there are no problems as it can utilize its wafer reclamation technologies, so it seems completely possible mass production could start in 2024. Also, an enormous investment of ¥100.0bn will be required to build the targeted monthly production capacity of 300,000 wafers. One option for this is to conduct M&A, including of competitors in China, but it is thought that the investment funds will be contributed jointly with its joint venture partner GRINM and a fund affiliated with the Dezhou government.

Forecasts

Investment plan for prime wafers in China

Shandong GRITEK (consolidated subsidiary)

8 inches	2022	2023	2024
Monthly production capacity	130,000 wafers	-	-
Capital investment value (¥bn)	*	Undecided	Undecided

*Investment already carried out up to FY2021

SGRS (equity-method affiliate)

12 inches (test line)	2022	2023	2024	202X
Monthly production capacity	10,000 wafers* ¹	-	-	300,000 wafers
Capital investment value (¥bn)	* ²	Undecided	Undecided	Undecided

*¹ Test line for R&D to realize mass production

*² Investment already carried out up to FY2021

Source: Prepared by FISCO from the Company's results briefing materials

(3) Pursuit of growth in semiconductor-related consumable materials as a third major income source

To attain its goal of developing a third major income source outside the existing wafer reclaim and prime wafer businesses, the Company's policy is to focus on semiconductor-related consumable materials handled by subsidiary DG Technologies. Specifically, it aims to increase sales of consumable materials, including quartz rings used to hold silicon wafers in dry etching equipment and silicon electrodes.

The Company estimates that the market for semiconductor-related consumable materials is worth about ¥150bn annually and has set its sales goal to a 10% share (about ¥15bn) for the time being. Due to the operations of the new plant, net sales are forecast to increase from the ¥3bn range in FY12/21 to the ¥4bn range in FY12/22. The operating income margin in FY12/21 was only in the low single digits, but in the future the Company is aiming to raise it to as high as the 30% range, which is the same level as in the wafer reclaim business, from the effects of mass production following the start of operations of the new plant.

Despite the presence of multiple competitors in Japan, Taiwan, South Korea, the US, and other countries, the Company's quality and technological capabilities are considered to be at levels at least equal to these competitors. Low production efficiency has been an issue in the past due to small-lot manufacturing of a wide range of product types, but the Company is aiming to improve production efficiency, including by installing automation equipment and optimizing personnel assignments. At the same time, it is aiming to reduce costs and strengthen cost competitiveness by inexpensively procuring the silicon it uses as a material from Group company GRITEK and also via its sales network. In sales as well, its strategy is to increase its sales share by implementing cross-selling to customers in the wafer reclaim business. In Miyagi Prefecture, which will be the site of the new plant, there are production plants of major semiconductor manufacturers and dry etching equipment manufacturers, so it is considered that it is aiming to increase its delivery share by strengthening sales. The long-term targets are a global market share of around 30% and net sales of ¥45bn. The business scale of Techno Quartz Inc. <5217>, a competitor for quartz glass, is net sales of ¥15.8bn and an operating income margin at the 20% level in FY3/22, and at FISCO, we think that DG Technologies is also capable of raising its operating income margin to around the 20% level by expanding sales.

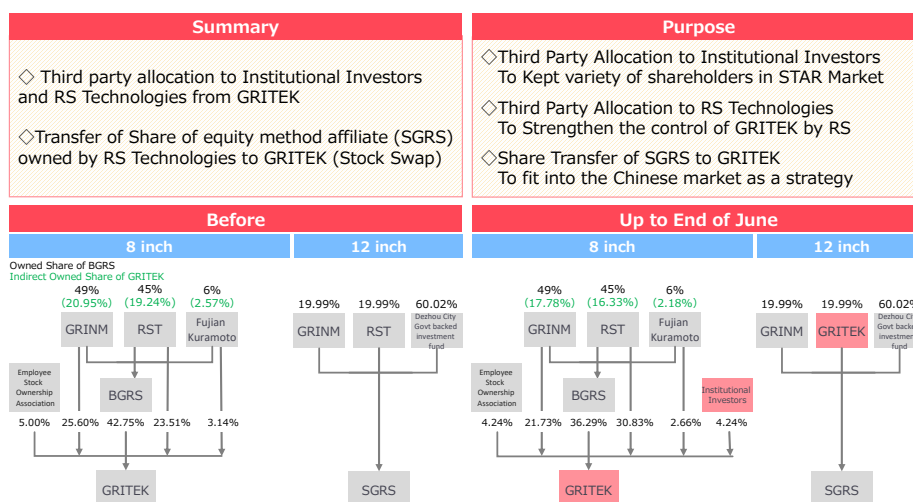
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Forecasts

Status of preparations for listing the Chinese subsidiary (GRITEK) (as disclosed in May 2021)

- Board of Directors determined third party allocation by GRITEK and share transfer of equity method affiliate (SGRS) to GRITEK (disclosed in May, 2021)



Source: Prepared by FISCO from the Company's results briefing materials

(4) The long-term growth strategy

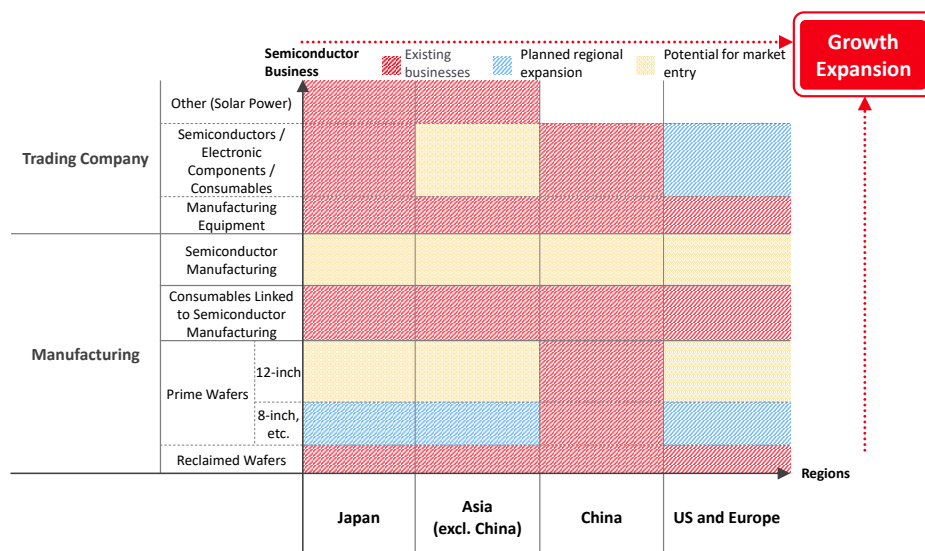
As its long-term growth strategy, the Company is aiming for growth greater than that of the semiconductor industry by expanding the sales regions and the business areas of its existing businesses. To expand the sales regions, it intends to conduct sales of 8-inch prime wafers produced in China to regions other than China. For the time being, it has its hands full solely with the demand from China, but it seems it will use the funds raised from the listing of GRITEK to expand the monthly production capacity and enter into markets other than China. Also, as a trading company function, it sells semiconductors, electronic parts, and consumable materials in Japan, China, and other parts of Asia, and it plans to sell these products in the European and US markets as well. On the other hand, it will expand the business areas by conducting M&A. The targets are companies with which synergies can be expected in areas peripheral to semiconductor wafers, while semiconductor businesses are also targets. As the procedure, there are expected to be cases of M&A conducted by the Company when a company that has been invested in by the investment company owned by the President reaches the stage at which it is generating earnings while also progressing improvements.

Since the Company is the leader in the 12-inch reclaimed wafers market at a roughly 33% global share (the Company's estimate) and already has top semiconductor manufacturers worldwide as customers, it appears to be in a position that facilitates the creation of synergies through cross-selling. While the semiconductor industry experiences major upturns and downturns, the income trend should be relatively stable since the Company's mainstay wafer reclaim business is strongly resistant to such downturns. At FISCO, we think that the Company's strategy of accelerating earnings growth faster than the growth rate of the semiconductor market is feasible by making the wafer reclaim business, in which it has a high market share, into a stable earnings base, and then expanding the prime wafer business and developing the semiconductor-related consumable materials business.

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Forecasts

Regional initiatives targeted by the Company



Source: Prepared by FISCO from the Company's results briefing materials

Returns to shareholders and ESG initiatives

Aiming to continuously maintain dividend payments and improve the dividend level in accordance with results

1. Shareholder return policy

Making fair returns to shareholders is an important concern of management, and the Company's basic policy is to return profits to shareholders by paying dividends. It demonstrates a flexible policy of paying out dividends after considering a comprehensive range of factors, including current profits, the targets of its medium-term management plan, and its financial strength. In FY12/22, the Company plans to pay a dividend per share of ¥25.0 (a 5.2% dividend payout ratio), which is the same amount as the previous fiscal year. However, a dividend increase may be considered if earnings appear to be proceeding at a healthy pace, given the consecutive dividend hikes in the past four years and a dividend payout of 5.2%, which is lower than in the previous period.

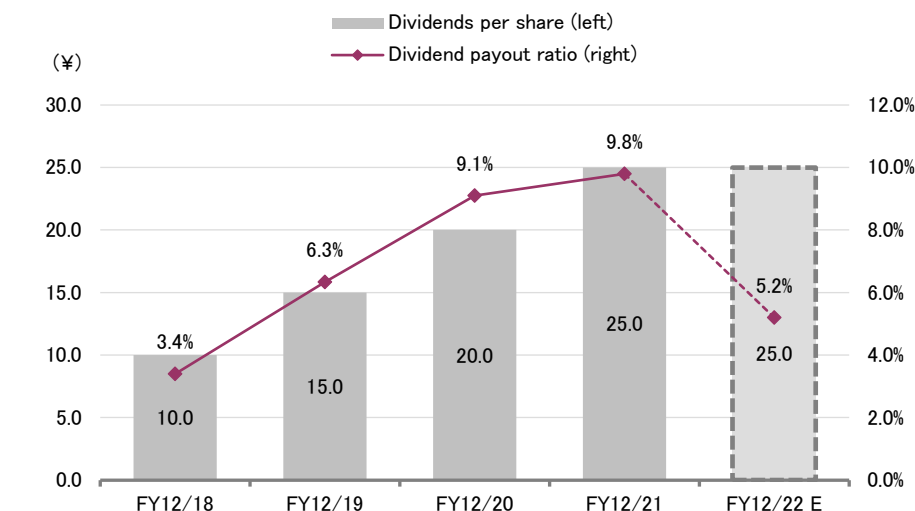
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Returns to shareholders and ESG initiatives

Dividends per share and dividend payout ratio



Source: Prepared by FISCO from the Company's financial results

2. ESG initiatives

Toward realizing a sustainable society, the Company is conducting the following initiatives from an ESG perspective.

(1) Environment

The Company has formulated an environment policy, and based on IOS14001, it has established quality and environmental management committees to conduct environmental impact evaluations for environmental problems, such as those relating to environmental pollution and energy use, and after setting annual targets, it progresses environmental improvement activities. As measures to prevent environmental pollution by plants, it defines management standard values for the chemical substances selected by the Company, conducts monthly monitoring and yearly management reviews, and works to reduce emissions. To conserve the water environments in the areas around its plants, the Company sets its own drainage standards and regularly monitors drainage by plants, and works to prevent water pollution. It is also working to reduce the amount of industrial-waste emissions by recycling waste and to reduce industrial water usage and improve the reuse rate. In addition, as a measure to prevent global warming, it is working on reducing energy usage and reducing CO₂ emissions by installing solar power generation facilities (power generation capacity, 1.5 MW).

The wafer reclaim business can itself be positioned as an environmentally friendly business, because the use of reclaimed wafers contributes to reducing the consumption of energy that is necessary to manufacture new wafers. The CO₂ emitted in manufacturing reclaimed wafers is only around 1/9th of the emissions of manufacturing new wafers, so it contributes significantly to reducing CO₂ emissions.

Returns to shareholders and ESG initiatives

Track record of environmental initiatives

	Chemical material usage (kg/k wafers*1)	Industrial-waste emissions (excluding sludge*2) (kg/k wafers)	Water usage (m ³ /k wafers)	Energy usage converted to crude oil (kl/k wafers)	CO ₂ emissions (t/k wafers)
FY2017	116.104	31.228	165.620	0.969	2.218
FY2018	111.324	28.766	158.698	0.906	1.995
FY 2019	117.133	32.075	153.998	0.899	1.981
FY 2020	124.921	31.855	136.524	0.844	1.846
FY 2021	119.098	29.463	123.995	0.795	1.739

*1 Calculated by converting the number of reclaimed wafers manufactured at the Sanbongi plant to 8-inch wafers

*2 Sludge is disposed of at a facility shared with other companies, so it is difficult to ascertain sludge for the Company alone and it is excluded from industrial-waste emissions.

Source: Prepared by FISCO from the Company's website

(2) Society

To provide high quality products and services to customers, the Company has constructed a quality assurance system that is based on the quality policy it formulated in-house. It conducts quality control and is continuously working to improve quality through a quality management system based on ISO9001.

The Company's code of conduct for employees is "Aim to create a free and open corporate culture in which diversity is respected and work environments that are easy to work in," and it is working to recruit and develop diverse human resources and to create environments that are easy to work in. Specifically, it has formulated an action plan toward a work-life balance for up to 2025, and its aims are to reduce work hours outside of the prescribed work hours, improve the rate of employees taking paid leave, and increase their usage of the childcare and nursing care leave systems. It is also creating work environments in which women can be active and is aiming to increase the percentage of employees who are women (currently 38%, excluding night-shift workers).

The Company appropriately discloses information to shareholders and investors. For local communities, employees actively participate in local volunteer activities, while it also actively accepts members of local communities, such as through work experience, plant tours, and internships, and it is contributing to developing the next generation.

(3) Corporate governance.

In accordance with its corporate philosophy and code of conduct, the Company's management targets are to fulfill its social responsibilities in relation to its various stakeholders and to maximize enterprise value. To achieve these targets, it has positioned conducting management with enhanced corporate government as an important issue and is working to strengthen it. As a specific measure for this, following a resolution at the general meeting of shareholders in March 2022, it transitioned from being a company that establishes an auditing committee to a company that establishes auditing and other committees. It will strengthen the supervisory function over the board of directors by appointing to the board audit committee members who will be responsible for auditing and supervising the directors' execution of duties. Also, by separating business execution from supervision, it is aiming to speed up decision-making and further improve enterprise value.

Other than these initiatives, as an organization that conducts risk management, the Company has established a risk management committee that regularly evaluates business activities and other aspects. If there are risks, measures are taken to counter them. In addition, it has formulated a basic policy for compliance and once a year conducts compliance education and training for all employees, while it has also built an information security management system and is working to ensure compliance with information security-related laws and norms.

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■ For inquiry, please contact: ■

FISCO Ltd.

5-13-3 Minami Aoyama, Minato-ku, Tokyo, Japan 107-0062

Phone: 03-5774-2443 (IR Consulting Business Division)

Email: support@fisco.co.jp