

RS Technologies

3445

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<https://www.fisco.co.jp>

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■ Summary

Targeting double-digit sales and profit gains in FY12/21 driven by growth in the prime wafer business on full-fledged operation of the new Chinese plant

RS Technologies Co., Ltd. <3445> (hereafter, also “the Company”) is a top provider of reclaimed silicon wafers, a major material for semiconductor chips. It has plants in Japan and Taiwan and the largest global market share with approximately 33% (the Company’s estimate) in mainstay 12-inch reclaimed wafers (300 mm). In 2018, the Company entered the integrated manufacturing business of prime wafers in China and has also focused efforts on the development of businesses such as semiconductor-related equipment and materials.

1. Profit fell in FY12/20 on a plant transfer and higher logistics costs, though it exceeded the forecast

The Company reported FY12/20 consolidated results with ¥25,561mn in net sales (up 4.3% YoY) and ¥4,530mn in operating income (down 4.0%), exceeding forecasts (¥23,500mn in net sales, ¥4,300mn in operating income). Despite a temporary setback in earnings related to the transfer of facilities to a new plant in the prime wafer business and higher logistics costs caused by the COVID-19 pandemic, sales and profits surpassed forecasts on upbeat business for 12-inch reclaimed wafers throughout the year against the backdrop of robust semiconductor demand and an increase in sales of semiconductor-related equipment and materials thanks to enhanced sales operations.

2. Targeting double-digit sales and profit gains on full-fledged operation of a new prime wafer plant in FY12/21

The Company forecasts ¥29,200mn in net sales (up 14.2% YoY) and ¥5,900mn in operating income (up 30.2%) in FY12/21. Even with the prospect of profit declines at the Company itself and the Taiwanese subsidiary because of higher depreciation costs fueled by investments to reinforce reclaimed wafer capacity, the outlook calls for higher sales and profits on sharp recovery in earnings at the Chinese subsidiary accompanying full-fledged operation of the new prime wafer plant and anticipated further growth in the semiconductor-related equipment and materials, etc. business. FISCO thinks forecasts are conservative and expects upside on sustained full operation of reclaimed wafer plants amid ongoing robust semiconductor demand and continuation of orders exceeding capacity for SPE consumable materials. The Company also announced in September 2020 that it started preparations for listing shares of GRINM Semiconductor Materials Co., Ltd., (hereafter, GRITEK), a Chinese subsidiary that handles manufacturing and sales of 8-inch prime wafers, on the Shanghai Stock Exchange STAR Market for technology newcomers. It does not appear to be planning to sell GRITEK shares considering the policy of wanting to retain majority control rights and treatment as a consolidated subsidiary after the IPO.

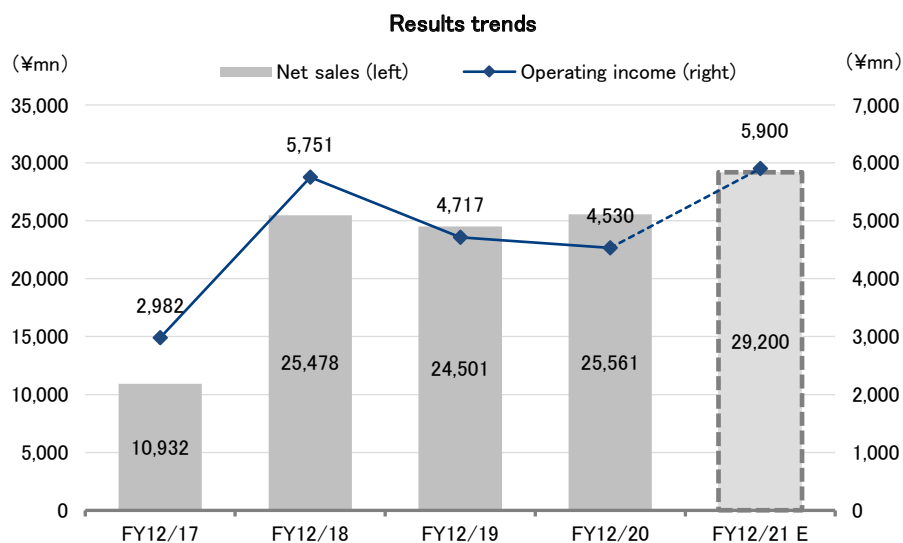
Summary

3. Promoting expansion of reclaimed wafer and prime wafer businesses and growth strategy in the semiconductor-related equipment and materials, etc. business

The Company announced the medium-term management plan through FY12/24 with goals of ¥37,100mn in net sales and ¥7,900mn in operating income for the final fiscal year. It assumes a continued annual growth rate of roughly 5% in the semiconductor market and expects healthy momentum in the wafer reclamation business supported by reinforcement of domestic and overseas capacities in response to growing demand. In the 8-inch prime wafer business, it has raised monthly output capacity from 80,000 wafers to 130,000 wafers with the launch of the new Chinese plant and intends to incrementally expand output volume. The Company plans to handle 12-inch reclaimed wafer and prime wafer businesses in China through Shandong GRINM RS Semiconductor Materials Co., Ltd. (hereafter, SGRS), an equity-method affiliate in which it owns a 19.99% stake. This business aims to begin volume production of reclaimed wafers at 50,000 wafers a month in 2022 and install a test line with capacity of 10,000 wafers a month in 2021 and raise capacity to 300,000 wafers in the future for prime wafers. The Company intends to increase its stake in SGRS once the business has ramped up. China is cultivating the semiconductor industry as a national strategy, and FISCO believes that the Company, which already possesses a large customer base, has extensive growth potential from full-fledged development of the 12-inch wafer market. Furthermore, the Company has outlined a policy to build the semiconductor-related equipment and materials, etc. business into a third major income source. Specifically, it aims to raise market share in SPE consumable materials handled by DG Technologies Co., Ltd. from the low single digits currently to 10% in the future by expanding production capacity and reducing costs through in-house production of materials. The Company estimates that the global market for consumable materials is worth ¥150bn, and a 10% share hence constitutes ¥15bn in sales. Developments in this area deserve attention.

Key Points

- Profit fell in FY12/20 due to the impact of a plant transfer in the prime wafer business, though it exceeded the forecast
- FY12/21 forecasts call for higher sales and profits driven by increased production at the new prime wafer plant in China
- Announced a four-year medium-term management plan, targeting double-digit average annual growth rates with FY12/24 goals of ¥37.1bn in net sales and ¥7.9bn in operating income



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

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

■ Company overview

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

1. History

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

Also, in December 2017, the Company announced that it would be launching a prime wafer business in China. In January 2018, together with Chinese state-owned company General Research Institute for Nonferrous Metals (currently, Grinm Advanced Materials Co., Ltd.; hereafter, GRINM) and Fujian Kuramoto, 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 manufactures and sells silicon ingot and prime wafers, and it was made a wholly owned subsidiary. The investment ratios in BGRS are 45% for RS Technologies, 49% for GRINM and 6% for Fujian Kuramoto. So although its investment ratio is below 50%, Fujian Kuramoto 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 from them. Such companies also receive preferential treatment in areas like capital investment and taxes, giving them competitive advantages over foreign-funded companies. In August 2018, together with the City of Dezhou, Shandong, GRITEK established Shandong GRINM Semiconductor Materials Co., Ltd. (hereafter, Shandong GRITEK) as a joint venture to be 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 in 2011 and acquired Union Electronics Solutions Co., Ltd., a semiconductor trading firm, in May 2018 and DG Technologies Co., Ltd., which manufactures and sells SPE consumable materials (quartz glass and silicon products) in January 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 formed SGRS, which handles 12-inch wafer reclamation business and prime wafer business, jointly with GRINM and a fund affiliated with the Dezhou government (the Company owns a 19.99% stake and treats SGRS as an equity-method affiliate). Through these businesses, the Company is actively developing operations in China.

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

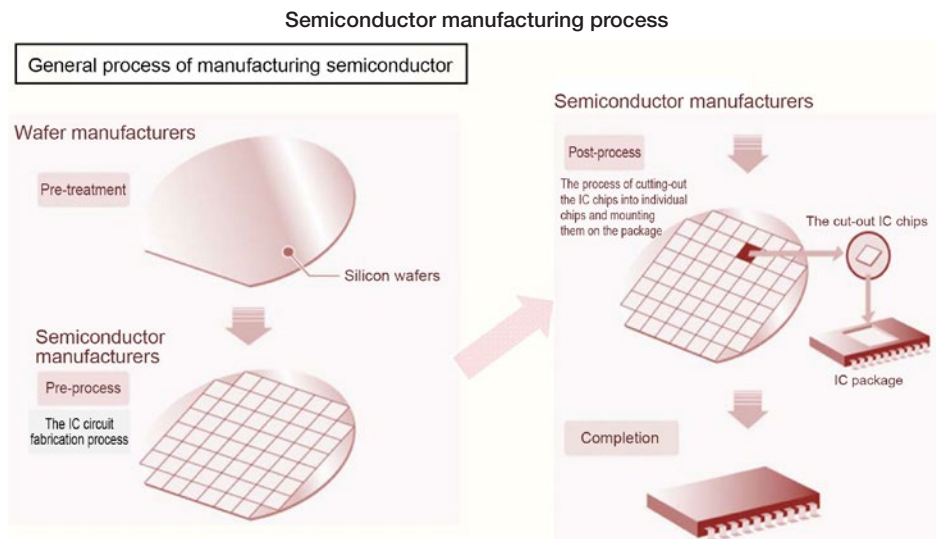
To appreciate the strengths and growth potential of the Company’s mainstay reclaimed silicon wafer business and prime wafer business, it is essential to understand the manufacturing process of and role played by silicon wafers as well as the manufacturing methods used to produce them. We provide an explanation below.

(1) Silicon wafers

A semiconductor is a substance that has intermediary electrical conductivity properties 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, information-communication devices, and automotive electrical equipment, and are also known as the “rice of industry.”

Various materials are used as the substrates of these semiconductors according to the required performance, with silicon being among the most widely used. An ingot of a single crystal silicon is pulled out of high-purity, melted polycrystalline silicon and then sliced thinly into wafers, and these wafers are 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.



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

Company overview

Currently, various sizes of silicon wafers are mass produced, and by size, they range from 5-inches (125 mm) in diameter to 6-inches (150 mm), 8 -inches (200 mm), and 12-inches (300 mm). For state-of-the-art semiconductors that require high integration (miniaturization), 12-inch wafers are mass produced. This makes it possible to keep manufacturing costs per wafer low amid increases in capital investment for semiconductors by manufacturing a larger amount of semiconductor chips from a single silicon wafer. Alongside this trend toward a large diameter for the wafer size, wafer manufacturing technologies are also tending to become more complex, which is raising the barrier to entry.

Also, 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 evaluation purposes have names including “test wafers,” “dummy wafers,” and “monitor wafers,” (hereafter, in this report they are collectively referred to as “monitor wafers”), and reclaimed wafers are used for these monitor wafers. Conversely, the wafers that are actually processed for the semiconductor chips are generally called “prime wafers” (in the name of the Company’s business segment, they are called “prime silicon wafers,” but they refer to the same thing).

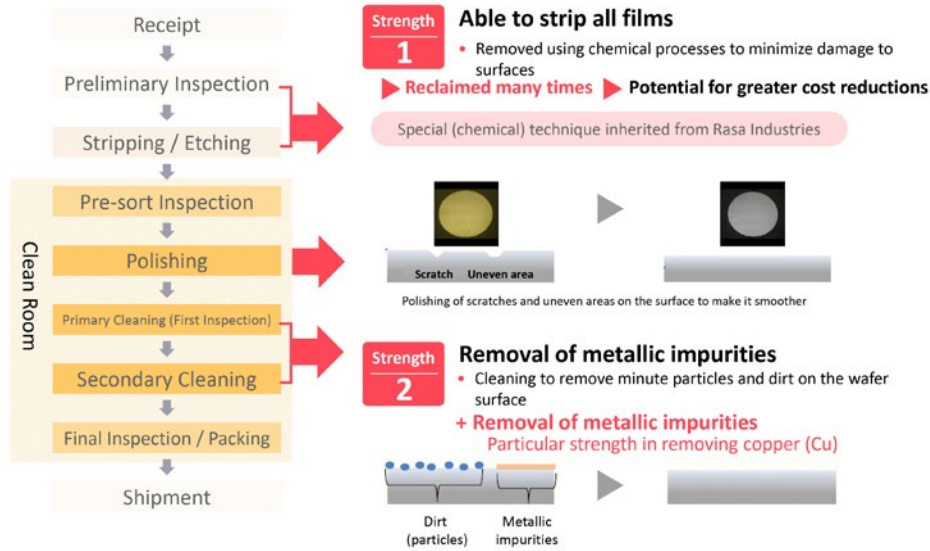
(2) Reclaimed wafers

Currently, the amount of monitor wafers used is estimated to be about 20% of the total amount of wafers deployed on the semiconductor manufacturing line. Although it is basic to use a new wafer for the monitor wafer, semiconductor manufacturers often seek to reuse (reclaim) the monitor wafers they have used. This is in order to reduce the costs of manufacturing semiconductors as much as possible. At that time, semiconductor manufacturers recycle used monitor wafers with a reclaiming company such as the Company and reuse them. As the price of a reclaimed wafer is approximately 25% of the price of a new wafer, if the number of wafers introduced remains the same, it is possible to significantly reduce wafer introduction costs simply by using reclaimed wafers for the monitor wafers.

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. A strength of the Company is its technological capabilities, as in the film removal process, it is able to strip all of 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 times, but if the polishing can be kept down to a reduction of 5 μm , this number increases to as high as 30 times. Another of the Company’s strengths is that it has technologies to remove metal impurities. In particular, as the only supplier capable of polishing wafers to a degree of cleanliness that is as good as new, it has been certified by many semiconductor manufacturers to remove copper (Cu). Although there is currently not a large demand to introduce processes that require the degree of cleanliness of reclaimed wafers, 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

The wafer-reclamation process



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

(3) Prime wafers

Prime wafer has the same meaning as new wafer. Wafer processing consists of front-end processing including silicon crystal ingot pulling and back-end processing including the slicing of ingots into wafers and polishing the surface of the wafers (manufacturers that handle both front-end and back-end processes are called integrated manufacturers). 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 in a given amount of time. The more important factor is the number of good quality prime wafers that can be produced from one silicon crystal ingot (because there is a large difference in price between new prime wafers and new monitor wafers).

GRITEK manufactures and sells prime wafers in China. 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. It appears to have its work cut out for now simply dealing with increases to 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.

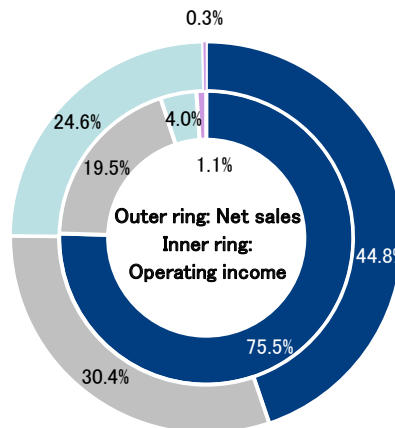
The wafer reclamation business has a leading global share of the 12-inch wafer market, at approximately 33%, and its main customers include TSMC, Kioxia and Sony

3. Business description

The Company classifies its business operations into three business segments, specifically the wafer reclamation 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 FY12/20, the wafer reclamation business provided 44.8% of net sales and 75.5% of operating income, and the prime silicon wafer manufacturing and sales business 30.4% of net sales and 19.5% of operating income. These two businesses are the Company's core earnings drivers.

Composition of results by segment (FY12/20)

- Wafer reclamation business
- Prime silicon wafer manufacturing and sales business
- Semiconductor-related equipment and materials, etc. business
- Other businesses



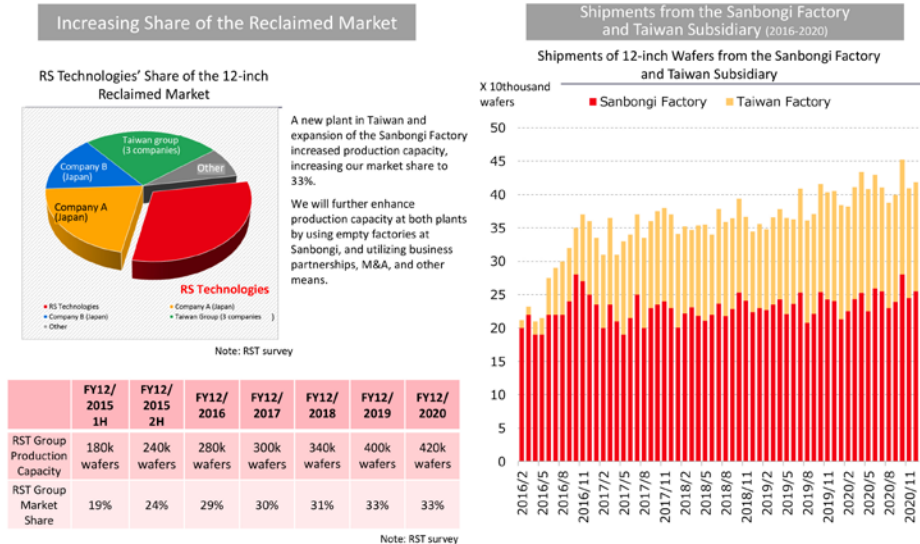
Source: Prepared by FISCO from the Company's financial results

(1) Wafer reclamation business

The wafer reclamation business is conducted by the Company and its Taiwanese subsidiary. At the end of 2020, the monthly production capacity for mainstay 12-inch wafers by the Company was 260,000 wafers (it has a production capacity of 130,000 wafers for 8-inches), while Taiwan has a capacity for 160,000 wafers, for a total 420,000 wafers. On a volume basis, it has the top share worldwide, at around 33% (the Company's estimate). 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 makes up roughly 90% of the global market share.

Company overview

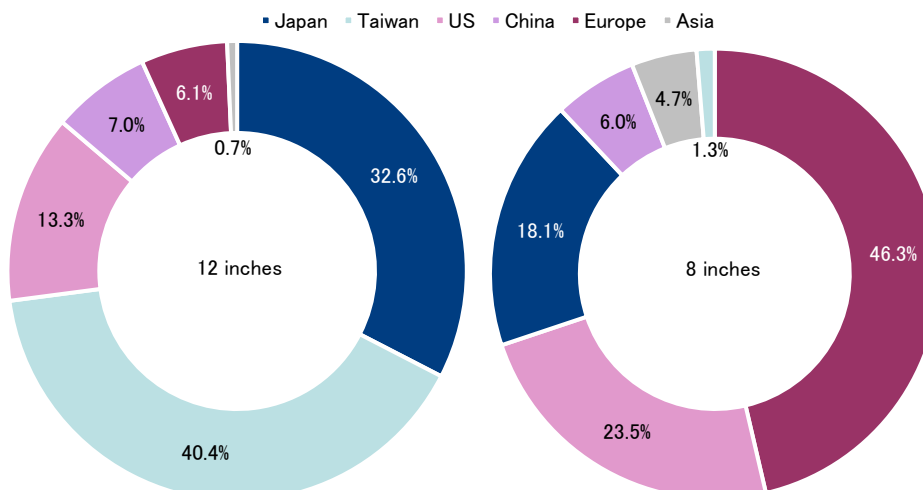
Monthly output volume in the wafer reclamation business and share in the 12-inch reclaimed wafer market



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

Furthermore, the breakdown of the number of wafers sold by region (FY12/20) are as follows. For 12-inch wafers, Japan provides 32.6% and Taiwan 40.4%, so these two countries provide around 70% of the total. Conversely, 8-inch wafers stand out for having higher numbers for Europe and the US, at 46.3% and 23.5%, respectively. Its 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 <STM> and Infineon Technologies in Europe.

Breakdown of shipment volume in the wafer reclamation business by region (FY2020)



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

Company overview

(2) Prime silicon wafer manufacturing and sales business

This is the business covered by Chinese subsidiary GRITEK and has a sales breakdown of two-thirds from prime wafers and one-third from consumable material and ingot sales. Prime wafer monthly capacity at the end of 2020 totaled 50,000 5-inch wafers and 150,000 6-inch wafers at the Beijing plant. For 8-inch wafers, capacity stood at 130,000 wafers as a production line with a monthly capacity of 80,000 wafers was transferred to Shandong GRITEK's new plant in October 2020 and a new investment was made in a production line with a monthly capacity of 50,000 wafers. 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. It sells consumable materials and ingots in overseas markets too and ships some consumable materials to DG Technologies, which makes SPE 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 and 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 China, South Korea, Taiwan and other markets.

Union Electronics Solutions is a semiconductor trading firm and 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 hopes to expand sales of semiconductor-related products in China after the COVID-19 pandemic settles down. DG Technologies manufactures and sells SPE consumable materials (quartz glass and silicon products). Customers include major domestic and overseas SPE manufacturers and leading domestic and overseas semiconductor manufacturers. It plans to strengthen this business as a priority area.

(4) Other businesses

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

■ Business trends

Profit fell in FY12/20 due to the impact of a plant transfer in the prime wafer business, though it exceeded the forecast

1. FY12/20 results summary

In FY12/20 consolidated results, the Company reported ¥25,561mn in net sales (up 4.3%), ¥4,530mn in operating income (down 4.0%), ¥5,252mn in ordinary income (down 3.0%), and ¥2,824mn in net income attributable to owners of the parent (down 7.0%). While sales rose for the first time in two years on growth in the wafer reclamation business and semiconductor-related equipment and materials, etc. business, profit dropped for a second straight year due to the impact of the transfer of the prime wafer plant. Nevertheless, sales and profits surpassed forecasts (updated values from July 2020) on robust semiconductor demand again in 2H.

Business trends

FY12/20 consolidated results

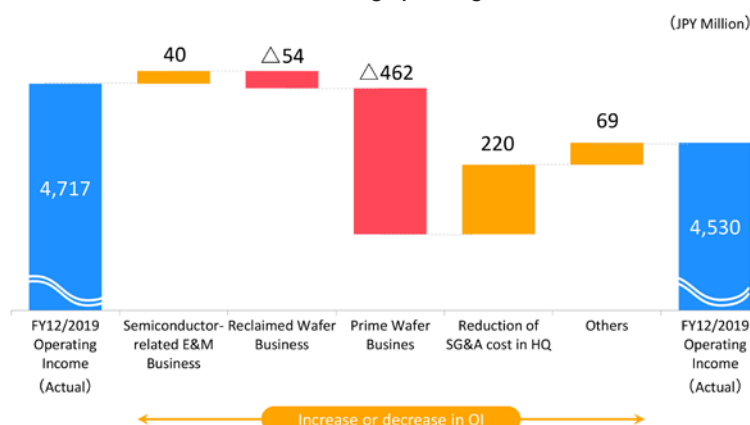
	FY12/19		Revised plan*	FY12/20		YoY	Vs. plan
	Results	% of sales		Results	% of sales		
Net sales	24,501	-	23,500	25,561	-	4.3%	8.8%
Cost of sales	16,561	67.6%	-	16,881	66.0%	1.9%	-
SG&A expenses	3,223	13.2%	-	4,150	16.2%	28.8%	-
Operating income	4,717	19.3%	4,300	4,530	17.7%	-4.0%	5.3%
Ordinary income	5,416	22.1%	4,800	5,252	20.5%	-3.0%	9.4%
Extraordinary income	-406	-	-	-630	-	-	-
Net income attributable to owners of the parent	3,035	12.4%	2,800	2,824	11.1%	-7.0%	0.9%

* Revised figures announced in July 2020.

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

Factors affecting operating income included profit gains of ¥40mn in the semiconductor-related equipment and materials, etc. business, ¥220mn due to decreases in SG&A expenses at the head office, and ¥69mn in other additions versus profit declines of ¥462mn in the prime silicon wafer manufacturing and sales business and ¥54mn in the wafer reclamation business.

Factors affecting operating income



Source: The Company's results briefing materials

Looking at results by major companies, the Company posted increases (YoY) of 22.1% in net sales and 5.9% in operating income. The wafer reclamation business was healthy, and sales of semiconductor-related equipment and materials increased substantially thanks to reinforcement of sales operations. The operating income margin, meanwhile, dropped by 2.8ppt YoY because of higher air transport costs due to the impact of COVID-19 and a change in sales composition. The Taiwanese subsidiary reported large gains of 39.8% in net sales and 20.3% in operating income. Despite a decline in the profit margin on higher depreciation costs and other expenses, 12-inch reclaimed wafer sales to TSMC, Micron Technology, and other top Taiwanese customers were upbeat. The Chinese subsidiary incurred declines of 12.7% in net sales and 53.6% in operating income. As explained above, main factors causing this outcome were a temporary decline in shipment volume related to transfer of an 8-inch prime wafer production line to a new plant and booking transfer costs, etc.* The Company also booked ¥696mn in plant transfer costs in extraordinary losses, including special severance costs for employees unable to move from the Beijing plant to the Shandong plant, moving costs for production facilities, and disposable losses for unnecessary facilities.

* Transfer costs and other items mainly consisted of costs for the transfer to the new plant, and the Chinese government provided subsidies. The Company accounted for subsidy income in non-operating income. It booked ¥839mn in subsidy income in FY12/20 under non-operating income, including the amount corresponding to transfer costs.

Business trends

Business performance trends by Group company for FY12/20

	The Company		Taiwanese subsidiary		Chinese subsidiary		Other subsidiaries	
	Results	YoY	Results	YoY	Results	YoY	Consolidated eliminations	YoY
Net sales	11,532	22.1%	4,842	39.8%	8,783	-12.7%	404	-
Operating income	2,107	5.9%	1,425	20.3%	725	-53.6%	273	-
Operating income margin	18.3%	-2.8pt	29.4%	-4.8pt	8.3%	-7.3pt	-	-

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

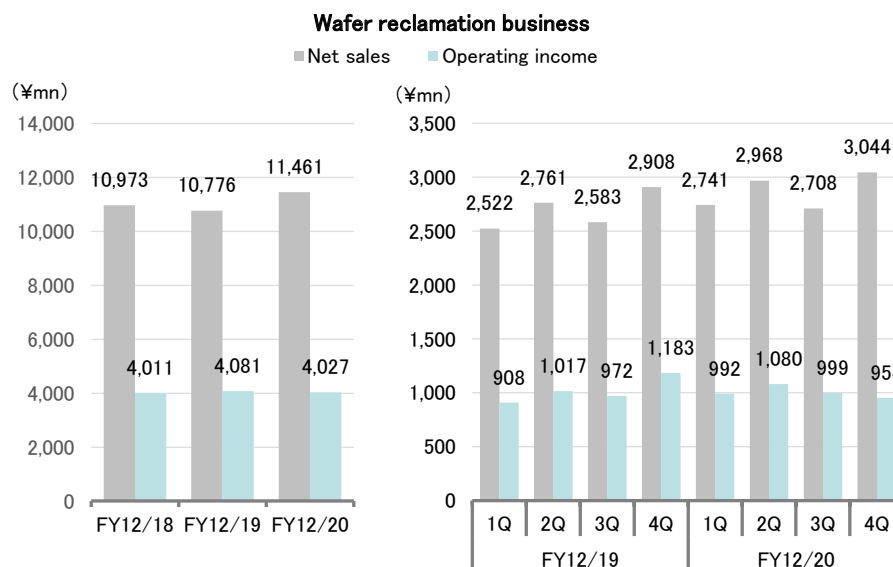
Healthy trend in the wafer reclamation business, large growth in sales of consumable materials for production equipment in the semiconductor-related equipment and materials, etc. business

2. Developments by business segment

(1) Wafer reclamation business

The wafer reclamation business had ¥11,461mn in net sales (up 6.4% YoY; including internal sales and transfers (applies to all figures below)) and ¥4,027mn in operating income (down 1.3%). Demand for memory, logic, and other cutting-edge semiconductors for data center servers, PCs, game equipment, and 5G smartphones from major customers in Taiwan and Japan was upbeat. To accommodate robust demand, the Company increased 12-inch reclaimed wafer output capacity from 400,000 wafers at the end of 2019 (250,000 wafers in Japan and 150,000 wafers in Taiwan) to 420,000 wafers at the end of 2020 (260,000 wafers in Japan and 160,000 wafers in Taiwan).

Profits, meanwhile, came under pressure from higher depreciation costs and an increase in transport costs. In particular, profit was down 19.4% YoY, despite higher sales, in 4Q FY12/20, because of a decline in international flights to the US and Europe due to the second wave of COVID-19 and a hefty rise in rents.



Note: Both graphs include internal sales and transfers
 Source: Prepared by FISCO from the Company's results briefing materials

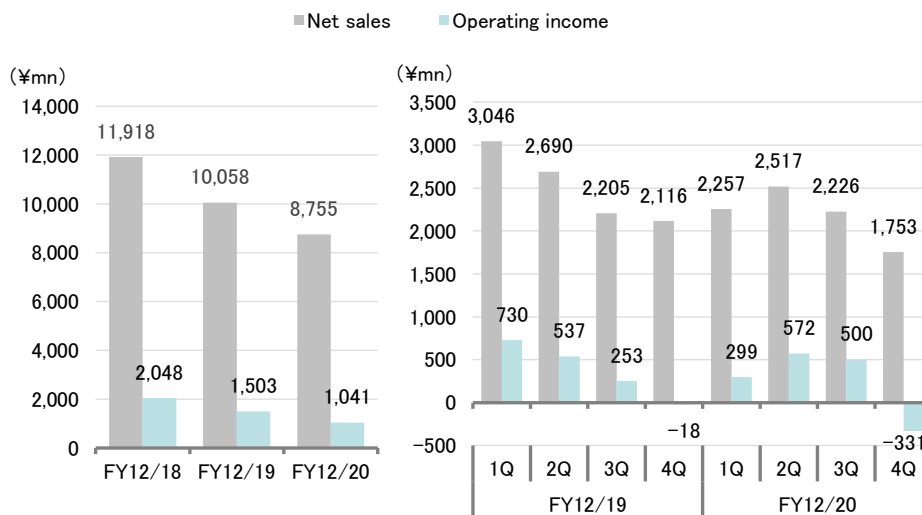
Business trends

(2) Prime silicon wafer manufacturing and sales business

The prime silicon wafer manufacturing and sales business had sales and profit declines for a second straight year with setbacks of 13.0% YoY to ¥8,755mn in net sales (includes internal sales and transfers; applies to all figures below) and 30.7% to ¥1,041mn in operating income. In FY12/19, lower output volume at Chinese semiconductor manufacturers due to global economic slowdown weakened income. In FY12/20, meanwhile, despite some impact by the COVID-19 pandemic, the majority of downside occurred temporarily because of the plant transfer.

The new Shandong plant finished construction in October 2020 and has a monthly capacity of 130,000 wafers with 80,000 wafers from the production line transferred from the Beijing plant and 50,000 wafers from a newly built line. The operating rate was about 60%, or just under 80,000 wafers, in December 2020, finally getting back to the output volume seen prior to the facility move. As a result, 4Q FY12/20 results slipped to ¥1,753mn in net sales (down 17.2% YoY) and ¥331mn in operating loss (¥18mn loss a year earlier), including recognition of transfer-related costs. However, income should improve significantly from 2021 on non-recurrence of transfer costs and improved yield.

Prime silicon wafer manufacturing and sales business

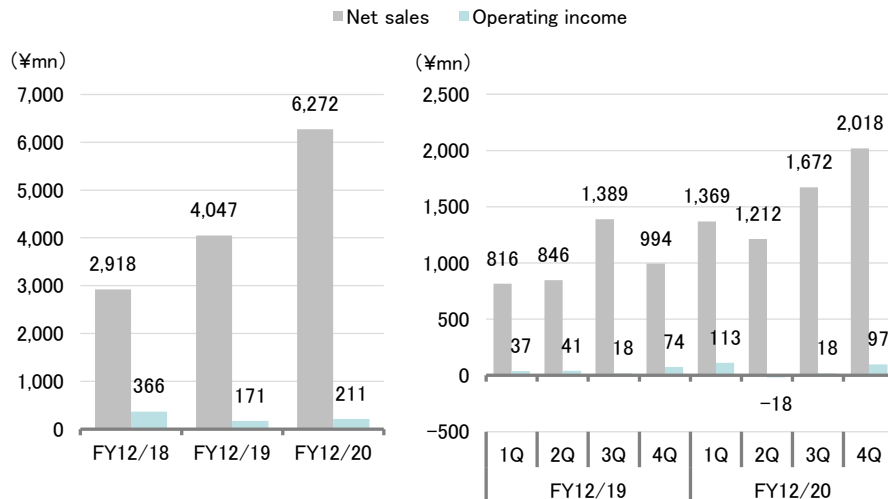


Note: Both graphs include internal sales and transfers
 Source: Prepared by FISCO from the Company's results briefing materials

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

The semiconductor-related equipment and materials, etc. business expanded with gains (YoY) of 55.0% to ¥6,272mn in net sales (includes internal sales and transfers; applies to all figures below) and 23.4% to ¥211mn in operating income. Positive factors were large orders of ultrasound imaging and testing equipment (procurement sales products) and upbeat business for consumable materials for dry etching equipment handled by DG Technologies from major domestic and overseas SPE manufacturers and leading Taiwanese and domestic semiconductor manufacturers. The profit margin dropped partly due to an increase in depreciation costs related to reinforcement of the output capacity of consumable materials at the Ibaraki plant to accommodate robust demand.

Business trends

Semiconductor-related equipment and materials, etc. business


Note: Both graphs include internal sales and transfers
 Source: Prepared by FISCO from the Company's results briefing materials

Decline in cash and deposits and rise in property, plant and equipment due to investment in the new plant in Dezhou

3. Financial condition and management indicators

Looking at the financial situation at the end of FY12/20, gross assets totaled ¥58,750mn, an increase of ¥10,116mn YoY. Trends in current assets were increases of ¥781mn in inventory assets and ¥274mn in notes and accounts receivable and a decline of ¥3,073mn in cash and deposits. Trends in non-current assets were increases of ¥9,510mn in property, plant and equipment accompanying construction of a new plant at Shandong GRITEK and higher capital investments throughout the Group and ¥933mn in investment securities.

Total liabilities were up ¥5,731mn from the previous fiscal year-end to ¥18,384mn. In current liabilities, there were increases of ¥1,988mn in trade accounts payable and ¥1,256mn in notes and accounts payable-trade. In non-current liabilities, there was a decrease of ¥619mn in long-term borrowings and an increase of ¥1,139mn in other. Moreover, net assets increased ¥4,384mn from the previous fiscal year-end to ¥40,365mn. This increase mainly reflected an increase of ¥2,824mn in retained earnings due to the recording of net income attributable to owners of the parent, as well as an increase in non-controlling interests of ¥1,330mn.

In cash flow trends, cash flow from operating activities had a ¥6,377mn surplus, while cash flow from investing activities had a ¥9,188mn deficit due to investments related to the new plant and other outlays and cash flow from financing activities had a ¥776mn deficit due to repayment of interest-bearing debt and dividend payments. As a result, period-end cash and cash equivalents dropped by ¥3,453mn YoY to ¥17,910mn.

RS Technologies | 17-May-2021
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Business trends

In management indicators, the equity ratio, which indicates soundness, dropped from 42.7% at the previous period-end to 40.5%, but the interest-bearing debt ratio declined from 17.5% to 13.2% and the Company is sustaining financial health. In profitability, the operating income margin declined from 27.3% in FY12/17 to 17.7% in FY12/20. The wafer reclamation business, which has a high profit margin of over 30%, provided just under 90% of overall sales in 2017. The main factors behind this were the launch of the prime silicon wafer manufacturing and sales business in China and the addition of a semiconductor trading company and a company that handles SPE consumable materials to the Group through M&A deals from 2018 onward. Nevertheless, broadening scope is part of strategic expansion of the business aimed at longer-term growth and should be assessed favorably. The prime silicon wafer manufacturing and sales business in China should improve profitability from 2021, and the Company intends to actively develop the SPE consumable materials business as a third major income source. FISCO expects upward trends in segment profitability from the two other businesses (besides the wafer reclamation business) from 2021.

Consolidated balance sheet and management indicators

	(¥mn)				
	FY12/17	FY12/18	FY12/19	FY12/20	Change
Current assets	7,387	26,074	32,760	32,626	-133
(Cash and deposits)	3,243	14,879	22,156	19,082	-3,073
Non-current assets	4,843	10,516	15,873	26,123	10,250
Total assets	12,230	36,591	48,634	58,750	10,116
Current liabilities	3,370	4,979	7,252	12,630	5,378
Non-current liabilities	3,334	2,474	5,400	5,754	353
Total liabilities	6,704	7,453	12,652	18,384	5,731
(Interest-bearing debt)	4,033	2,812	3,634	3,136	-498
Total net assets	5,525	29,137	35,981	40,365	4,384
(Stability)					
Equity ratio	45.1%	49.6%	42.7%	40.5%	-2.2pt
Interest-bearing debt ratio	73.1%	15.5%	17.5%	13.2%	-4.3pt
(Profitability)					
ROA	27.6%	25.2%	12.7%	9.8%	-2.9pt
ROE	47.6%	30.6%	15.6%	12.7%	-2.9pt
Operating income margin	27.3%	22.6%	19.3%	17.7%	-1.6pt

	FY12/17	FY12/18	FY12/19	FY12/20
(Cash flow)				
Cash flow from operating activities	2,744	2,669	9,015	6,377
Cash flow from investing activities	-202	-22	-6,107	-9,188
Cash flow from financing activities	-1,252	9,550	4,206	-776
Period-end cash and cash equivalents	2,916	14,652	21,363	17,910

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

Forecasts

Anticipating sales and profit increases in FY12/21 driven by expanded output at the new prime wafer plant in China

1. Company forecasts for FY12/21

In FY12/21 consolidated forecasts, the Company targets higher sales and profits with ¥29,200mn in net sales (up 14.2% YoY), ¥5,900mn in operating income (up 30.2%), ¥5,900mn in ordinary income (up 12.3%), and ¥3,100mn in net income attributable to owners of the parent (up 9.7%). The outlook for stronger income factors in sufficiently larger improvements from income recovery in the prime wafer business related to ramp-up of the new plant and growth in the semiconductor-related equipment and materials, etc. business, despite an increase in depreciation costs versus FY12/20 due to reinforcement of the output capacity of reclaimed wafers at the Company and its Taiwanese subsidiary and launch of the new plant at Shandong GRITEK. Since the Company plans to incrementally expand output volume at the new prime wafer plant, income should be even higher in 2H than in 1H from a half-year perspective. Furthermore, the Company assumes a forex rate of ¥104/USD, and an appreciation of ¥1 against the US dollar would reduce operating income by ¥20–40mn.

While the Company expects a decline of roughly ¥700mn in non-operating income from the FY12/19 level, this reflects a decline in subsidy income related to the transfer of the prime wafer plant. However, since the Company is likely to receive subsidy income from the Dezhou government for infrastructure costs related to the new plant. It might book a few hundred million yen in FY12/21 too.

FY12/21 consolidated results forecasts

(¥mn)

	FY12/20		FY12/21				
	Results	% of sales	Plan	% of sales	YoY	1H forecast	2H forecast
Net sales	25,561	-	29,200	-	14.2%	13,100	16,100
Operating income	4,530	17.7%	5,900	20.2%	30.2%	2,200	3,700
Ordinary income	5,252	20.5%	5,900	20.2%	12.3%	2,200	3,700
Net income attributable to owners of the parent	2,824	11.1%	3,100	10.6%	9.7%	1,300	1,800
Earnings per share (EPS) (¥)	219.15		240.51			100.86	139.65

Note: Forecasts assume forex rates of ¥104/USD for FY12/21 and ¥108/USD for FY12/20
 Source: Prepared by FISCO from the Company's financial results

FY12/21 results forecast by the Company

(¥mn)

	The Company		Taiwanese subsidiary		Chinese subsidiary		Other subsidiaries	
	Plan	YoY	Plan	YoY	Plan	YoY	Consolidated eliminations	YoY
Net sales	11,300	-2.0%	4,900	1.2%	10,900	8.4%	2,100	-
Operating income	1,700	-19.3%	1,200	-15.8%	2,600	66.2%	400	-
Operating income margin	15.0%	-3.3pt	24.5%	-4.9pt	23.9%	8.4pt	-	-

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

Forecasts

Looking at each business segment, the Company expects roughly flat sales and a double-digit decline in operating income in the wafer reclamation business. It plans to increase monthly capacity by about 10% overall with boosts in Japan from 260,000 wafers to 280,000 wafers and in Taiwan from 160,000 wafers to 180,000 wafers. Anticipated setbacks in earnings are higher depreciation costs with ¥1.7bn in capital investments (¥900mn in Japan and ¥800mn in Taiwan) and increased transport costs. Furthermore, forecasts assume that the average price for 12-inch reclaimed wafers will stay flat (this includes some transfer of transport costs). The Company expects continued expansion of 12-inch wafer demand mainly led by logic and memory semiconductors for 5G smartphones and data centers and anticipates a similar upbeat trend in reclaimed wafers. Since operations remain at full capacity, and considering the additions, FISCO thinks the forecasts are conservative and expects upside.

In the prime silicon wafer manufacturing and sales business, the Company forecasts an 8% YoY rise in net sales and a double-digit increase in operating income. While the launch of a new plant raised 8-inch prime wafer output capacity to 130,000 wafers at the end of FY12/20, the Company is currently operating facilities at roughly 60% capacity and intends to incrementally raise output volume. Supply continues to lag behind demand in the 8-inch prime wafer market as seen in shortages of automotive semiconductors since January 2021. The Company's customers are Chinese semiconductor firms that make semiconductors used in consumer electronics and automobiles. Recent orders appear to be healthy. If the market environment is unchanged and the Company accelerates ramp-up of the new plant, results could exceed forecasts.

In the semiconductor-related equipment and materials, etc. business, the Company expects double-digit sales and profit increases. As mentioned above, orders remain vibrant for SPE consumable materials handled by DG Technologies, and this business is driving the segment. The Company started using silicon made at the Chinese subsidiary as a cost-cutting initiative in 2020, and the resulting effect should raise the profit margin as well. The outlook for procurement sales of semiconductor production equipment and materials is likely to be conservative. While the income outlook is still unclear due to uncertainty regarding when the COVID-19 pandemic will settle down, FISCO expects upside versus forecasts so long as there isn't significant erosion of the semiconductor market environment.

Announced a four-year medium-term management plan and is aiming for double-digit average annual growth rates with FY12/24 goals of ¥37.1bn in net sales and ¥7.9bn in operating income

2. Medium-term management plan

The Company announced a four-year medium-term management plan with FY12/24 goals of ¥37,100mn in net sales and ¥7,900mn in operating income. This works out to average growth rates in the four years through FY12/24 of 10% in net sales and 15% in operating income. While the Company assumes 5% annual growth for the overall semiconductor market, it aims to achieve growth exceeding the industry average. In the wafer reclamation business and semiconductor-related equipment and materials, etc. business, it expects a healthy sales trend on implementation of capital investments that address growing demand. In the prime wafer business in China, it targets high growth on stronger sales from expansion of output at the new Chinese plant.

Forecasts

Medium-term management plan

(¥mn)

	FY12/20		FY12/21			FY12/22		FY12/23		FY12/24	
	Results	% of sales	Previous plan	New plan	YoY	New plan	YoY	New plan	YoY	New plan	YoY
Net sales	25,561	4.3%	27,000	29,200	14.2%	32,900	12.7%	34,800	5.8%	37,100	6.6%
Operating income	4,530	-4.0%	4,800	5,900	30.2%	6,500	10.2%	7,000	7.7%	7,900	12.9%
Operating income margin	17.7%	-1.6pt	17.8%	20.2%	2.5pt	19.8%	-0.4pt	20.1%	0.3pt	21.3%	1.2pt
Ordinary income	5,252	-3.0%	5,000	5,900	12.3%	6,600	11.9%	7,100	7.6%	8,000	12.7%
Ordinary income margin	20.5%	-1.6pt	18.5%	20.2%	-0.3pt	20.1%	-0.1pt	20.4%	0.3pt	21.6%	1.2pt
Net income attributable to owners of the parent	2,824	-7.0%	3,000	3,100	9.7%	3,700	19.4%	4,200	13.5%	4,800	14.3%
Earnings per share (¥)	219.15	-	233.84	240.51	-	286.19	-	324.87	-	371.27	-

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

(1) Wafer reclamation business

In the wafer reclamation business, to address robust demand in 12-inch reclaimed wafers, the Company is reinforcing capacity in Japan and Taiwan and plans to begin volume production at the Dezhou plant of SGRS*, a joint venture in China, from 2022. These actions should expand monthly output capacity of 12-inch reclaimed wafers for the Group from 420,000 wafers at end-FY12/20 to 550,000 wafers at the end of FY12/23. While the plan from August 2020 assumed 400,000 wafers at the end of FY12/20, the Company added 10,000 wafers each to capacity in Japan and Taiwan through improvements in production efficiency. It also intends to strengthen capacity in 2021 by a combined 40,000 wafers for Japan and Taiwan through acceleration of the capital investment plan.

* SGRS was established as a joint venture by the Company, GRINM, and the Dezhou City Government Fund in March 2020. SGRS will conduct manufacturing and sales of 12-inch prime wafers and the 12-inch wafer reclaim business.

Plan to strengthen the production capacity for 12-inch reclaimed wafers

Plant	Monthly production capacity at period-end			
	2020	2021	2022	2023
Sanbongi plant	260,000 wafers (250,000 wafers)	280,000 wafers (270,000 wafers)	300,000 wafers (280,000 wafers)	300,000 wafers (280,000 wafers)
Tainan plant	160,000 wafers (150,000 wafers)	180,000 wafers (170,000 wafers)	190,000 wafers (170,000 wafers)	200,000 wafers (170,000 wafers)
Dezhou plant*			50,000 wafers	50,000 wafers
Total	420,000 wafers (400,000 wafers)	460,000 wafers (440,000 wafers)	540,000 wafers (500,000 wafers)	550,000 wafers (500,000 wafers)

* The Dezhou plant's portion is from the newly established SGRS (an equity-method affiliate, with an ownership ratio of 19.99%), and it will be responsible for about 10% of the capital investment amount.

Note: Figures in parentheses are plan targets as of August 2020

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

The capital investment plan budgets ¥900mn in 2021 and ¥500mn in 2022 for Japan (undecided in 2023), ¥800mn in 2021, ¥300mn in 2022, and ¥300mn in 2023 in Taiwan, and ¥3bn in 2021, ¥500mn in 2022, and ¥100mn in 2023 in China. With a national policy of cultivating the semiconductor industry, China has the higher volume of new 12-inch wafer semiconductor plant plans regionally, and reclaimed wafer demand might expand at a faster pace than expected. If mass production in China starts from 2022, the wafers currently produced in Japan and then exported to China will switch to shipments from the Dezhou plant, and the resulting excess capacity at the Japanese plant will be targeting shipments to Japan, Asia, Europe and the US.

Forecasts

As a new rival in 12-inch reclaimed wafers in China, Ferrotec Holdings Corporation <6890> announced that its Chinese subsidiary should complete a plant with a monthly output capacity of 120,000 wafers and begin volume production in April 2021. Despite the prospect of tougher competition from this factor, FISCO thinks the Company should be capable of sustaining market share in China with its advantages in technology and quality.

Capital investment plans

Plant	2020	2021	2022	2023
Sanbongi plant	0.2 (0.2)	0.9 (1)	0.5 (0.2)	Undecided
Tainan plant	0.2 (0.2)	0.8 (1.3)	0.3 (0)	0.3
Dezhou plant*	0.5 (0.5)	3 (0)	0.5 (3.3)	0.1
Total	0.9 (0.9)	4.7 (2.3)	1.3 (3.5)	0.4

(¥bn)

* The Dezhou plant's portion is from the newly established SGRS (an equity-method affiliate, with an ownership ratio of 19.99%), and it will be responsible for about 10% of the capital investment amount.

Note: Figures in parentheses are plan targets as of August 2020

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

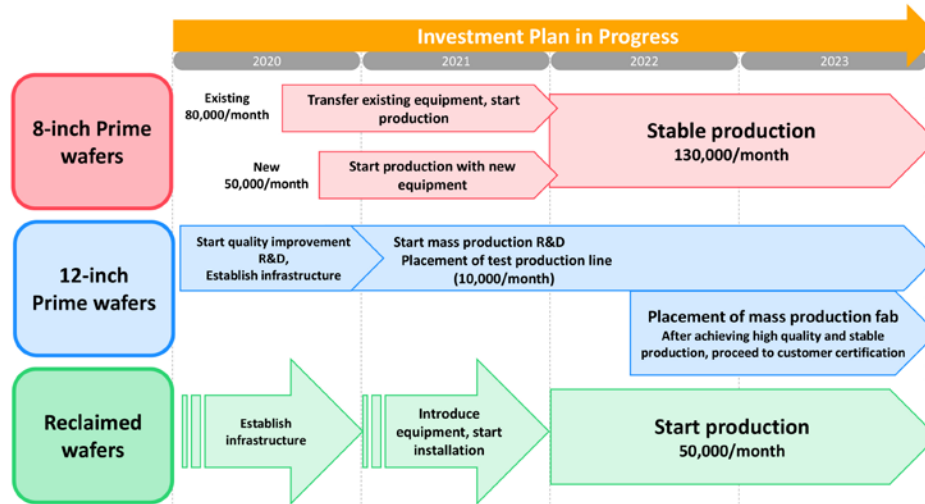
(2) Prime silicon wafer manufacturing and sales business

In the prime silicon wafer manufacturing and sales business, the Company completed the new plant at Shandong GRITEK in October 2020. It is steadily ramping up the new production line that has a monthly capacity of 50,000 8-inch wafers, in addition to the existing 80,000 wafers, and aims to solidify stable volume-output operations at 130,000 wafers by the start of 2022. While the plan from August 2020 cited 120,000 wafers in monthly capacity, the Company added 10,000 wafers to capacity in the existing line by improving yield.

Additionally, SGRS is moving forward with R&D efforts aimed at volume production of 12-inch prime wafers. It has reached a level that supports use in monitors and is selling a small amount to the monitor application. It plans to allocate ¥4bn in capital investments to build a test line with output capacity of 10,000 wafers a month in 2021 and subsequently engage in R&D aimed at volume production. After attaining quality as prime wafers and volume-output technology, it intends to build a volume production line in around the latter half of 2022. It needs to make an investment on the scale of ¥100bn in order to build facilities with the targeted level of 300,000 wafers in monthly capacity. While the Company is beginning this business initially as a joint venture with GRINM and a Dezhou government-related fund for the purpose of reducing fund burden and business risk (it owns a 19.99% stake and treats this business as an equity-method affiliate), it is thinking about conversion to a consolidated subsidiary in the future.

Forecasts

Schedule of investments planned in China



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

Investment plan for prime wafers in China

Shandong GRITEK (consolidated subsidiary)			
8 inch	2020	2021	
Monthly capacity	80,000 wafers (70,000 wafers)	130,000 wafers (120,000 wafers)	
Capital investment value (¥bn)	¥14bn (¥14bn)	-	

SGRS (equity-method affiliate)			
12 inch (test line)	2020	2021	202X
Monthly capacity	-	10,000 wafers (10,000 wafers)	300,000 wafers (300,000 wafers)
	2020	2021	2022
Capital investment value (¥bn)	¥0.5bn (¥0.5bn)	¥4bn (¥4.5bn)	Undecided

Note: Figures in parentheses are plan targets as of August 2020
 Source: Prepared by FISCO from the Company's results briefing materials

The Company announced in September 2020 that subsidiary GRITEK has started preparing to list shares on the Shanghai Stock Exchange STAR Market for newcomer companies (referred to as China's NASDAQ). The listing aims to achieve further growth through diversification of fund raising, enhancement of brand power, hiring talented personnel, and strengthening the business foundation. At the same time, it targets improvement of Group corporate value. The Company plans to retain a majority of control rights after the listing and maintain this company as a consolidated subsidiary.

GRITEK has Shandong GRITEK, which handles production and sales of 8-inch prime silicon wafers, as a subsidiary (GRITEK owns 80% while the Dezhou government invested the other 20%). For 12-inch wafers, SGRS will handle prime wafer production and sales and wafer reclamation business. Prime wafer business involves many rivals and local companies and has not reached a point of recouping investments yet. FISCO thinks the Company is capable of realizing profitability in the 12-inch prime wafer business by receiving preferential government measures as a semi-private, semi-public company and already has many customers in 8-inch prime wafer and wafer reclamation businesses.

Forecasts

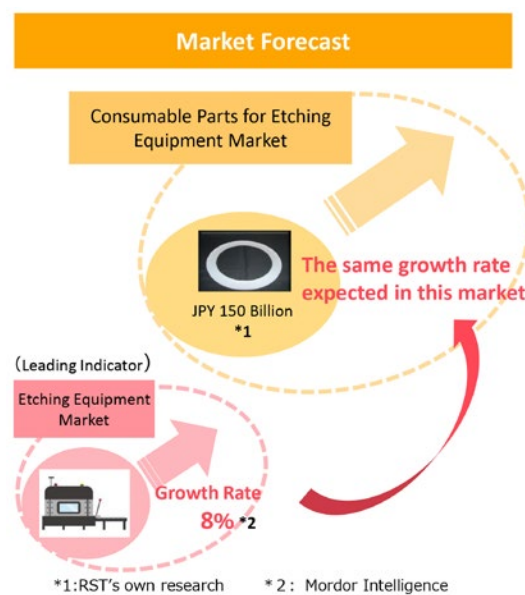
While China's semiconductor industry still confronts risk depending on trends in the US and China trade problem, the Chinese government has not altered its stance of cultivating the semiconductor industry as a national policy. China already holds a top share in the LCD panel market and Chinese companies are likely to steadily raise their shares in the semiconductor market as well. Chinese semiconductor companies increased global market share from about 3% in 2015 to roughly 5% in 2019 (including fabless companies), and FISCO expects the share to surpass 10% within a few years. This environment offers significant growth potential in prime wafers and reclaimed wafers in China and an opportunity to boost results over the longer term. Attention should be given to these trends.

(3) Pursuit of growth in SPE consumable materials as a third income pillar

The Company clarified a policy of pursuing opportunities in SPE consumable materials handled by subsidiary DG Technologies as a third income pillar besides the wafer reclamation business and prime silicon wafer manufacturing and sales business. Specifically, it aims to achieve growth in sales of quartz rings used for silicon wafer fixation, silicon electrodes, and other SPE consumables. The Company estimates that the SPE consumables market is worth about ¥150bn annually and wants to boost its shares to 10% in the future from the low single-digit level currently. Despite the presence of a few rivals in Japan, Taiwan, and China, the Company has strengths in quality and technology capabilities. While cost competitiveness had been an issue previously, the Company started procuring silicon from China to lower material costs from about three years ago and began using silicon produced at the Group's Chinese subsidiary in 2020. It aims to reduce costs further from 2021 by increasing the Group internal procurement ratio even higher. In production, it expanded output capacity during 2020 through optimization of personnel allocations and production processes at the Ibaraki plant. Nevertheless, orders continue to exceed capacity against the backdrop of vibrant conditions in the semiconductor market and the Company plans to spend about ¥1.2bn to reinforce capacity in 2021 too.

Customers are major SPE manufacturers and semiconductor manufacturers in Japan and abroad. The Company intends to deploy a production site in China in the future with the Ibaraki plant as the mother plant and thereby enhance cost competitiveness and expand market share. It hopes to reach ¥15bn in sales by obtaining a 10% share and expects substantial contributions to earnings too.

Growth potential of the dry etching equipment market



*1: RST's own research *2: Mordor Intelligence
 Source: Prepared by FISCO from the Company's results briefing materials

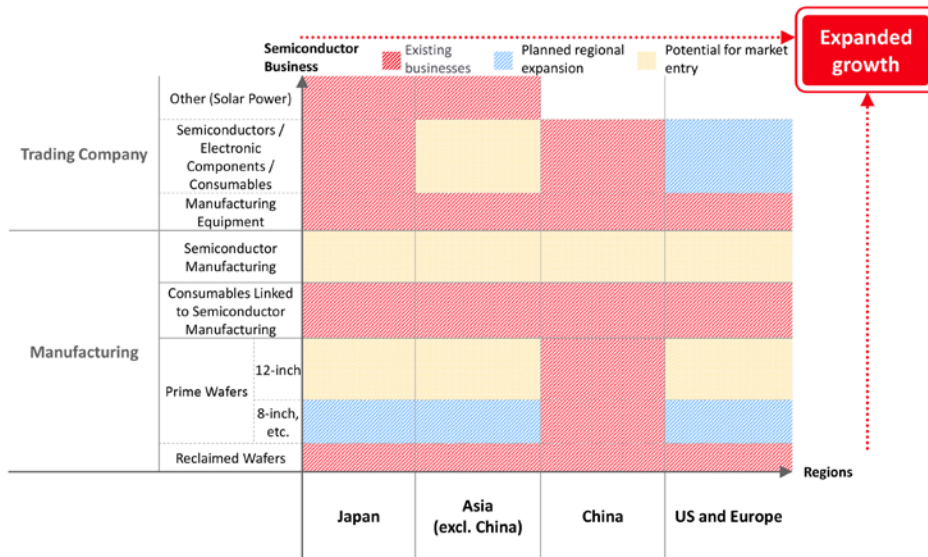
Forecasts

(4) Business areas and the development of sales regions in the future

As its long-term strategy, the Company’s policy is to expand its business areas and sales regions. The new developments it is currently planning include sales to regions other than China of prime wafers produced in China. The Company wants to export products to Japanese, US, and European markets at some point, though this is a long-term strategy because operations are busy just handling demand in China. Also, as a trading-company function, it conducts sales in Japan and China of semiconductors, electronic parts, and consumable materials, and going forward, it plans to sell these products in the European and US markets as well. The Company intends to constructively review M&A deals in Japan and abroad if it finds opportunities with synergies in semiconductor wafer-related areas.

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 holds a position that facilitates creation of synergies. Even though the semiconductor industry experiences large waves of expansion and contraction and faces risk of earnings erosion in the near term, FISCO believes the Company’s strategy of sustaining the wafer reclamation business with high market share as an earnings base and expanding the prime silicon wafer manufacturing and sales business on tailwind from growth in China’s semiconductor industry while accelerating earnings growth by cultivating SPE consumable materials and other products as a third income pillar is sufficiently feasible from a longer-term perspective.

Regional initiatives targeted by the Company



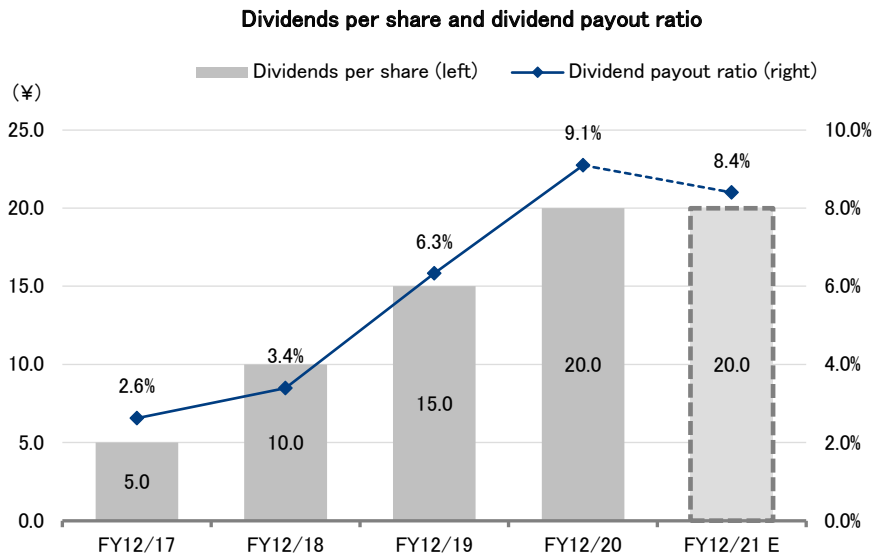
Source: The Company's results briefing materials

Shareholder return policy

Aiming to continuously maintain dividend payments and improve a dividend level that reflects results

Making fair returns to shareholders is an important concern of Company management, and the Company's basic policy is to return value to shareholders by paying dividends. The Company 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.

The Company raised the dividend in a third straight year with a hike of ¥5.0 YoY to ¥20.0 in FY12/20 on upbeat earnings that exceeded the forecast. It intends to keep the dividend unchanged at ¥20.0 (8.4% dividend payout ratio) in FY12/21.



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

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