

RS Technologies

3445

Tokyo Stock Exchange First Section

9-Jan.-2018

FISCO Ltd. Analyst

Hiroyuki Asakawa



FISCO Ltd.

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

■ Index

■ Summary	01
1. Steady earnings progress; FY12/17 earnings expected to surpass revised forecast	01
2. Steady progress on initiatives to ensure medium- to long-term growth. Company at the stage where it is considering whether to increase production capacity	01
3. FY12/18 could prove to be a major turning point. Focus on progress on initiatives	01
■ Business environment	02
1. Business environment	02
2. Company strengths	03
■ Business trends	05
1. 3Q FY12/17 cumulative results	05
2. Wafer business segment trends	06
■ Medium-to-long-term growth strategy and progress made	09
1. Medium-term performance targets and means of achieving them	09
2. Growth strategy: Expand output and market share	10
3. Growth strategy: capture growing demand	11
4. Growth strategy: Opening up the potential reclaim market	11
5. Growth strategy: Entering into the Chinese semiconductor market	12
■ Forecasts	14
1. Company forecasts for FY12/172. Progress with the integration effect	14
2. Prospects for FY12/18	15
■ Shareholder return policy	17
■ Information security	18

■ Summary

Steady progress on management's initiatives to achieve growth. Focus on capital investment targeting further growth and new technology trends.

RS Technologies <3445> (hereafter, also "the Company") is a reclaim service provider for silicon wafers, which are a main part in semiconductor chips. It has factories in Japan and Taiwan and when both factories are operating at full capacity, it has a global production share of approximately 30% (based on the production capacity for the mainstay 12 inch wafers), making it the world's leading producer of reclaimed wafers.

1. Steady earnings progress; FY12/17 earnings expected to surpass revised forecast

In 1Q-3Q FY12/17, the Company's consolidated net sales grew 25.6% year-on-year (YoY) to ¥7,874mn, and its operating income surged 132.3% YoY to ¥2,069mn. The supply-demand balance for reclaimed wafers remained tight amid high semiconductor production. Both the Company's plants, the Sanbongi Factory in Japan and the Tainan Factory in Taiwan, operated above full capacity, resulting in growth in sales and income. The Company raised its forecast alongside its 1H results announcement, but based on recent production trends, we expect it to surpass even its revised forecast.

2. Steady progress on initiatives to ensure medium- to long-term growth. Company at the stage where it is considering whether to increase production capacity.

In its medium-to-long term management plan, the Company established five goals. Of these, it has already achieved two – increasing production capacity and increasing market share. We believe the Company is now at the stage where it is seriously considering further increasing production capacity. In this regard, there has been a major development that we think may encourage the Company to invest in more production capacity. One of the Company's major customers has certified the use of the Company's proprietary metal-removal technology. We view this as an important step, as it allows the Company to develop a new market.

3. FY12/18 could prove to be a major turning point. Focus on progress on initiatives.

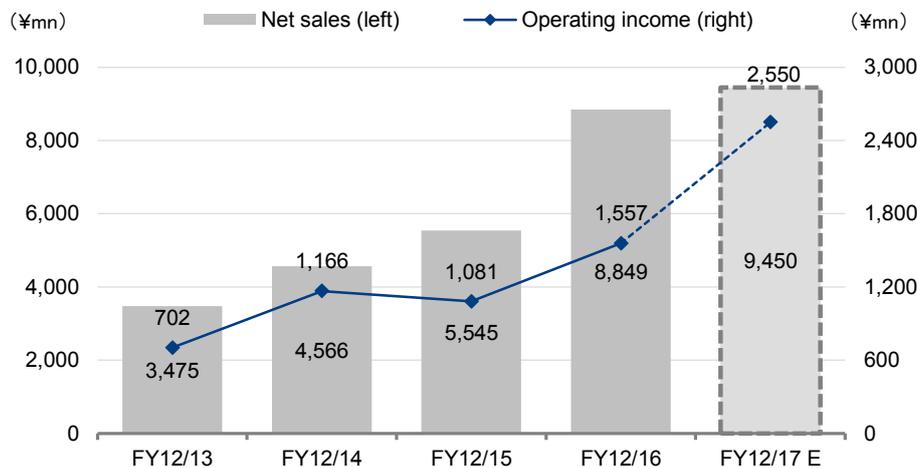
We see a possibility that earnings growth could slow in FY12/18 due to limited production capacity. However, we think FY12/18 will prove to be a major turning point where growth reaccelerates and we focus more on this than on earnings. We focus on (1) the Company's decision as to whether it will increase production capacity, (2) commercialization of the Company's metal-removal technology, (3) improvement of margins through processing at appropriate specifications, and (4) the Company's M&A strategy. If the Company makes clear progress in these areas in FY12/18, we think this will increase the likelihood that it will achieve strong growth over the medium-to-long term. As part of its M&A strategy, on December 1, the Company formed joint venture Beijing GRINM RS Semiconductor Materials Co., Ltd. (BGRS) with Chinese state-owned company General Research Institute for Nonferrous Metals (GRINM). RS Technologies has entered the prime wafer business by converting GRINM Semiconductor Materials Co., Ltd. (GRITEK), a wholly owned subsidiary of GRINM in the prime wafer business, into a consolidated subsidiary.

Key Points

- Reached production capacity increase and market share increase targets.
- Major customer certified use of metal-removal technology, opening a new market for the Company.
- Chinese prime wafer business looks to be the key to reacceleration of growth in FY12/18.

Summary

Results trends



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

Business environment

The global demand for semiconductor wafers is growing and is estimated at 5.5mn units per month in terms of 12-inch wafer equivalents

1. Business environment

The silicon wafer reclaim business is a niche field within the semiconductor industry, which covers a broad range of fields. But as previously mentioned, it has an impact that cannot be ignored from the perspective of reducing semiconductor chip manufacturing costs, and at FISCO, we think this business field will survive in the future. On the other hand, as it is a difficult field for newcomers to enter into due to the decline in the reclaim fee, the competition conditions can be said to be stable for the existing service providers, including the Company.

According to SEMI, the total surface area of the silicon wafers shipped globally in 2016 was 10,738 million square inches. If we assume that 70% of this area was 12 inch wafers, then the number of 12 inch wafers shipped in 2016 can be calculated to be approximately 66.50 million wafers, or monthly shipments of around 5.54 million wafers. Around 20% of this amount (approximately 1.0 million-1.1 million wafers a month) became monitor wafers, and this presents the overall image of the silicon wafer reclaim market.

Business environment

The Sanbongi Factory can reclaim 200,000 12-inch wafers per month, while the Tainan Factory can reclaim 100,000 per month. Originally, the Sanbongi Factory could reclaim 160,000 12-inch wafers per month, but due to repeated production line improvements in recent years, the design reclamation capacity of this plant was raised to 200,000 wafers per month. The Sanbongi Factory can also reclaim 120,000 wafers of 8 inches or less in diameter per month. The Tainan Factory reclaims only 12-inch wafers and is currently operating at full capacity. In fact, it appears to be reclaiming and shipping more than 100,000 wafers per month, probably by overlapping some processes as the Sanbongi Factory has done.

The Company estimates the global market for reclaimed 12-inch semiconductor wafers to be 1 million units per month, and it reclaims somewhat more than 300,000 12-inch wafers per month, so it has a global market share of about 30% based on output. This is the largest share of the market. Japanese competitors of RS Technologies include Mimasu Semiconductor Industry Co., Ltd. <8155> and Hamada Heavy Industries Ltd. Mimasu Semiconductor is part of the Shin-Etsu Chemical Co. Ltd. <4063> group of companies, and it polishes new wafers, as well as used ones. Hamada Heavy Industries is based in Kumamoto Prefecture and specializes in wafer reclamation, like RS Technologies.

Overseas, Taiwanese companies, such as Kinik Company <1560 T.T>, Scientech Corporation <3583 T.T> and Phoenix Silicon International Corporation <8028 T.T>, are its main competitors. Japanese companies have a 70% to 80% share of the global silicon wafers market, and they are also the leaders in the reclaim market. But alongside the accumulation of foundry companies (semiconductor manufacturing contractors), reclaim service providers have also been established in Taiwan. Each is considered to have around a 10% share of the market. Within these competitive conditions, as described below the Company is aiming to utilize its unique strengths, as well as business partnerships and M&A, to acquire a global share of 40% in the medium term.

The Company maintains superior cost competitiveness, customer composition, and production and processing technologies

2. Company strengths

The Company has various strengths, but among them, at FISCO we think the following three are particularly important.

(1) Cost competitive

We think that cost competitiveness is the Company's greatest strength. In 1Q FY12/17, the Company achieved an operating income margin of 37.6%. Its plants in Japan and Taiwan are operating at full capacity, so this operating income margin indicates the Company's current capabilities.

The reason it is able to realize this high level of profitability is that it purchased RASA Industries' production equipment at an inexpensive price, and also it keeps employee numbers down to the minimum necessary. RASA Industries made some of its employees unemployed when it withdrew from this business, and the Company launched the business by re-employing some of these employees. It started with 55 employees, the business today has expanded to a production capacity of 200,000 wafers a month, but even now it operates with only 350 employees. When considering that RASA Industries had a production capacity of 90,000 wafers a month with 450 employees, we can clearly see that the Company is operating with a high level of efficiency.

Business environment

Among other listed silicon wafer-related companies are Shin-Etsu Chemical, SUMCO CORPORATION <3436>, and Mimasu Semiconductor Industry Co., Ltd. Shin-Etsu Chemical and SUMCO are so-called silicon wafer integrated manufacturers, conducting all of the process from the extraction of silicon single crystals. Mimasu Semiconductor Industry and the Company only carry out surface polishing, although Mimasu Semiconductor Industry both manufactures new products and conducts reclaim on used products, unlike the Company that only conducts reclaim. The Company's operating income margin is far higher than the margins of the other three companies.

Shin-Etsu Chemical and SUMCO are conducting all of the processes from the crystal making ('pulling') to all the way to the finished wafers such as polished or epitaxial wafers. Mimasu Semiconductor Industry and other reclaim companies do not have crystal making capability, and they only carry out film removal, polishing and cleaning of wafers (which are often called 'wafering') although Mimasu Semiconductor Industry does 'wafering' of both new (virgin) and used wafers, unlike other reclaim companies that only do reclaim (service.)

(2) Customer composition

One more of the Company's strength is its customer structure, which has changed greatly from the RASA Industries period. During the RASA Industries period, approximately 70% of sales were to specific semiconductor manufacturers, which meant its earnings base was vulnerable, in that the demand for its reclaim services was greatly affected by the production conditions at these semiconductor manufacturers.

The Company has worked to diversify its customers since the time it first launched the business. Currently, the composition of the wafer reclaim market by region is basically the same as the composition of the Company's net sales by region. Even within each respective region, it has multiple semiconductor manufacturers as customers and it has succeeded in greatly reducing the extent it relies on individual companies as customers.

(3) Production technologies: thin-film stripping technologies and metal-removal technologies

The Company also has technological strengths. At the present time, it is demonstrating this strength for technologies to strip the thin film on the surface of the wafer using a chemical treatment. A thin film of various substances is formed on the monitor wafer's surface as the pretreatment for the circuit fabrication, and also a doping treatment is carried out on the inside of the wafer. Fundamentally, the reclaim removes this film and the doping material and returns the wafer back to being highly pure silicon. Whereas rival companies achieve this by polishing, the Company achieves it through a combination of chemical treatment and polishing. The advantage of this approach is that it reduces the amount of polishing per reclaimed wafer, which makes it possible to increase the number of times a wafer can be reclaimed (to prolong its life). At FISCO, we think this is very appealing to customers, as it directly results in cost reductions.

Another strength of the Company is its technology for removing metals from semiconductor wafers. The Company has developed a technology that enables the reclamation of monitor wafers with metallic circuits. Currently, semi-conductor makers dispose of monitor wafers with metallic circuits because there has been no previous technology to remove the metals in the circuits. Globally, about 250,000 such monitor wafers are thrown out each month, or about 5% of total global production. Using the Company's new technology, the global market for reclaimed wafers could be increased, and the Company could expand its sales and profits. In FY12/17, the Company received certification from a major client, which we view as a major step in terms of commercialization of the Company's technology.

Business trends

Sizable growth in sales and income on strong performance from wafer business. Already 80% progress toward full-year target.

1. 3Q FY12/17 cumulative results

In the first nine months of FY12/17, net sales rose 25.6% YoY to ¥7,874mn, operating income climbed 132.3% to ¥2,069mn, ordinary income advanced by 357.7% to ¥2,251mn, and profit attributable to owners of parent jumped 519.8% to ¥1,501mn.

3Q FY12/17 cumulative results summary

	FY12/16		FY12/17				(¥mn)
	3Q cumulative	Full year	1H	3Q cumulative	YoY	Progress rate	Full year (E)
Net sales	6,271	8,849	4,971	7,874	25.6%	83.3%	9,450
Gross profit	1,566	2,516	1,960	2,985	90.6%	--	--
Gross profit margin	25.0%	28.4%	39.4%	37.9%	--	--	--
SG&A expenses	675	958	556	916	35.6%	--	--
Ratio of SG&A expenses to net sales	10.8%	10.8%	11.2%	11.6%	--	--	--
Operating income	890	1,557	1,404	2,069	132.3%	81.2%	2,550
Operating margin	14.2%	17.6%	28.3%	26.3%	--	--	27.0%
Ordinary income	491	1,450	1,598	2,251	357.7%	85.0%	2,650
Profit attributable to owners of parent	242	869	1,069	1,501	519.8%	92.1%	1,630

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

In the mainstay wafer business, the Company achieved strong growth in sales and income, as 3Q cumulative net sales were ¥6,692mn (up 43.0% YoY) and operating income was ¥2,283mn (up 139.2%). We will provide more details below, but we attribute the strong results to strong semiconductor production and strong demand for reclaimed wafers and smooth operations at the Company's plants in Japan and Taiwan.

In the business of purchases and sales in used semiconductor production equipment, net sales declined by 26.1% YoY to ¥1,119mn and operating income fell by 23.6% to ¥153mn. While the Company's plan for this segment is for it to mainly handle semiconductor production equipment, it currently mostly handles consumables and components. In FY12/16, temporary sales to Chinese customers of LCD modules increased sharply, boosting segment earnings. In FY12/17, although the Company expected LCD module transaction volume to decline, it did not decline as much as expected. However, there was a reactive decline and volume fell YoY.

The "other businesses" segment consists of the solar business (photovoltaic power generation business at the Sanbongi Factory) and the technology consulting business. 3Q cumulative net sales were ¥76mn and operating income was ¥55mn, both roughly flat YoY.

Business trends

Breakdown of 3Q FY12/16 cumulative net sales and operating income by business segment

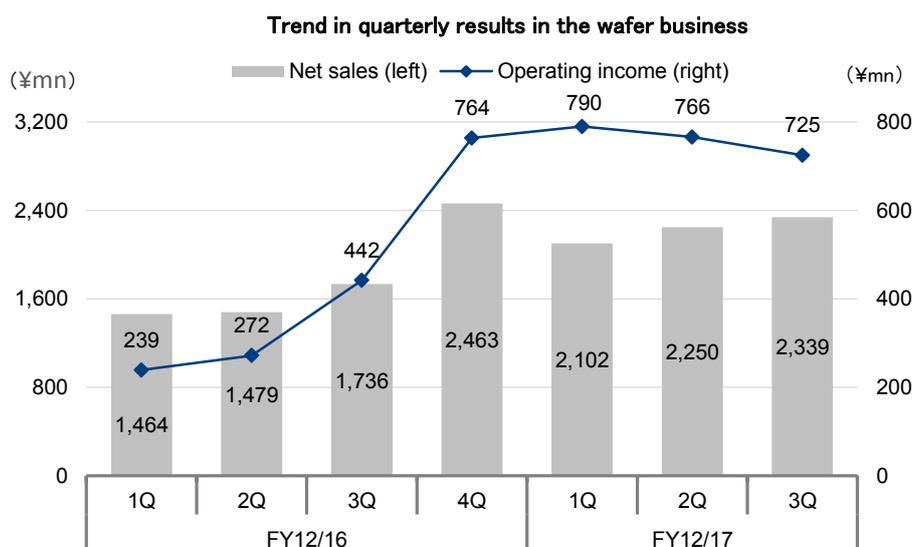
		FY12/16		FY12/17			(¥mn)	
		3Q cumulative	Full year	1Q	2Q	3Q	3Q cumulative	YoY
Net sales	Wafer business	4,680	7,144	2,102	2,250	2,339	6,692	43.0%
	Purchases and sales of semiconductor manufacturing equipment business	1,514	1,611	430	152	537	1,119	-26.1%
	Other business	76	93	20	30	25	76	0.6%
	Subtotal	6,271	8,849	2,552	2,434	2,902	7,889	25.8%
	Adjustments	-	-	-	-14	-	-14	--
Total		6,271	8,849	2,552	2,419	2,902	7,874	25.6%
Operating income	Wafer business	954	1,718	790	766	725	2,283	139.2%
	Purchases and sales of semiconductor manufacturing equipment business	201	221	59	25	68	153	-23.6%
	Other business	54	66	12	24	18	55	2.4%
	Subtotal	1,210	2,006	863	816	812	2,493	106.0%
	Adjustments	-319	-448	-130	-145	-147	-423	--
Total		890	1,557	733	671	664	2,069	132.3%

Source: Prepared by FISCO from the Company's quarterly securities report

To raise prices for reclaimed wafers gradually based on market prices. Operating above capacity by removing bottlenecks.

2. Wafer business segment trends

Quarterly net sales in the wafer business show a steady uptrend. In 4Q FY12/16, net sales spiked owing to a number of factors, and sales have remained high in 2017 and the strong uptrend continues. Quarterly operating income is steady at above ¥700mn.



Source: Prepared by FISCO from the Company's financial results and quarterly securities report

Business trends

(1) Price trends

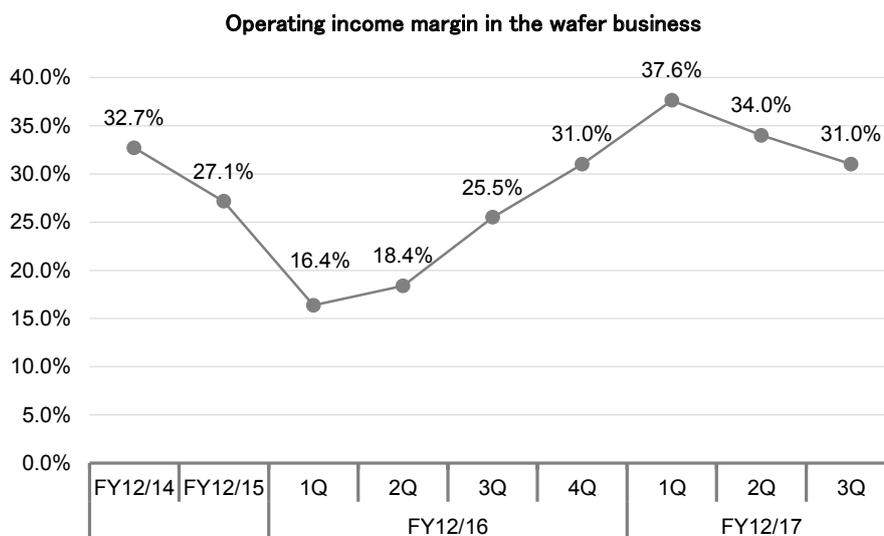
In 1Q (January-March) 2017, prime wafer makers began raising prices. Prime wafer price trends have an impact on reclaimed wafer price trends. We believe the Company also raised prices for some customers in 1Q.

Amid an overall tight supply-demand balance for silicon wafers, prime wafer makers continued to raise prices from 2Q onward. Starting in 3Q, we believe that not only major silicon wafer makers, but nearly all wafer makers raised prices. Amid this environment, the Company's basic policy has been to raise prices based on the supply-demand balance and we understand that it has raised prices for some customers by several percent. The Company does not factor price increases into its forecast.

We see several possible reasons behind this policy, but in our view, we think the most likely reason is that, because the Company is able to leverage its low-cost production system to offer highly competitive prices, it has decided to prioritize volume-driven growth rather than implementing large price hikes.

Whatever the reason, we take a positive view of the Company's pricing policy from a medium-term perspective because it shows a focus on volume growth. We will provide more details below, but because the Company is operating at full production capacity, we think it will soon have to implement some type of initiative to address the issue of production capacity. If the Company increases production capacity, its most pressing challenge will be to quickly ramp up the utilization rate for the newly added capacity. Compared with its peers, the Company has a high operating margin and we therefore think that, over the near term, it will focus on initiatives to increase demand.

Operating margin in the wafer business reached a near-term peak in 1Q FY12/17 and then declined in 2Q and 3Q. The reason for this was an increase in the procurement price for slightly out-of-standard wafers. In addition to manufacturing reclaimed wafers for its customers, the Company also procures out-of-standard wafers from prime wafer manufacturers and uses its processing technology to convert them for sale as new monitor wafers. In 3Q, there was a marked increase in the procurement price for these wafers, which resulted in a decline in the operating margin. The Company plans to pass this procurement price increase on to its customers in the form of higher prices and it raised prices in 4Q.



Source: Prepared by FISCO from the Company's quarterly securities report

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

Business trends

(2) Production and capacity utilization rate

The Company currently has two plants, the Sanbongi Factory in Miyagi Prefecture (Japan) and the Tainan Factory in Taiwan. The Sanbongi Factory produces a wide range of wafer sizes from 12 inches to 8 inches and less, but the Tainan Factory specializes in 12-inch wafers. Currently, 12-inch wafers are standard and they play a pivotal role in terms of the Company's earnings. We therefore focus on 12-inch wafers in our analysis below.

The Sanbongi Factory has a designed monthly capacity of 200,000 12-inch wafers. However, the Company has increased this capacity to production and shipment of 210,000-220,000 wafers by implementing operational improvements starting in 2016. Since the beginning of 2017, the Company implemented further improvements that have increased monthly capacity by an additional 10,000-20,000 wafers and monthly output has recently trended at around 230,000 wafers.

The Tainan Factory, which began operations in the spring of 2016, has a designed monthly capacity of 100,000 wafers. While production capacity utilization was low at first, it gradually increased, reaching full capacity by end-2016. In FY12/17, like the Sanbongi Factory, production at the Tainan Factory has increased owing to the removal of bottlenecks and monthly production volume has recently trended at around 120,000-130,000 wafers.

There are two main reasons the Company has been able to operate both factories at 20%-30% over capacity. The first is the abovementioned removal of production bottlenecks. More specifically, the Company has improved bottlenecks (processing steps with lower production rates compared with other steps), raising the productivity levels of these steps to levels in line with other processes and thereby increasing the productivity of the entire line.

The second reason is a reevaluation of production yields. Many of the Company's reclaimed wafers are over spec in that they are higher quality (smoothness, etc.) than necessary considering the applications for which they are used. Addressing this issue by processing to achieve appropriate specifications reduces polishing times, therefore increasing productivity and boosting production volume. Altering specifications requires the cooperation and consent of customers, but by explaining to and negotiating with its customers, the Company has been making progress in shifting to appropriate levels of processing.

While the Company has considerably increased its productivity through initiatives to increase production capacity without making capital investments, we think it is approaching the limit of such increases. We therefore think the Company will make a decision regarding investment in plant and equipment in FY12/18.

Medium-to-long-term growth strategy and progress made

We expect the Company to raise the targets in its medium-term management plan by a wide margin based on upward revision to FY12/17 forecast.

1. Medium-term performance targets and means of achieving them

At the start of every year, the Company announces a new three-year management plan for the year just beginning and the next two years. The 2017 medium-term management plan targets net sales of ¥9,204mn, operating income of ¥2,432mn, and net profit attributable to owners of parent of ¥1,571mn for FY12/19.

The Company raised its full-year forecast for FY12/17 in a press release on August 3, 2017. The revised forecast for net sales of ¥9,450mn and operating income of ¥2,550mn is higher than the targets for FY12/19 in the medium-term management plan and we therefore expect the Company to raise its forecasts to much higher than current levels in the next medium-term management plan scheduled to be announced in 2018.

Targets for 2017 medium-term management plan

	FY12/16		FY12/17		FY12/18		FY12/19
	Results	2016 plan	2017 plan	Revised forecast	2016 plan	2017 plan	2017 plan
Net sales	8,849	8,292	8,556	9,450	8,338	8,891	9,204
Operating income	1,557	2,191	1,939	2,550	2,186	2,146	2,432
Profit attributable to owners of parent	869	1,578	1,177	1,630	1,588	1,346	1,571

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

To reach the performance targets in medium-term management plan, the Company has identified five goals put forth in medium-to-long term management plan. These goals have not been changed since they were first announced in the 2016 medium-term management plan and as of 4Q FY12/17, the Company is still making progress toward these goals.

Five goals of the medium-to-long term management plan

The medium- to long-term management policy	
①	Increase output by expanding capacity at the Taiwan subsidiary and the Sanbongi Factory
②	Increase share of the global market for reclaimed wafers
③	Capture growing demand
④	Exploit the potential global market for reclaimed wafers
⑤	Enter the Chinese market for semiconductors

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

Medium-to-long-term growth strategy and progress made

Production capacity and market share growth targets reached

2. Growth strategy: Expand output and market share

As mentioned above, both the Sanbongi Factory and the Tainan Factory are operating at roughly 20% above designed production capacity. Not only the Sanbongi Factory, which has a relatively long history and track record, but also the new Tainan Factory was able to surpass designed production capacity, doing so in less than a year after full-scale operation began. We view this as evidence that the Company has successfully achieved the first goal in its medium-to-long term management plan, “Increase output by expanding capacity at the Taiwan subsidiary and the Sanbongi Factory.”

The Company’s second goal is “Increase share of the global market for reclaimed wafers.” Production capacity increases achieved at the Tainan Factory by reaching full production capacity and eliminating bottlenecks have greatly outpaced production capacity expansion by industry rivals. We therefore think the Company has also achieved its second goal.

We think that after achieving these first two goals, the next step for the Company will be to consider production capacity increases.

The Company targets a global market share of 40% based on output by 2018. We believe the scale of the market for reclaimed 12-inch (300mm) wafers is roughly 1 million wafers per month. The Company’s current actual production capacity is over 300,000 wafers per month. Even considering overall market growth going forward, if it could add capacity of 50,000–100,000 wafers per month to its current capacity, it could achieve a global market share of about 40%, we calculate.

In our previous report, we discussed scenarios wherein the Company fully equips the Sanbongi Factory and wherein it makes limited investments to remove production bottlenecks. Currently, we expect the Company to install new equipment to increase production capacity step-by-step. The reason for this, of course, is to limit capital investment and smoothly ramp up production capacity utilization following construction of new facilities. We also think this saves time in terms of responding to demand for increased production capacity.

We think the most likely scenario is limited installation of new production equipment to boost monthly production capacity by roughly 50,000 wafers at the Sanbongi Factory, where increasing production capacity would be simpler in terms of existing buildings and utilities. We estimate that this scenario would require capital investment of approximately ¥1.0bn and we think the Company could easily cover this with cash on hand (as of September 30, 2017, the Company held cash and deposits of ¥2,728mn).

The Company maintains that the timing and scale of any production capacity increases are undecided. However, considering the recent tight supply-demand balance and the time lag between the decision to increase capacity and the start of production, we think the Company will make a decision early in FY12/18.

While we believe the Company’s conservative stance regarding production capacity increases is attributable to concerns regarding operations following the increase, a factor has emerged that we think could encourage the Company to move forward with a capacity increase. One of the Company’s customers has certified the use of the Company’s proprietary metal-removal technology. We will provide more details below, but we think this gives the Company access to a new market. We think this gives the Company a very compelling incentive to move forward with a production capacity increase.

Medium-to-long-term growth strategy and progress made

Advances in semiconductor products and a switch to 18-inch wafers will generate new demand for reclaimed wafers. The Company is prepared to exploit this demand.

3. Growth strategy: capture growing demand

Additional production capacity and advanced technologies are needed to capture growing demand. We have addressed the issue of additional capacity above. Now, we shall examine technological developments.

We expect demand to grow as a result of technological advances in semiconductor products and the transition to the next larger wafer size.

The full-scale market penetration of 3D NAND flash memory devices is a current example of a technological advance that is increasing the demand for reclaimed wafers. NAND flash memory devices are the main type of flash memory in use, but the memory capacity of these devices is limited by their current means of production. To overcome this limitation, circuits were stacked vertically to produce 3D NAND flash memory devices. In early 2016, Toshiba Corp. (6502), Intel Corp., and some other makers of memory devices began the full-scale mass production of 3D NAND flash memory devices. As 3D NAND flash memory devices are difficult to manufacture, their production requires many monitor wafers. As mentioned previously, the demand for monitor wafers rises not only with an upturn in the semiconductor cycle, but also when a new plant is put into operation or a new semiconductor is produced. The increasing production of 3D NAND flash memory devices has generated new demand for reclaimed wafers, which the Company is capturing. Against this backdrop, we had expected the Company to successfully commercialize its unique technology for the unique technology to removal cu from used test wafers, which it did to great effect in 3Q FY12/17, earning recognition from a major customer.

Regarding the generational change in the size of wafers, the road map shows there will be a shift from the current size of 12 inches to 18 inches. Reclaim service providers are in a passive position for this shift to 18 inches, and the important point will be whether or not they can respond quickly when the demand for them occurs. On this point, the Company has already introduced equipment and established the polishing technologies for 18 inch wafers into its Sanbongi Factory. These preparations have been highly evaluated by customers and it has in place a system enabling it to transition to mass production at any time. At FISCO, we think that among the specialist providers of reclaim services, only a few companies have completed the preparations to respond to the shift to 18 inches, and in this respect the Company has a major advantage.

Major customer certifies use of metal-removal technology, opening up new market for the Company

4. Growth strategy: Opening up the potential reclaim market

The Company's growth strategy is based on the commercialization of its metal-removal technology. Currently, wafer reclamation processing is conducted to remove scratches and irregularities on the surfaces of monitor wafers. Monitor wafers with already-formed metal circuits are discarded and not reclaimed. The reason for this is that when metal circuits are formed, metal materials permeate into the interior of the wafer and cannot be completely removed by polishing the wafer surface. The Company has solved this problem by developing technology that allows monitor wafers that include metal circuits to be reclaimed.

Medium-to-long-term growth strategy and progress made

The Company's products have been tested by its customers in terms of functionality and its metal-removal technology has been certified by a major customer. We believe this will expand the Company's market for reclaimed wafers because it opens up the possibility that the Company could lead the market for metal-removal reclamation processing. If all wafers with metal circuits are reclaimed, we think ratio of reclaimed wafers (percentage of all wafers sold) could increase by five percentage points, from roughly 20% to 25%. This would result in an increase in the size of the market from the current scale of roughly 1 million reclaimed wafers per month to 1.25 million wafers, an increase roughly in line with the Company's total production capacity. While we do not think this would result in an immediate 250,000-per-month increase in demand for the Company's wafers, we are confident that it would prove to be a strong incentive for it to invest in increasing production capacity.

Enters prime wafer manufacturing and sale business by adding Chinese prime wafer manufacturer into consolidated subsidiaries

5. Growth strategy: Entering into the Chinese semiconductor market

China plans to invest ¥5tn into its semiconductor industry by 2020. The Company plans to participate in the Chinese semiconductor market to accelerate its growth over the medium-to-long term and to enlarge the scope of its business. Many of the Company's managers, including President Ho, gained abundant experience in transactions with Chinese companies and cultivated close personal relationships with Chinese business people while working at trading companies. These managers have been applying their experience and contacts in China to increase the Company's business in that country.

In its Chinese operations, the Company has handled a wide range of equipment to meet the needs of its customers, mainly focusing on SPE consumables. However, it recently took a step toward the handling of SPE by signing an agreement to become an overseas distributor of Hitachi Power Solutions' ultrasound image inspection devices (nondestructive imaging devices used for semiconductors and electronic components). The Company is also acting as a distributor in China for Nippon Muki's chemical filters. These businesses are part of the Company's "purchases and sales of semiconductor manufacturing equipment business" segment and we expect to see continued steady growth from them.

Also, since 2012, the Company has dispatched engineers to Chinese government-owned corporations to provide instruction regarding 8-inch and 12-inch wafer processing technology. In 2015, RS Technologies was the first Japanese company to join the Integrated Circuit Materials Industry Innovative Alliance, which collects information on semiconductor technologies and has developed good relationships with Chinese semiconductor manufacturers such as Chinese government-owned Semiconductor Manufacturing International Corporation (SMIC) and Hua Hong Semi and is increasing transaction volumes of reclaimed wafers and dummy grade prime wafers.

On December 1, the Company formed joint venture Beijing GRINM RS Semiconductor Materials Co., Ltd. (BGRS) with Chinese state-owned company General Research Institute for Nonferrous Metals (GRINM). RS Technologies has announced its entry into the prime wafer business by converting GRINM Semiconductor Materials Co., Ltd. (GRITEK), a wholly owned subsidiary of GRINM in the prime wafer business, into a subsidiary. BGRS manufactures 5-inch, 6-inch, and 8-inch prime silicon wafers and single-crystal silicon ingots and is a major player in the Chinese market in these fields in terms of technological capabilities and sales volume.

RS Technologies

9-Jan.-2018

3445 Tokyo Stock Exchange First Section

<http://www.rs-tec.jp/en/index.html>

Medium-to-long-term growth strategy and progress made

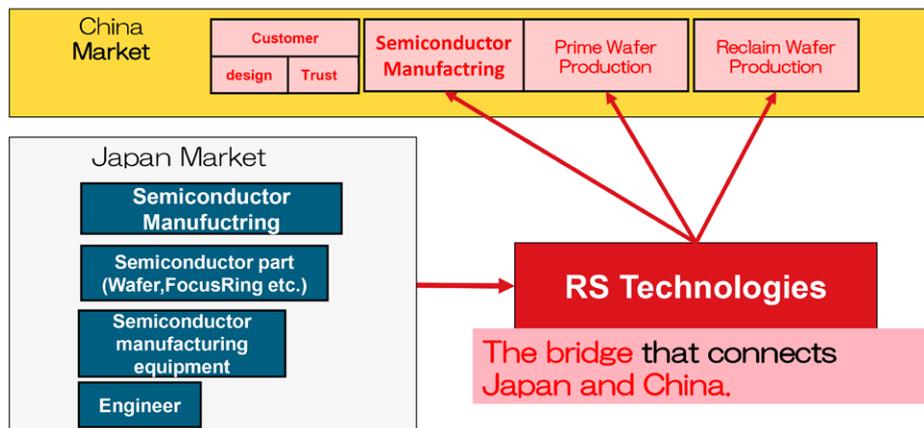
The BGRS medium-term business plan, also announced on December 1, targets FY2018 net sales of ¥9.0bn and operating income of ¥1.2bn and FY2023 net sales of ¥23.0bn and operating income of ¥5.6bn. Capital investment plans call for an increase of 7x in 8-inch wafer production capacity compared with the current level during the period covered by the medium-term business plan. We believe the company's sales and input cost forecasts are slightly conservative. We expect BGRS results to be reflected in RS Technologies' consolidated earnings starting from FY12/18.

We believe this prime wafer business will prove to be a key business that accelerates the Company's growth starting from FY12/18. This is because we expect growth in wafer demand commensurate with growth in the Chinese semiconductor industry. If this scenario emerges, we think the Company will, of course, seek to acquire plants located close to customers by establishing joint ventures with Chinese companies. In addition, as growth in the Chinese semiconductor market ramps up, we think the Company could expand its wafer business domain. We think President Nagayoshi Ho, originally from China, may be able to position the Company to take advantage of this strategy. We also think the Company will be able to achieve growth in its purchases and sales of semiconductor manufacturing equipment business.

We believe the Company will be able to take advantage of Chinese semiconductor demand in three businesses, (1) the prime wafer business, (2) the reclaimed wafer business, and (3) the purchases and sales of semiconductor manufacturing equipment business. We await the announcement of the Company's medium-term business plan in 2018 for details regarding these businesses.

Diagram of Company's participation in China's semiconductor market

China is planning an investment at **5 trillion JPY** in the semiconductor industry by 2020.
 More relations with Chinese semiconductor enterprises and join a Chinese market.



Source: The Company's results briefing materials

Forecasts

Based on strong progress through 3Q, we think the Company will surpass its full-year forecast

1. Company forecasts for FY12/17

The Company raised its FY12/17 full-year forecast alongside its 1H results announcement. The revised forecast is for strong growth in sales and income, with net sales of ¥9,450mn (up 6.8% YoY), operating income of ¥2,550mn (up 63.7%), recurring income of ¥2,650mn (up 82.7%), and profit attributable to owners of parent of ¥1,630mn (up 87.4%).

Company forecasts for FY12/17

	FY12/16			FY12/17			
	3Q cumulative	Full year	1H	3Q cumulative	4Q (E)	YoY	Full year (E)
Net sales	6,271	8,849	4,971	7,874	1,575	-38.9%	9,450
Gross profit	1,566	2,516	1,960	2,985	--	--	--
Gross profit margin	25.0%	28.4%	39.4%	37.9%	--	--	--
SG&A expenses	675	958	556	916	--	--	--
SG&A expenses to net sales	10.8%	10.8%	11.2%	11.6%	--	--	--
Operating income	890	1,557	1,404	2,069	480	-28.0%	2,550
Operating income margin	14.2%	17.6%	28.3%	26.3%	30.5%	--	27.0%
Ordinary income	491	1,450	1,598	2,251	398	-58.4%	2,650
Profit attributable to owners of parent	242	869	1,069	1,501	128	-79.5%	1,630

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

As mentioned above, owing to the very strong progress toward the Company's full-year targets through 3Q, the 4Q hurdle to reach these targets is very low. 3Q cumulative quarterly operating income trended around ¥700mn. While the operating margin narrowed in 3Q owing to rising wafer procurement prices, we expect the operating margin to improve in 4Q because the Company raised the price of some products in order to pass on the impact of higher input costs to customers. We therefore think it is very unlikely that 4Q operating income will be only ¥480mn.

We believe the reason the Company left its full-year forecast unchanged alongside 3Q results is simply that it does not expect results to fluctuate enough to warrant a revision (change in net sales of 10% or more or change in profit of 30% or more) and not because it factors in any particular risk in 4Q. As in 1Q-3Q, we think the purchases and sales of semiconductor manufacturing equipment business could post YoY declines in net sales and profit on a full-year basis. However, we think this will be offset by strong performance from the wafer business, resulting in companywide earnings far surpassing the Company's forecast.

FY12/18 could prove to be the next turning point in terms of growth acceleration

2. Prospects for FY12/18

While we expect little change in the environment faced by the reclaimed wafers business, we forecast growth in sales and income in FY12/18 driven by the Company's entry into the prime wafer business.

In the reclaimed wafer business, we see little upside potential in terms of volume because the Company is already operating at full capacity. We expect the Company to decide to increase its production capacity, but even if it does so, we do not expect additional production to begin until 2H or even FY12/19. We therefore think sales growth, which is based on volume and price trends, could be low.

Amid this environment, our focus points for FY12/18 are whether or not the Company increases its production capacity and improvement in profitability (typically based on operating margin).

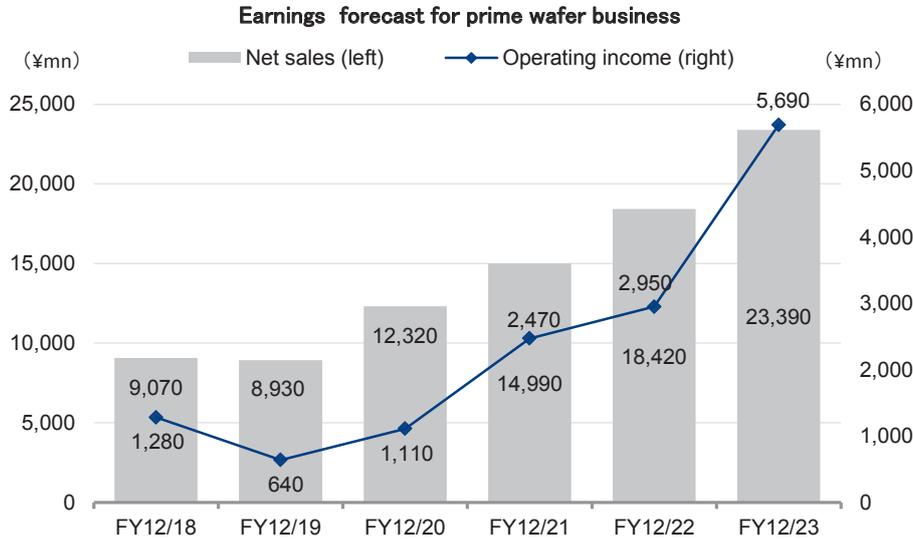
Although the Company is already operating at full production capacity, it still has multiple options in terms of measures to increase productivity. One measure that we think could produce positive results is improving yields by making the abovementioned shift from over spec wafers to production of wafers with more appropriate specifications. Currently, the high level of difficulty involved in reclamation processing is often a major factor reducing yields. As this difficulty is often the result of customers' standards and specifications, the Company is working to find ways for both it and its customers to benefit from the adoption of more appropriate specifications. As the adoption of more appropriate specifications would lead to reduced processing time and fewer processing steps, it we think would also increase actual production capacity and thereby boost sales.

Another focus point is the progress of the Company's metal removal reclamation processing technology. Owing to the high level of difficulty involved in this type of processing, we think the Company could set processing prices at a high level and we think this could result in improved profitability. We therefore caution against excessive optimism. We do not think this technology will be used in the Company's mainstay business domain and contribute to growth in earnings until after the Company makes investments to increase its production capacity.

According to Company materials, the prime wafer business is expected to contribute greatly to consolidated earnings over the long term.

We understand the Company has a 45% ownership stake in the prime wafer business, but the Group has a majority in terms of voting rights and has the business therefore been classified as a consolidated subsidiary because the Company is deemed to have substantial control over it. The Company expects the prime wafer business to begin contributing to earnings starting in FY12/18.

Forecasts



Source: Prepared by FISCO from the Company material

We therefore expect progress toward earnings targets for the prime wafer business to drive earnings growth from FY12/18 onward. We think earnings growth in FY12/18 will depend on the success or failure of the prime wafer business in China.

Below, we discuss our outlook regarding growth in wafer demand in China as a means to judge whether the prime wafer business will be successful.

In the above description of the business environment, we explained that global monthly demand for 12-inch silicon wafers is 5.5 million units. Demand for 8-inch wafers is roughly the same. China currently accounts for roughly 800,000 of this demand and, over the next few years, we expect annual growth of over 20%. We therefore think it is only a matter of time before monthly wafer consumption in China tops 1 million units. We believe the Company's entry into the Chinese prime wafer business was based on a strategy of, in line with the Made in China 2025 project spearheaded by the Chinese government targeting growth in the semiconductor industry as a whole, teaming up with GRINM, which has a close relationship with the Chinese government in order to benefit from investments made by the Chinese government.

Forecasts

Consolidated statement of income

	FY12/14	FY12/15	FY12/16	FY12/17	
				3Q cumulative	Full year (E)
Net sales	4,566	5,545	8,849	7,874	9,450
Growth rate	31.4%	21.4%	59.6%	25.6%	6.8%
Gross profit	1,819	1,872	2,516	2,985	--
Gross profit margin	39.9%	33.8%	28.4%	37.9%	--
SG&A expenses	653	790	958	916	--
Ratio of SG&A expenses to net sales	14.3%	14.3%	10.8%	11.6%	--
Operating income	1,166	1,081	1,557	2,069	2,550
Growth rate	66.1%	-7.3%	44.1%	132.3%	63.7%
Operating margin	25.5%	19.5%	17.6%	26.3%	27.0%
Ordinary income	1,247	937	1,450	2,251	2,650
Growth rate	52.6%	-24.8%	54.7%	357.7%	82.7%
Profit attributable to owners of parent	664	304	869	1,501	1,630
Growth rate	26.8%	-54.2%	185.8%	519.8%	87.4%
After adjustment for share split					
Earnings per share (¥)	65.95	28.36	79.99	135.62	147.60
Net asset per share (¥)	150.27	242.77	321.30	--	--
Dividend per share (¥)	0	0	5.00	--	5.00
Depreciation expenses	102	326	682	--	--
Capital investment	2,901	4,537	759	--	--

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

Shareholder return policy

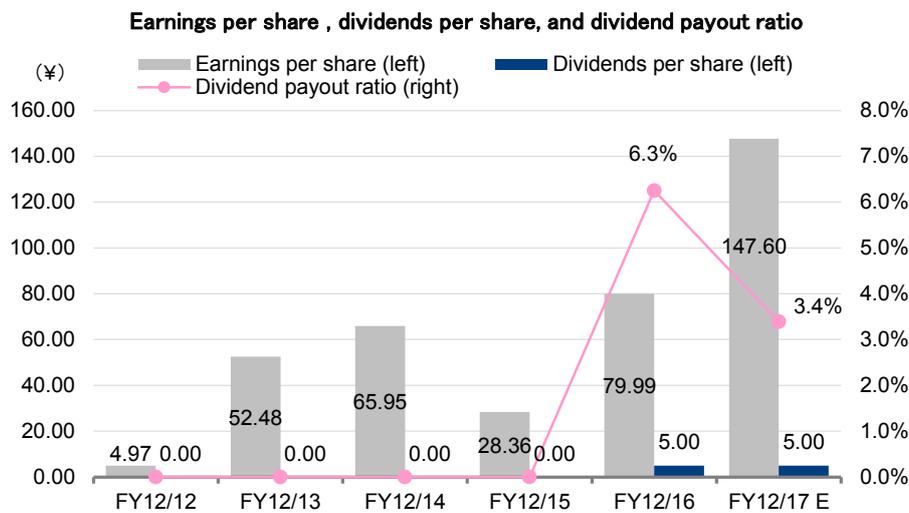
Conducted stock split in July 2017. Announced FY12/17 dividend distributions of ¥5 per share (same as last year on adjusted basis)

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 decides on its dividends after considering a comprehensive range of factors, including current profits, the targets of its medium-term management plan, and its financial strength.

Through FY12/15, the Company paid no dividends because it prioritized the accumulation of funds to invest regularly in new plant and equipment. However, the Company began paying dividends in FY12/16, paying annual dividends of ¥10 (regular dividends of ¥5 per share and commemorative dividends of ¥5 per share), yielding a dividend payout ratio of 6.3%. We take a positive view of the Company's dividend distributions because, while its dividend payout ratio is low, we think its dividends are at a level that indicates a focus on shareholders, even as the Company makes investments in growth such as increasing its production capacity.

Shareholder return policy

The Company announced that it will pay dividends of ¥5 per share in FY12/17. The Company conducted a 2-for-1 stock split on July 1, 2017 and, adjusted for this factor, dividend distributions were unchanged year-on-year. However, because last year dividends were classified as regular dividends of ¥2.5 per share and commemorative dividends of ¥2.5 per share (adjusted basis) and this year the Company announced regular dividends of ¥5 per share, it can be said that the Company has strengthened shareholder returns. While, owing to strong growth in earnings per share, the dividend payout ratio has declined to only 3.4%, as mentioned above, the Company is expected to continue to make investments in growth and we believe that, over the longer term, such investments will increase shareholder return by a greater amount than dividend distributions.



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

The Company has a shareholder benefits system. The Company will present shareholders holding 100 shares or more as of December 31, the end of the Company's fiscal year, with a QUO card worth ¥3,000. In previous years, the Company presented shareholders with QUO card worth ¥6,000, but it adjusted the value in line with the stock split and existing shareholders will therefore see no real change in the value of benefits received.

Information security

High level of awareness of information security

RS Technologies is involved in the leading-edge field of semiconductors and therefore manages important information such as technical data and customer data with a high level of awareness regarding information security. The Company has established information security systems necessary for listed companies including passwords settings and limited access to information. In addition, the Company is involved in B-to-B businesses and, unlike companies involved in B-to-C businesses, does not handle large volumes of customer data or credit card data. We therefore think the Company faces relatively little risk from cyberterrorism targeting such information or the leaking of such information from inside the Company.

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



Disclaimer

FISCO Ltd. (the terms “FISCO”, “we”, mean FISCO Ltd.) has legal agreements with the Tokyo Stock Exchange, the Osaka Exchange, and Nikkei Inc. as to the usage of stock price and index information. The trademark and value of the “JASDAQ INDEX” are the intellectual properties of the Tokyo Stock Exchange, and therefore all rights to them belong to the Tokyo Stock Exchange.

This report is based on information that we believe to be reliable, but we do not confirm or guarantee its accuracy, timeliness, or completeness, or the value of the securities issued by companies cited in this report. Regardless of purpose, investors should decide how to use this report and take full responsibility for such use. We shall not be liable for any result of its use. We provide this report solely for the purpose of information, not to induce investment or any other action.

This report was prepared at the request of its subject company using information provided by the company in interviews, but the entire content of the report, including suppositions and conclusions, is the result of our analysis. The content of this report is based on information that was current at the time the report was produced, but this information and the content of this report are subject to change without prior notice.

All intellectual property rights to this report, including copyrights to its text and data, are held exclusively by FISCO. Any alteration or processing of the report or duplications of the report, without the express written consent of FISCO, is strictly prohibited. Any transmission, reproduction, distribution or transfer of the report or its duplications is also strictly prohibited.

The final selection of investments and determination of appropriate prices for investment transactions are decisions for the recipients of this report.

FISCO Ltd.