

## GCC Management™ Analysis Report: Astena Holdings Co., Ltd.

(former, IWAKI &amp; CO., LTD.)

TSE First Section Securities Code: 8095

Jun 1, 2021

## Transformation through sustainable strategies and advanced innovations in industry, technology, and society

This report analyzes corporate value from the perspective of "GCC Management™,"<sup>a</sup> which emphasizes the following three factors: **Growth** (sales growth), **Connection** (improvement of the connection between people and businesses = higher return on capital), and **Confidence** (improvement of trust = lower business risk and lower cost of capital).

## Diversification in business and value chain with a focus on pharmaceuticals over 107 years of history

Astena Holdings Co., Ltd. (former, IWAKI & CO., LTD. hereinafter referred to as "Iwaki", because original version in Japanese was written before the change of the name on June 1, 2021) was founded as a pharmaceutical wholesaler in 1914, and has since expanded into the import and manufacturing of pharmaceutical raw materials and pharmaceutical formulations. Based on its synthesis and formulation technologies, the company has expanded its "product assortment" to include fine chemicals (FC), pharmaceuticals, health and beauty care (HBC: functional foods, cosmetics, and pharmaceutical wholesale), food raw materials, and chemicals (surface treatment chemicals). It is one of the leading companies in Japan in the field of skin-related products such as generic dermatological agents. In addition, the company holds the No. 1 share in high-end surface treatment chemicals, for which demand is expected to grow with 5G and other technologies. In 2016, the company announced its vision to achieve sales of 100 billion yen by the fiscal year ending November 2025, through a "policy assortment" that strengthens its value creation capacity. Since Keitaro Iwaki, the fourth generation of the founding family, took over as president in 2017, the "policy assortment" has been enhanced through M&As and other means. Especially noteworthy is the policy assortment for fine chemicals and pharmaceuticals created through the acquisition of a contract research (CMC<sup>b</sup>) business and a development and manufacturing contract (CDMO<sup>c</sup>) business spun out from Takeda Pharmaceutical Company Limited. Sales and EBITDA for the fiscal year ending November 2020 reached 65.3 billion yen and 4 billion yen, respectively, the highest levels since the company was founded. It announced a 19.9% dilutive financing in November 2020 for capital expenditures in pharmaceuticals.

## Three strategies for industry, technology, and society, and the acquisition of advanced technologies

A new vision was announced in January 2021 that includes the achievement targets of sales of 130 billion yen (compound annual growth rate of 7.1% over the fiscal year ending November 2020) and operating income margin of 7.2% (4.1 percentage-point improvement over the fiscal year ending November 2020) in the fiscal year ending November 2030 through the implementation of 1- an industrial platformer strategy centered on establishing sustainability (CMC, CDMO, drug discovery incubation, healthcare procurement), 2- technology-oriented niche leader strategy (No. 1 in generic high-end surface treatment chemicals for dermatological agents), and 3- social impact strategy (activation of senior citizens with cosmetics and functional foods). Furthermore, the consolidation disclosed on April 7 of JITSUBO Co., Ltd., a company with cutting-edge technology in the synthesis of medium-molecule (peptides, etc.) pharmaceutical raw materials that is expected to see high growth and contribute to CMC/CDMO, is attracting attention. It shifted to a holding company structure on June 1 to optimize group synergies. The company name was changed to "Astena Holdings Co., Ltd.," which is derived from "Ashita (tomorrow) + Sustainable."

## Twice the upside potential according to the shareholder value analysis

JPR analyzed shareholder value taking dilution into account using the comparable peer company method based on the GCC perspective and the EBITDA ratio. From the GCC perspective, shareholder value was 56 billion yen (stock price 1,379 yen, PER 28.0 times based on the company's current fiscal year profit plan, **1.93 times the current stock price**); in the comparable peer company method, the value was 46.8 to 91.7 billion yen (share price: 1,094 to 2,085 yen, PER: 23.4 to 45.6 times, current share price: 1.54 to 2.92 times). If the new medium- to long-term vision is reflected in the stock price, an upside of about 2 times was estimated to be sufficient.

## Basic report

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## Company profile

Location	Chuo Ward, Tokyo
Representative	Keitaro Iwaki
Date of establishment	September 1941
Capital	2,687 million yen
Date of listing on the stock exchange	July 1963
URL	<a href="https://www.iwaki-kk.co.jp/">https://www.iwaki-kk.co.jp/</a>
Industry	Wholesale business

## Key Indicators (as of 5/28/2021)

Stock price	712 yen
52-week high	778 yen
52-week low	408 yen
Number of issued shares	38,070,487 shares
Trading unit	100 shares
Market capitalization	27,106 million yen
Company's dividend forecast	18 yen
Company Disclosed Forecast Net Income	60.65 yen
Base EPS (PER)	(11.73 times)
Performance BPS (End of February 2021)	656.93 yen
Performance PBR	1.08 times

Performance Transition	Sales (million yen)	YoY (%)	Operating income (million yen)	YoY (%)	Ordinary income (million yen)	YoY (%)	Net income (million yen)	YoY (%)	EPS (yen)	Stock price	
										High price (yen)	Low price (yen)
FY11/2017	57,387	4.1%	1,571	60.8%	1,778	66.0%	1,241	—	37.93	569	239
FY11/2018	60,083	4.7%	1,849	17.7%	2,000	12.5%	1,414	13.9%	43.75	644	376
FY11/2019	61,647	2.6%	2,121	14.7%	2,318	15.9%	1,533	8.3%	47.01	547	376
FY11/2020	65,341	6.0%	2,035	-4.0%	1,968	-15.0%	1,983	29.4%	60.33	599	352
Company plan of FY2021	73,000	11.7%	2,600	27.7%	2,700	37.1%	2,000	0.8%	60.65	-	-
FY11/2020 1Q	14,571	-1.2%	277	-45.2%	295	-45.7%	196	-43.7%	6.00	523	450
FY11/2021 1Q	16,975	16.5%	663	139.0%	705	139.0%	398	102.8%	11.92	692	497

<sup>a</sup> J-Phoenix Research (hereinafter, "JPR") has systematized the concept of corporate value in easy-to-understand terms. See "What is the GCC Management™ Analysis Framework?" in the Appendix.

<sup>b</sup> CMC refers to information on Chemistry, Manufacturing, and Control (quality control) of bulk drugs and formulations in the application documents required for drug approval review. CMC operations include all operations from the initial stages of drug development to the filing of an application for approval and the launch of the drug (bulk drug process development, formulation design, test method development, manufacturing of clinical trial (bulk) drugs, technology transfer, and additional operations including filing). In simple terms, it can be described as research and development of manufacturing methods.

<sup>c</sup> CDMO is the abbreviation for Contract Development and Manufacturing Organization, which refers to the commissioned business of manufacturing and development of pharmaceuticals. Iwaki is the first company to have a comprehensive structure that has both CMC and CDMO, with technologies for major pharmaceutical manufacturers.

# 1. Company overview

## Business features

Consists of four businesses: Fine Chemicals, Pharmaceuticals, HBC (Health, Beauty, Care) & Food, and Chemicals

Diversification in each business and value chain starting from a pharmaceutical trading company

Expected to transform into a comprehensive technology company by strengthening R&D capabilities

## Company overview

Iwaki Ichitaro Shoten, the predecessor of Iwaki, was founded in 1914 as a pharmaceutical wholesaler. The name was changed to "Iwaki Shoten Co., Ltd." in 1941 and then to "Iwaki & Co., Ltd." in 1963. In 1931, the company moved into the manufacturing of pharmaceutical raw materials and drugs, and has since diversified into related fields based on its synthesis and formulation technologies. The company currently operates a broad value chain in the fields of fine chemicals (FC), pharmaceuticals, health/beauty/care (HBC) and foods, and chemicals, including R&D, raw material manufacturing, distribution (trading company), product manufacturing, equipment manufacturing, and wholesale. As shown on the next page, the pharmaceutical wholesaling business accounts for 15% of sales, while R&D and manufacturing account for a total of 43%, which makes the company's business structure more like that of a manufacturer. In the area of skin products, such as generic dermatologic preparations, there are many top-class achievements in Japan in specific fields, and there are synergies with HBC skin care. In addition, the company has the No. 1 share in high-end surface treatment chemicals to meet the demand of 5G and other applications. It is strengthening its R&D support capabilities through M&As.

## Company overview

Company name	AstenaHoldings., Ltd.
Date of establishment	September 20, 1941 (the predecessor, Iwaki Ichitaro Shoten, was founded in 1914)
CEO	Keitaro Iwaki
Headquarters location	4-8-2 Nihonbashi honcho, Chuo Ward, Tokyo
Capital	2,687 million yen (as of the end of November 2020)
Number of employees	1,295 people (consolidated); 323 people (non-consolidated) (as of November 2020)
Fiscal year	November
Main business	Fine chemicals, pharmaceuticals, HBC and foods, chemicals
Date of listing on the stock exchange	July 1963
Listed stock exchange	First Section of the Tokyo Stock Exchange [Securities Code: 8095]
URL	<a href="https://www.iwaki-kk.co.jp/iwaki.html">https://www.iwaki-kk.co.jp/iwaki.html</a>

Source: Created by JPR based on public information

## History

Year	Contents	Consolidated operating companies	FC	Pharmaceuticals	HBC Food	Chemicals
1914	Ichitaro Iwashiro Shoten was established as a pharmaceutical wholesaler (trading company) and began wholesaling to pharmacies, as well as wholesale of pharmaceutical raw materials.	IWAKI & CO., LTD.	●		●	
1931	Established the joint-stock company Iwaki Seiyaku-sho (later Iwaki Seiyaku Co., Ltd.) and started manufacturing drugs and pharmaceutical raw materials.	IWAKI SEIYAKU CO., LTD.	●	●		
1941	Renamed "Iwaki Shoten Co., Ltd." as a corporate organization					
1950	Started handling imported pharmaceutical raw materials	IWAKI & CO., LTD.	●			
1951	Started handling chemicals	Meltex				●
1959	Started handling food raw materials	IWAKI & CO., LTD.			●	
1960	Established Japan Metal Finishing Company (currently Meltex Inc.) as a Japan-US joint venture. Started manufacturing surface treatment chemicals	Meltex				●
1963	Renamed "Iwaki & Co., Ltd.", listed on the Second Section of the Tokyo Stock Exchange, and started handling cosmetic raw materials.	IWAKI & CO., LTD.			●	
1964	Listed on the Second Section of the Osaka Securities Exchange					
1965	Capital participation in Bohon-Kasei Co., Ltd. — Starting the manufacturing of food raw materials	ボーエン化成株式会社			●	
1981	Started handling functional foods	IWAKI & CO., LTD.			●	
1986	Japan Metal Finishing Company was renamed "Meltex Inc."					
2000	APROS Co., Ltd. was established, and started manufacturing and selling cosmetics	APROS			●	
2005	Designated in the First Section of the Tokyo Stock Exchange Meltex Inc. creates the subsidiary Tokyo Kakoki Co., Ltd.	東京カキキ株式会社				●
2010	Meltex Inc. and 3 other companies were transformed into consolidated subsidiaries					
2011	Meltex Inc. became a wholly owned subsidiary through a share exchange					
2019	Sold all shares of Hokuyaku Co., Ltd. and AMI Co., Ltd., which are related to veterinary medicine, in order to centralize its management resources					
2020	Invested in Maeda Pharmaceutical Industry Co., Ltd. in order to improve its presence in dermatological agents Spera Pharma, Inc. became a wholly owned subsidiary by transferring shares from Bushu Pharmaceuticals Ltd. Invested in the drug discovery biotech venture J-Pharma, Inc. to increase its presence in CMC development Iwaki Seiyaku Sakura Factory Co., Ltd. became a consolidated subsidiary Maruman H&B Co., Ltd. became a consolidated subsidiary	SPERA PHARMA, Inc. 岩城製薬株式会社 maruman	● ● ●	● ● ●	● ● ●	
2021	Partial relocation of head office functions to Suzu City, Ishikawa Prefecture Iwaki Seiyaku Co., Ltd. invests in KinoPharma, Inc. JITSUBO Co., Ltd. became a subsidiary of Spera Pharma Inc., and expanded toward contracted manufacturing of medium-molecule (peptide) drugs	KinoPharma Jitsubo	● ●			

Source: Created by JPR based on data disclosed by Iwaki. Company logos of consolidated subsidiaries were added by JPR according to the start of their business activities.

## Business structure as of April 7, 2021, and major consolidated companies

Business name	Fine Chemical (FC)	Pharmaceuticals	HBC / Food	Chemicals
Business content	<b>CMC R&amp;D BU</b> Support for creating drugs (manufacturing method research contract)  <b>SPERA PHARMA, Inc.</b>	<b>Pharmaceuticals BU</b> Product manufacturing Manufacturing of prescription drugs, mainly generic drugs Also, manufacturing of other over-the-counter drugs 	<b>Food Raw Materials BU</b> Food raw materials manufacturing 	<b>Surface Treatment Chemicals BU</b> Electronic printed circuit board, semiconductor. For electronic components 
	<b>Pharmaceutical Raw Material BU</b> Pharmaceutical raw material manufacturing Manufacturing and contracted manufacturing of bulk drugs and chemical products 	<b>IWAKI SEIYAKU CO., LTD.</b> Contracted manufacturing of various dosage forms such as injections, tablets, and dermatological agents 	<b>IWAKI &amp; CO., LTD.</b> <b>Cosmetics BU</b> Cosmetic raw material trading company 	<b>Surface Treatment Equipment BU</b> Manufacturing and sales of printed circuit board manufacturing plants 
	<b>Pharmaceutical raw material trading company</b> Purchasing and selling chemicals from about 300 companies in Japan and about 40 companies overseas, including the company group. Proposing pharmaceutical-related raw materials 	<b>Medical Device BU</b> Selling respiratory management products mainly for newborns and children, and also selling related consumables 	<b>IWAKI &amp; CO., LTD.</b> <b>Cosmetics BU</b> Cosmetic raw material trading company 	<b>Specialty Material BU</b> Selling industrial chemicals used in various surface treatments 
	<b>IWAKI &amp; CO., LTD.</b>	<b>IWAKI &amp; CO., LTD.</b>	<b>IWAKI &amp; CO., LTD.</b> Sales of health foods, cosmetics, and household goods 	<b>Meltex</b>

Source: Created by JPR based on data disclosed by Iwaki and its website. All photos are from the Iwaki website.

## Sales composition for the fiscal year ending November 2020 [Unit: hundred million yen] (composition ratio %)

Sale amount Composition ratio	R&D	Raw material manufacturing	Distribution	Product manufacturing	Wholesale	Sale amount	Segment profit
FC	<b>CMC R&amp;D</b> 50	<b>Pharmaceutical Raw Materials</b>				<b>214 (33%)</b>	<b>12</b>
		Pharmaceutical raw material manufacturing 37	Pharmaceutical raw material trading company 128				
Pharmaceuticals				<b>Pharmaceuticals</b> Generic manufacturer 103	<b>Medical Equipment</b> Medical device wholesale 4	<b>106 (16%)</b>	<b>9</b>
HBC / Food			<b>Cosmetics</b> Cosmetic raw material trading company 40	<b>Cosmetics</b> Cosmetics online shopping 23	<b>Pharmanet</b> Wholesale of over-the-counter drugs 93 (14.4%)	<b>258 (40%)</b>	<b>▲ 4</b>
		<b>Food Raw Materials</b>					
		Food raw material manufacturer 3	Food / functional food Raw material trading company 97				
Chemicals		<b>Surface Treatment Chemicals</b> 53	<b>Specialty Materials</b> 6			<b>74 (11%)</b>	<b>3</b>
		<b>Surface Treatment Equipment</b> 14					
Total	<b>50 (8%)</b>	<b>108 (17%)</b>	<b>272 (42%)</b>	<b>126 (19%)</b>	<b>98 (15%)</b>	<b>653 (100%)</b>	<b>20</b>
R & D + manufacturing total 28.4 billion yen (43%)							

Source: Created by JPR based on data disclosed by Iwaki and its website.

Basic principles of  
“contribution,”  
“credibility,” and  
“honesty.”

Aiming to be “a company  
that always gives top  
priority to business  
partners”

Iwaki & Co., Ltd. is the  
cornerstone of group  
management

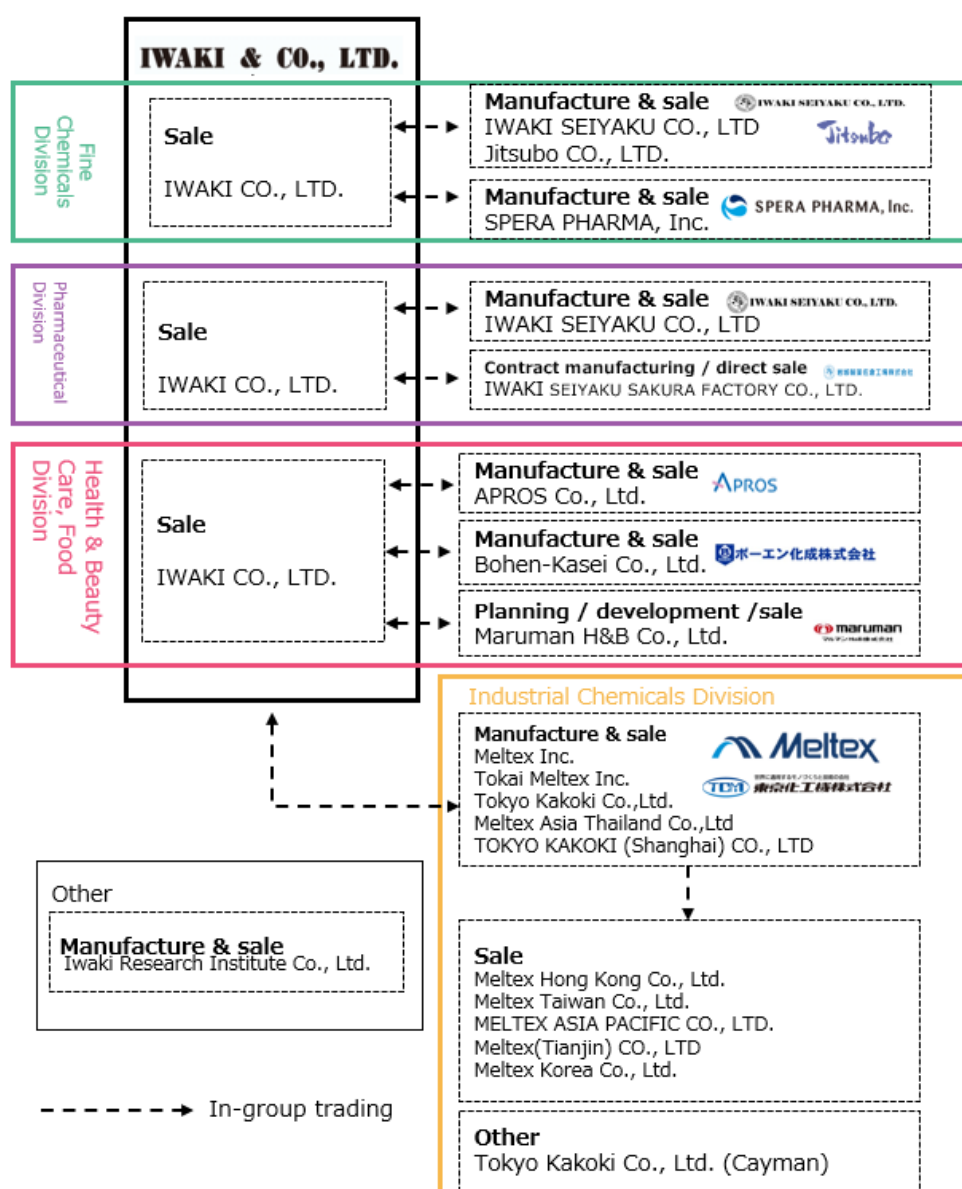
## Management philosophy

With “contribution,” “credibility,” and “integrity” as the basic principles, it aims to be a “company that always gives top priority to business partners.” The basic management policy is to contribute to the expansion of shareholders’ profits by coexisting and prospering with business partners through the products and services it provides, and to continue to fulfill its responsibilities to society and all other stakeholders.

## Overview of the corporate group

The figure below shows the composition of the corporate group. Iwaki & Co., Ltd. has two roles: one as an operating company and the other as a group management company. As described later, the company shifted to a holding company structure on June 1st to optimize group synergies. The company name was changed to “Astena Holdings Co., Ltd.,” which is derived from “Ashita (tomorrow) + Sustainable.”

### Overview of corporate group (as of April 12, 2021)



Source: Created by JPR based on Iwaki's annual securities report and disclosed data

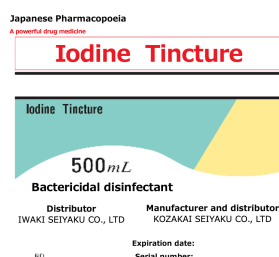


## History of the company

Changes since the founding that have fostered the source of value



Founder: Iwaki Ichitaro  
(1890-1962)



## History and prospects of business development

### Overcoming repeated hardships and struggling to build trust during the early years

Ichitaro Iwaki (born in 1890), the founder of Iwaki, studied medicine while working as an apprentice at a wholesale drug company. After the company went bankrupt, he opened his own store in 1914 with the company motto of "integrity," "contribution," and "credibility." Iwaki Ichitaro Shoten was able to develop while overcoming the harsh business environment in which the price of Western medicines skyrocketed due to the interruption of imports caused by World War I, and difficulties such as the store being destroyed in the Great Kanto Earthquake of 1923. After World War I, Iwaki Ichitaro Shoten established Iwaki Seiyaku Co., Ltd. (hereinafter referred to as "Iwaki Seiyaku") in 1931 amid the active domestic production of Western medicines, and advanced into the chemical synthesis of pharmaceutical raw materials and the formulation of pharmaceuticals. Iwaki Seiyaku was the first to manufacture iodine tincture in Japan. In 1941, the name was changed to "Iwaki Shoten Co., Ltd." as a corporate organization.

### Three functions were developed: "wholesale," "trading company," and "manufacturing."

The company overcame the burning of its Kamata Factory during World War II, and in the 1950s, when business was stabilizing during reconstruction, it shifted to a wholesale trading company. By adding the "trading company function" to the "wholesale function" of the wholesaler and the "manufacturing function" of Iwaki Seiyaku, the fragmented value chain was functionally integrated to provide products that better match customer needs, such as subdividing the raw powders and adjusting the moisture of raw materials, rather than simply distributing goods. This strategy, in place to this day, was created by combining the expertise cultivated as a wholesaler with the manufacturing business, and by using the trading company function to strengthen the product lineup and expand sales channels. In 1951, the company began to develop chemicals and instant foods, and in 1959, it expanded into food raw materials. In 1960, the company established the Japan Metal Finishing Company (currently Meltex Inc., hereinafter referred to as "Meltex"), a Japan-US joint venture, and moved into the handling of surface treatment (plating) chemicals, where chemical synthesis technology could be applied. With a focus on pharmaceuticals, the business expanded into fields where the commercial distribution of pharmaceuticals, chemical synthesis technology, and formulation technology can be applied.

## Review of Iwaki's history: From product assortment to policy assortment

Developed with the uniqueness and independence of "Iwaki" in the value chain from raw materials to sales

### Focusing on "Product lineup"

### Focusing on "Policy assortment"



Founding period  
"Dedicated and sincere"

1914-1949

Worked on the synthesis of pharmaceutical raw materials and pharmaceutical formulations from an early stage to build trusty relationships with suppliers and customers.

"If you buy medicine, Let's go to Iwaki."



Growth period  
"Wholesaler trading Company"  
1950-1964

Expansion of product lineup including imported products.

"Anything is available for Iwaki."



Development period  
"Tokyo tower management"  
1965-1991

Promotion of diversification based on product lineup.

"Iwaki here, Iwaki there too."



Maturity period1  
"Most Admired Company"  
1992-2015

A system that fulfills norms and social responsibilities as a partially listed company.

"If you buy from Iwaki, you can rest assured."



Second development period  
"Vision 'i-111'"  
2016-2020

For the next 100 years, the Iwaki challenge again.

"One-stop response to your needs /No.1/Developing overseas market/ Pursuing of capital efficiency."

Source: Created by JPR based on Iwaki's website and other materials



50th Anniversary Celebration  
(At Sankei Hall) 1963



Cosmetics developed by Apros

Shift from focusing on  
“product assortment” to  
focusing on “policy  
assortment”



Fourth generation of the founding  
family  
President Keitaro Iwaki (current  
position)

Corporate reform has  
progressed under the  
leadership of President  
Keitaro Iwaki, and the  
company has achieved its  
highest profits since its  
founding.

## “Tokyo Tower Management” consisting of the four legs, which continues to exist today

Stabilizing the business has been an important issue for Iwaki, which experienced repeated hardships during the early years. Kentaro Iwaki, the second-generation president who took over in 1962, implemented what he called Tokyo Tower Management, seeking pillars outside pharmaceuticals. Diversification is conditioned on the contiguity of each business, like the five rings of the Olympics. In order to make the tower taller, it is necessary to make each of the four legs thicker. That way, even if one leg collapses, the tower (company) will not collapse. Through repeated trial and error, the company has made full use of business restructuring and has cultivated the thicker pillars of its core business. In 1963, 50 years after its foundation, the company changed its name to “Iwaki & Co., Ltd.,” listed on the Second Section of the Tokyo Stock Exchange, and started handling cosmetic raw materials. After that, in 1965, the company took an equity stake in Bohen-Kasei Co., Ltd., as a neighboring field, entered into the manufacturing of food raw materials, and started handling functional foods in 1981.

## Second development period starting in 2016: Shift from a focus on “product assortment” to a focus on “policy assortment”

In 1994, the current chairman Osamu Iwaki became the third president. Apros Co., Ltd. (hereinafter referred to as “Apros”) was established in 2000; the company started manufacturing and selling cosmetics, and was designated in the First Section of the Tokyo Stock Exchange in 2005. In 2011, Meltex became a wholly owned subsidiary promoting overseas expansion. Although such management has led to the development of the “product assortment,” changes in external environmental factors over the years have pushed some divisions to reexamine their business models and to consider structural reforms of the business itself. Under such circumstances, the medium- to long-term vision of the Group, “Vision i-111,” has been formulated for the fiscal year ending November 2025, which marks the 111th anniversary of the Company’s founding, in order to achieve further growth and increase corporate value. By November 2025, the 111th anniversary of the company’s founding, the goal is to achieve sales of 100 billion yen or more, to have the largest market share, and to show a ROIC of 10% or more. The four I’s represent the basic strategies of 1- Intelligence (company’s policy assortment), 2- International (business expansion to overseas markets), 3- Innovative (number one product / business), and 4- Investment (business operations with an awareness of capital efficiency). By aiming to be the No. 1 business, the company decided to focus on niche fields where it can aim for the top, and to create a system to enhance its value creation capabilities.

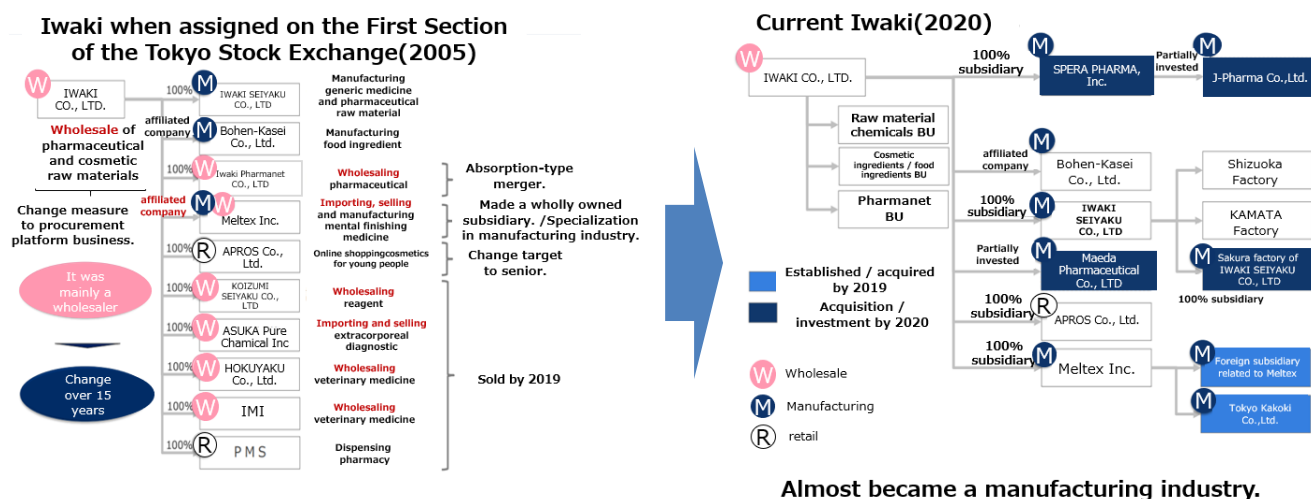
## The leadership of President Keitaro Iwaki, fourth generation of the founding family

In 2017, Keitaro Iwaki, the fourth generation of the founding family, became president. After working for Accenture, which provides consulting services and IT system implementation support, he joined Iwaki in April 2005 and served as President of Meltex. Then, as Vice President, he promoted the formulation of the group’s medium- to long-term vision “Vision i-111.” Since he assumed the position of president, the company has increased both sales and profits for three consecutive years, and achieved its highest operating income ever in its 105th year in business. The company hired a foreign investment banker with experience in the pharmaceutical business as Chief Strategy Officer Director and expanded its R&D business by promoting an aggressive M&A strategy in fine chemicals and pharmaceuticals, such as acquiring Spera Pharma Inc. (hereinafter, “Spera Pharma”), which operates a CMC business spun out from Takeda Pharmaceutical Company Limited (hereinafter, “Takeda Pharmaceutical”). Sales and EBITDA for the fiscal year ended November 2020 reached 65.3 billion yen and 4 billion yen, respectively, which are the highest levels since the company was founded. It can be said that the company is entering a second growth period under the leadership of President Keitaro Iwaki.

## From wholesale to manufacturing

The figure below, which compares the operating company and its businesses at the time of the designation in the First Section of the Tokyo Stock Exchange in 2005 and the fiscal year ending November 2020, shows that the wholesale business was sold, while the manufacturing business has been expanded through M&As, as explained in detail on the next page.

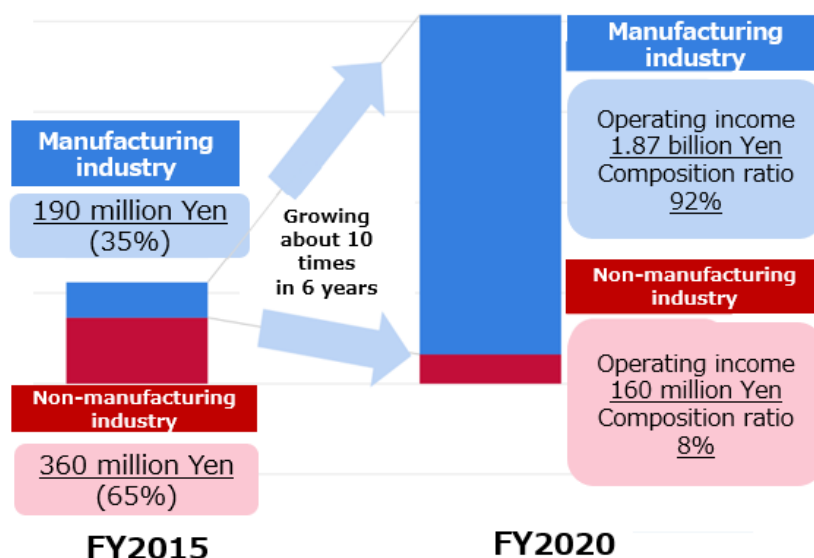
## Functional transformation, mainly in the pharmaceutical field, through business restructuring



Source: "Explanatory Materials for Individual Investors, October 2020" by Iwaki

After the announcement of the Group's medium- to long-term vision, "Vision i-111," the value-added creation division has shifted from wholesale to manufacturing, as shown in the figure below.

## Value-added creation division shifts from wholesale to manufacturing



Source: "Financial Results Briefing for the Fiscal Year Ended November 30, 2020" by Iwaki

## Transformation through M&As

M&As for expanding the value chain of fine chemicals

Strengthening the upstream of the pharmaceutical value chain (strengthening the policy assortment)

Chiral compounds account for the majority of medical drugs, and Spera Pharma provides solutions by comprehensively utilizing its chiral technology.



Supporting R&D of medical drugs through chemical synthesis using "chiral technology," a synthesis technology based on the research of Nobel Prize winner Professor Noyori



Synthesis equipment owned by JITSUBO

## M&As and investments in fine chemicals and pharmaceuticals

In the fields of fine chemicals and pharmaceuticals, Iwaki carried out three M&As and two partial investments in the fiscal year of November 2020, investing a total of more than 8 billion yen. In 2021, one investment and one M&A were carried out.

### Fine chemicals

The following are M&As and investments related to fine chemicals.

#### M&As and investments related to fine chemical business



**SPERA PHARMA, Inc.**

**The only integrated CMC in Japan**

Disclosure date: January 24, 2020, Capital transfer: Consolidated subsidiary

**Spin-out business from the R&D department of Takeda Pharmaceutical. The company's strength lies in its "chiral technology," a synthesis technology based on the research of Nobel Prize winner Professor Noyori. The only integrated CMC research contractor in Japan**

- Having the technology and know-how of CMC research (analysis and research of process chemistry, formulation development, test method setting, etc.) spun out from Takeda Pharmaceutical Company Limited in July 2017. It was once a subsidiary of Bushu Pharmaceuticals Ltd., and is now a subsidiary of Iwaki.
- Overseas, there are many examples of CMCs being spun out due to concentration and selection of management resources. Developing bulk drug manufacturing methods from scratch, building bulk drug manufacturing methods according to the development stage and application, and quality design.
- The strength of the company lies in its chiral technology, which was developed under the guidance of a company researcher seconded to the Noyori Molecular Catalyst Project managed by Nobel Prize winner Professor Ryoji Noyori of the Exploratory Research for Advanced Technology (ERATO) program of the Japan Science and Technology Agency. Chiral technology can be applied to chiral compounds, which make up the majority of medical drugs.
- Expected to demonstrate synergies through collaboration with manufacturing and trading companies.

**J-Pharma**

**J-Pharma Co., Ltd.**

**Targeting transporters**

Disclosure date: June 30, 2020. Capital transfer: Investment by Spera Pharma

**Based on technology developed by Professor Hitoshi Endo of Kyorin University**

- A venture company seeking drug discovery targeting transporters, which are proteins that exist in cell membranes and are responsible for transporting substances into and out of cells. In particular, it will promote drug development targeting L-type amino acid transporters.



**JITSUBO Co., Ltd.**

**Peptide synthesis with low cost and low environmental load**

Disclosure date: April 7, 2021, Capital transfer: Becoming a subsidiary of Spera Pharma

**The technology is based on that of Professor Kazuhiro Chiba, President of the Tokyo University of Agriculture and Technology. The strength lies in its technology, which is environmentally friendly and enables low-cost medium-molecular synthesis by minimizing the amount of harmful organic solvents used in chemical synthesis.**

- Founded in April 2005 as a venture company from Tokyo University of Agriculture and Technology. Established as a research and development company specializing in peptide drugs. Its characteristic is a unique peptide (medium-molecule) synthesis technology, Molecular Hiving™ (HM method), which is high quality, low cost, and environmentally friendly. The company's name is derived from Chiba Jitsubosan, a company run by Professor Chiba's family that manufactured Jitsubosan, a Chinese herbal medicine with a history of about 500 years.
- Signed an exclusive license agreement with Bachem Group, headquartered in Switzerland, in May 2020. The Bachem Group is an innovation-oriented, publicly traded company specializing in the development and manufacture of medium-molecules (peptides and nucleic acids), and supports medium-molecule-based drug discovery in the biotech and pharmaceutical industries worldwide.

### Acquisition of the only integrated CMC business in Japan

The most notable acquisition was that of Spera Pharma Co. Ltd. (hereinafter referred to as "Spera Pharma"), a spin-out from Takeda Pharmaceutical Company Limited, which has a chiral compound synthesis technology based on the research of Nobel Prize winner Professor Noyori. CMC, which stands for Chemical Manufacturing and Control, is a business that undertakes R&D of manufacturing methods for pharmaceutical raw materials, formulation methods, and approval methods for pharmaceutical products. Originally part of Takeda Pharmaceutical Company, it was the CMC of Japan's number one pharmaceutical company, so it can be said that Iwaki has the number one CMC business in Japan. According to Iwaki, Spera Pharma is the only company that integrates and offers outsourcing of all aspects of CMC.





From Iwaki's presentation materials for the second quarter of the fiscal year ending November 30, 2020

Medium-molecules combine the advantages of micro- and macro-molecules

JITSUBO's HM method will help reduce costs and promote the spread of medium-molecule drugs.

## Investing in a drug discovery venture

Investing in J-Pharma Co., Ltd. (hereinafter referred to as "J-Pharma") is important from the perspective of supporting drug discovery ventures. The key here is the know-how that Spera Pharma possesses in two areas. The first is the power of "expertise." From the experience of being involved in development at Takeda Pharmaceutical for many years, it is possible to determine how to increase the success probability of development issues in terms of CMC. The second is drug discovery support from the CMC aspect, which is extremely useful in completing the business model of the venture. Almost all of the CMC operations required by J-Pharma will be outsourced to Spera Pharma, leading to increased speed and possibility (launch probability) of the drugs being produced and brought to market. In this way, it will be possible to carry out business incubation activities for drug discovery bio-ventures, offering technology and funding. J-Pharma is involved in various collaborative research projects with prominent universities. Such relationships will be important as Iwaki strengthens its R&D capabilities in the future.

## Acquisition of CDMO business for medium-molecule pharmaceutical raw materials

On April 7, 2021, JITSUBO Co., Ltd., which has world-leading technology in the synthesis of medium-molecule (peptides, nucleic acids, etc.) pharmaceutical raw materials that are expected to grow at a high rate, was consolidated. The company's technology is based on the research of Professor Kazuhiro Chiba, the current president of the Tokyo University of Agriculture and Technology, and the company is globally recognized for its technology, including licensing agreements with leading medium-molecule-related companies around the world. In terms of drug discovery, medium-molecules have the advantages of both micro- and macro-molecules. However, the production cost of medium-molecules is higher than that of micro-molecules, so the spread of medium-molecules has not been as advanced as that of micro-molecules.

Cost reduction through cutting-edge technologies, such as the HM method of JITSUBO, will spur the spread of this technology. A significant cost reduction of medium-molecules is expected with the HM method, because it requires fewer solvents for synthesis and the reaction can be carried out in fewer steps. In addition, the fact that there are fewer solvents that have a large environmental impact has a positive effect in terms of environmental protection. If cost reduction progresses, it is expected that drug discovery activities for medium-molecules, which combine the advantages of micro- and macro-molecules, will expand.

## Drug discovery characteristics of micro-, medium-, and macro-molecules

Molecules for drug discovery	Micro-molecules	Medium-molecules	Macro-molecules Cell (macromolecule)
Molecular weight *	1,000 or less	1,000-5,000	150,000 or more
Molecule image			
Component	Compound	Peptide or nucleic acid	Protein - cell
Side effect risk	High	Low	Low
Synthesis method	Simple with chemical synthesis	Simple with chemical synthesis	Biotechnology and incubation More complicated
Manufacturing cost	Low	Low Cost reduction by the HM method of JITSUBO	High

\*: Molecular weight is the atomic weight contained in the constituent molecules. For example, in approximate numbers, hydrogen has a weight of 2, water 18, and oxygen 32.

Note: A deficit is preferable due to the nature of drug discovery

Source: Japan Science and Technology Agency (JST)

Prepared by JPR based on data from the Research and Development Strategy Center and other sources.

### Drug discovery characteristics of micro-, medium-, and macro-molecules (continued)

Molecules for drug discovery	Micro-molecules	Medium-molecules	Macro-molecules Cell (macromolecule)
target	Inside and outside the cell	Inside and outside the cell	Extracellular only
Drug selectivity with regard to the target	Low	High	High
Route of administration	Oral / injection	Oral / injection	Injection
Cell membrane permeability	Excellent	Yes	Low
Therapeutic effects of inhibiting protein interactions	Low	High	High
Iwaki's strategy	The only platformer in Japan that integrates CMC and CDMO in the two fields of medium- and micro-molecules.		

Source: Japan Science and Technology Agency (JST)

Prepared by JPR based on data from the Research and Development Strategy Center and other sources.

Support from micro-molecules to medium-molecules at all stages of generic drugs, from investigational drugs to drugs as final products

Toward the pillar of platformer strategy

### Medium-molecules have great synergies with micro-molecule synthesis technology

#### Contributing to CMC and CDMO platformer strategy

While macro-molecules require complex and high-cost biotechnologies, such as cultivation rather than chemical synthesis, medium-molecules can be produced by chemical synthesis, allowing cost control. JITSUBO's medium-molecule technology has a high affinity with Iwaki's micro-molecule synthesis technology. Through these transactions in the fine chemicals and pharmaceutical businesses, it will be possible to handle a wide variety of formulations, from R&D of raw material production of drugs by chemical synthesis to the production of micro- to medium-molecules (mainly peptides, although there are also nucleic acids) at all stages of drug discovery from investigational drugs to finished products and generic drugs.

Iwaki's contract research and development and contract development and manufacturing businesses (CMC and CDMO) are expected to grow significantly over the long term, and CMC and CDMO, involving both micro- and medium-molecules, will be the pillars of the "platformer strategy" set forth in the new mid-term vision described below.

**What is a peptide?**

Amino acid binding  
Protein constituents

**What is a nucleic acid?**

Nucleotide binding  
DNA / RNA  
component

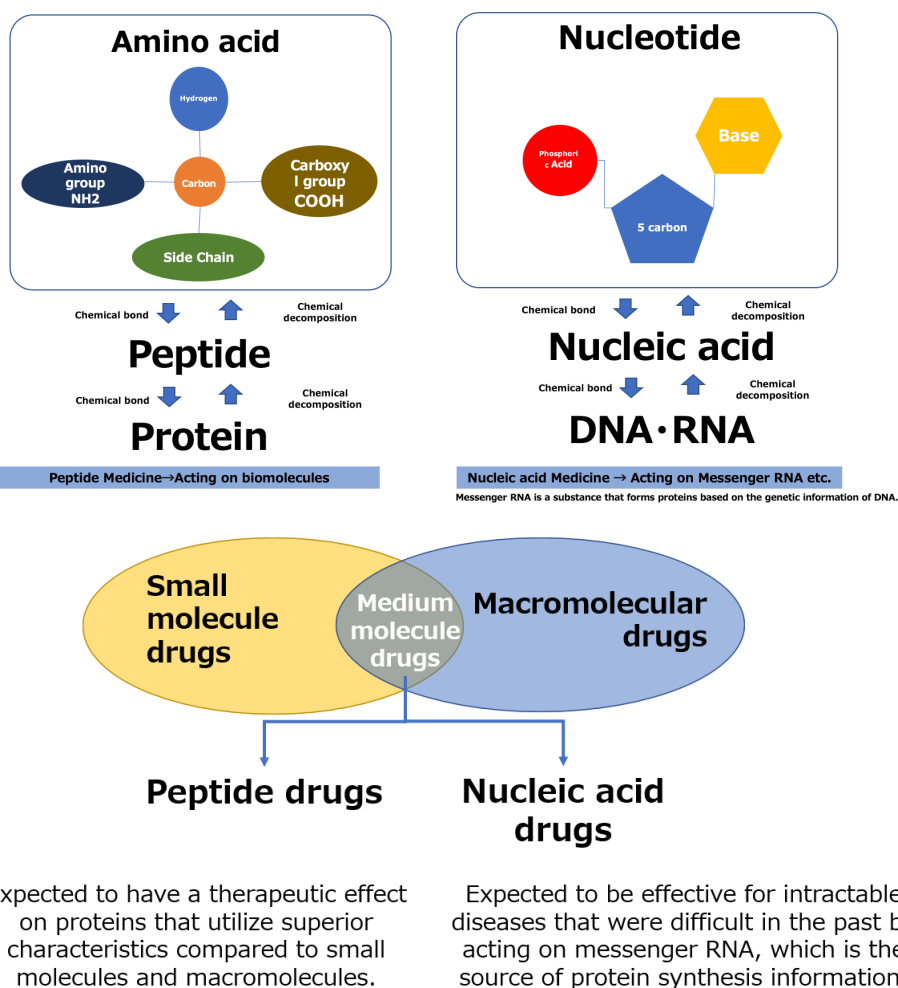
Peptide drugs and nucleic acid drugs are expected to have therapeutic effects that have been difficult to achieve with conventional micro- and macro-molecules

JITSUBO's cutting-edge technology in medium-molecular synthesis is expected to transform the company into a comprehensive pharmaceutical technology company

## What are medium-molecule drugs—peptide drugs and nucleic acid drugs?

Medium-molecules, which are attracting attention as pharmaceutical raw materials, include peptides and nucleic acids. A peptide is a combination of multiple amino acids, and a large number of peptides are bound together to form a protein. Nucleic acid is a combination of multiple molecules called nucleotides, as shown below. A large number of nucleic acids bind together to form DNA, which transmits genetic information, and RNA, which synthesizes proteins based on genetic information.

Medium-molecule (peptides and nucleic acids), which are attracting attention as pharmaceutical raw materials, and their effects



A nucleic acid drug is the use of nucleic acids, which are the building blocks of genetic information, such as DNA and RNA, as a drug. Nucleic acid drugs aim to exert their therapeutic effects by directly acting on messenger RNA, which is a macro-molecule that is the basis of protein synthesis.

Other drugs aim to exert therapeutic effects by acting on proteins, but since their target of action is different from that of nucleic acid drugs, it is expected that nucleic acid drugs will be effective for genetic diseases and intractable diseases that have been difficult to treat so far.

As already explained, nucleic acids can also be chemically synthesized, and based on JITSUBO's technology, Iwaki is expected to develop its CMC and CDMO businesses in the long term to support the drug discovery of nucleic acid drugs. In the long term, Iwaki is expected to develop into a comprehensive medical technology company.

Niche-leader strategy -  
Strengthening strategy to  
aim for the top position in  
generic dermatological  
agents





Maeda Pharmaceutical Industry

## Acquisitions in the pharmaceutical business

### Strengthening the CDMO business

Since the fiscal year ending November 2020, three investments and M&As have been made in the pharmaceutical business to strengthen development and manufacturing capabilities. In order to achieve future growth, it is important not only to pursue the niche-leader strategy for dermatological agents, but also to work on the development of new drugs, which is expanding, and to strengthen the contract manufacturing capability to produce a variety of formulations. The following three projects can be said to be efforts to respond to such strengthening.

#### Pharmaceutical-business-related M&As and investments

 前田薬品工業株式会社	<b>R&amp;D and manufacturing specializing in dermatological agents</b>  Disclosure date: January 27, 2020; Capital transfer: Capital participation  <b>Founded in 1966. With a focus on dermatological agents, the company uses “application” and “sticking” technologies to solve skin problems.</b> <ul style="list-style-type: none"> <li>The company plans, develops, manufactures, and sells medical drugs (dermatological agents), non-pharmaceutical components (dermatological agents), and cosmetics. It focuses on R&amp;D and concentrates on dermatological agents.</li> <li>R&amp;D and in-house manufacturing focusing on dermatological agents such as ointments. The company's strength lies in its ability to conduct research on generic drugs and OTC drugs, and to manufacture all types of topical drugs in-house in small quantities and in multiple varieties.</li> <li>In addition, over the years, it has been engaged in contracted manufacturing (OEM) for many major Japanese pharmaceutical companies and has established a strict quality control and quality assurance system to meet the high demands and requirements of customers.</li> </ul>
 岩城製薬佐倉工場株式会社	<b>Experienced in manufacturing a wide range of formulations</b>  Disclosure date: July 1, 2020; Capital transfer: Capital participation in the succession of the Sakura Factory through the acquisition of the Sakura Factory of Torii Pharmaceutical Co., Ltd.  <b>Contract manufacturing of pharmaceuticals to meet diverse needs, from prescription examination, investigational new drug manufacturing, and commercial production to contract quality testing.</b> <ul style="list-style-type: none"> <li>Torii Pharmaceutical Co., Ltd. established the Iwaki Seiyaku Sakura Factory, which succeeds the Sakura Factory, and this was transferred to Iwaki Seiyaku Co., Ltd. in the form of acquisition of all the shares to become a wholly owned subsidiary of Iwaki.</li> <li>It manufactures mainly dermatological agents, injections, and alginate formulation test agents</li> <li>As a factory of Torii Pharmaceutical Co., Ltd., which is a leading pharmaceutical manufacturer, it has been manufacturing various dosage forms such as solid preparations, external preparations, granules, liquids, and injections for many years. A new step as a CDMO factory</li> <li>By combining the manufacturing and quality control efforts cultivated over many years with the raw material procurement and supply capabilities and formulation technologies of the Iwaki Group, it has developed into a contract manufacturer that can satisfy customers in all aspects, including price, quality, and stable supply.</li> </ul>
 KinoPharma	<b>KinoPharma Inc. Next-generation antiviral drug development company</b>  Disclosure date: January 13, 2021; Capital transfer: Iwaki Seiyaku underwrote the allocation of new shares to a third party  <b>Working to develop a new concept of antiviral drugs</b> <b>Business alliance with Iwaki Seiyaku for pharmaceutical development and supply of bulk drugs for the indications of warts</b> <ul style="list-style-type: none"> <li>Engaged in the development of antiviral drugs based on a new concept of inhibiting viral growth by targeting host factors.</li> <li>The lead program is in Phase I/II for the indication of human papillomavirus (HPV) infection (cervical intraepithelial neoplasia, CIN), which causes cervical cancer. In addition, development of therapeutic agents for various diseases caused by HPV infection, such as verruca vulgaris and condyloma acuminatum</li> <li>This business alliance is expected to strengthen the bulk drug supply system for antiviral drugs and accelerate the development of anti-HPV drugs in the dermatology field.</li> </ul>

Source: Created by JPR based on data disclosed by Iwaki.

### Towards having the No. 1 capacity of generic dermatological agents

The skin-related area of Iwaki's generic dermatologic preparations has a top-class track record in Japan. On the other hand, since its establishment in 1958, Maeda Pharmaceutical Industry, in which Iwaki took a stake, has been developing many medical-use drugs and generic drugs, focusing on dermatological agents. Through the capital participation, the company will further enhance its presence in the manufacturing of dermatological agents by strengthening the procurement function of pharmaceutical raw materials and collaborating with Iwaki Seiyaku.



**No. 1 in capacity**  
**Expanding manufacturing**  
**contracts and pursuing**  
**improvements in capital**  
**efficiency**

**Contribution to the**  
**activation of senior**  
**citizens through**  
**cosmetics and functional**  
**foods in social impact**  
**strategy**



Maruman H&B Co., Ltd.  
 President and CEO Katsuhiko Mizota  
 and a wide range of products



A commercial for the Non-Smoking  
 Paipo Pipe that became a great hit.

Also, the Iwaki Seiyaku Sakura Factory, which was established by taking over the Sakura Factory of Torii Pharmaceutical Co., Ltd., has a proven track record of providing high-quality formulations for dermatological agents. Through the above two initiatives, the company will pursue its management strategy of reaching the No. 1 position in Japan in terms of manufacturing capacity for dermatological agents, acquiring manufacturing contracts from other pharmaceutical manufacturers, and aiming for a high return on invested capital.

Iwaki Seiyaku has formed a business alliance with Kino Pharma for the development of new drug formulations and bulk drug supply for the indications of warts. It can be said that this also strengthens the position of dermatological agents.

## **Strengthening direct marketing of HBC and food business**

**Expected to contribute to the social impact strategy for activating senior citizens**

In November 2020, it was announced that Maruman H&B Co. Ltd. (hereinafter referred to as "Maruman H&B"), which has strengths in direct marketing, would become a subsidiary in order to strengthen the HBC and food business. Maruman H&B has a large number of sales channels (drugstores, convenience stores, cosmetic stores, variety stores) and strong direct marketing that connect directly with consumers. By joining the Iwaki Group, it will be possible to further strengthen the reach to consumers in the HBC and food business and provide more products. Also, the extensive product line of Maruman H&B, as a member of Astena Holdings, will strengthen the company's ability to provide products and services that put consumers' health and beauty first.

As discussed below, it is expected to contribute to the social impact strategy of "activation of senior citizens through cosmetics and functional foods" as indicated in the new vision.

### **Strengthening the HBC and Food Business**



Maruman H&B Co., Ltd.

Disclosure date: November 19, 2020; Capital transfer: Becoming a subsidiary

#### **A wide variety of in-house designed products, including health foods and cosmetics.**

- Business development in five areas: "non-smoking pipes/electronic pipes," "sonic vibrating toothbrushes," "health foods/supplements," "cosmetics," and "household goods/others."
- A wide range of sales channels, including drugstores, convenience stores, and discount stores.
- With the acquisition of Maruman H&B as a wholly owned subsidiary, there is a high degree of complementarity and affinity in the value chain of the HBC and food business, and expansion of the direct marketing business is expected.
- Creation of synergies by providing and utilizing management resources and business infrastructure

Source: Created by JPR based on data disclosed by Iwaki.

## **Strengthening of Surface Treatment Chemicals BU through chemicals-business takeovers**

Regarding chemical products, in 2018, Hitachi Chemical Co., Ltd. (hereinafter referred to as Hitachi Chemical) transferred its "business of chemicals for printed circuit boards" to Meltex, an Iwaki subsidiary. The acquisition of this business further expanded the product lineup of plating chemicals and surface treatment agents for circuit boards and semiconductor packages, and promotes optimization of peripheral materials and various process products. The function as a total solution provider of surface treatment chemicals has been strengthened.

## New medium- to long-term vision

CMC platform and CDMO platform are the most noticeable when considering shareholder value

From the perspective of growth potential, the drug discovery incubation platform is drawing a lot of attention.

Healthcare procurement platforms and senior activates are difficult to evaluate at this stage.

Potentially valuable, but how business  
The point of evaluation is whether the model will be realized or whether the progress of future measures will be more concrete.

## “Astena 2030—Diversify for Tomorrow”

In January 2021, the new medium- to long-term vision “Astena 2030—Diversify for Tomorrow” was announced. It accelerates the change toward the medium- to long-term vision “Vision i-111.” The basic strategy is to enhance sustainability under the themes of “industry,” “technology,” and “society,” with the goals of achieving net sales of at least 130 billion yen, an operating margin of 7.2%, and a return on equity (ROE) of at least 13.0% by 2030. Considering the speed of change so far, this is quite feasible.

As discussed below, from the perspectives of strategy differentiation, growth potential, profitability, and stability, the CMC and CDMO platforms are the most noteworthy in terms of shareholder value. From the perspective of growth potential and profitability, the niche leaders of dermatological agent generic drugs and high-end surface treatment drugs, shown on the next page, are also drawing attention. From the perspective of growth potential, the drug discovery incubation platform is drawing great attention. The healthcare procurement platform and activation of senior citizens have potential value, but are difficult to evaluate at this stage. The potential value is high, but the key point for evaluation will be to see how the business model will be realized and how the policy assortment will be developed in the future.

### New medium- to long-term vision “Astena 2030—Diversify for Tomorrow” (continues on the next page)

#### 3 basic strategies and 7 business models

##### A Sustainable strategy with the theme of industry: Platformer strategy (policy assortment)

The Fine Chemicals and HBC/Food businesses of the Group are positioned at the core of commercial distribution and technology. In the future, the Group will actively invest in highly competitive peripheral areas and realize a value chain by connecting them to create a new value proposition.

##### (1) CMC platform

By making the most of its position as the only comprehensive CMC contractor in Japan, the company will take up a wide range of needs and build a CMC platform, further differentiating itself by undertaking outsourced R&D with a view to commercial production by collaborating with a CDMO that conducts R&D of prescription drugs at the top level in Japan, and undertaking outsourced manufacturing of investigational drugs using the same facilities as for commercial production.

##### (2) Healthcare procurement platform

Covering all needs of medical drugs, cosmetics, and functional food manufacturing and sales companies. Maximizing the value chain of CMC (R&D to develop raw materials and drugs), CDMO (raw material manufacturing, drug formulation), distribution, and wholesale. Providing a platform for customers to resolve issues in their development and procurement processes by conducting a Digital Transformation (DX) in the raw materials business. At the same time, increasing the market value by providing products and services with enhanced originality. Investing in the area of direct marketing and building an area-specific network.

##### (3) Drug discovery incubation platform

The company will use its know-how in CMC to identify and invest in promising drug discovery ventures and increase the probability of success in new drug development through contract R&D. As a result, the company will realize capital gains and long-term value creation through contract manufacturing after market launch.

##### (4) CDMO platform

Contracted manufacturing of medical drugs (injections, dermatological agents, and investigational drugs). In collaboration with CMC, the company will handle contracted manufacturing of investigational drugs in R&D, and eventually provide a one-stop service for contract manufacturing in commercial production. Responding to global-level requirements and reaching the top of highly active injection CDMO.

Created by JPR based on data disclosed by Iwaki. The text was added by JPR based on the disclosed data and interviews.

Long-term attention is  
on a sustainable  
strategy with a social  
theme

Social impact strategy

## **New medium- to long-term vision “Astena 2030—Diversify for Tomorrow” (continuation)**

### **B Sustainable strategy with the theme of technology: Niche-leader strategy (No.1)**

In the pharmaceuticals and chemicals businesses, high growth is expected to continue through global expansion and category selection, and solid results will be achieved by continuing the same strategy.

#### **(5) Niche leader of dermatological agent generic drugs**

Aiming to become No. 1 in the domestic generic drug market. The company has gained a large market share for dermatological agents, which has high barriers to entry, and will further expand its manufacturing capacity to strengthen its leading position in terms of product assortment, market share, and production capacity, and increase capital efficiency by expanding contract manufacturing. The company aims to strengthen and expand its business base through the introduction of dermatological agents and injections, joint development of new drugs, domestic and overseas business alliances, and M&As.

#### **(6) Niche leader of high-end surface treatment chemicals**

Continuously developing niche-leading products by keeping abreast of trends in the electronics packaging market. Establishing a position in high-end package substrates, being adopted by major Taiwanese and Chinese companies for chip component applications, and further differentiating semiconductor power and sensor chemicals. Pursuing reduction of environmental impact and promoting growth through joint development with global companies.

### **C Sustainable strategy with the theme of society: Social impact strategy**

In addition to the above two basic strategies, the company will create products (tangible goods) and services (intangible goods) that will meet future sustainability needs and grow together with society, and establish a fifth core business following the current four core businesses. The company grasps future sustainability needs (SDGs) and creates new businesses that grow together with society from four perspectives. 1) Affinity with existing businesses (areas of expansion beyond the growth of existing businesses, catalytic areas that connect businesses, and areas where synergies with customers and existing assets will be effective); 2) growth potential in the future (areas that will continue to have growth potential in the world in 2030, including areas that will be newly created through future technological innovation); 3) spillover effect to the entire group (acquisition of business models and functions not owned by the Group, and themes for in-house use, such as environmental risk management and work environment); and 4) business scale (creating a business scale similar to or expected to expand to the same scale as the current four main businesses in 2030, and that brings employment stability).

#### **(7) Activation of senior citizens**

The company aims at “activating all senior citizens” through the provision of cosmetics and functional foods, and at the same time increasing market value by providing products and services with enhanced originality. Building an area-specific network by investing in the direct marketing area.

### **Three qualitative strategies**

**A Becoming the “number one choice” of the industry:** Improving the market presence and becoming the number one choice for our customers. The company will explore and adopt technologies that match the speed of change in society and the market to solve customers’ problems.

**B Establishing a foundation for sustainable growth through ESG management:** Improving corporate governance to enhance corporate value. Producing management personnel who can tackle social issues and maintaining high performance of the organization.

**C Embodying the “Astena spirit” to take the lead in business:** Proactively incorporating diversity, in addition to the traditional values of “integrity,” “contribution,” and “trust.” Each one will be a growth driver for the Astena Group.

### **Consolidated numerical target**

Target: Net sales: 130 billion yen or more, Return on equity (ROE): 13.0% or more

Created by JPR based on data disclosed by Iwaki. The text was added by JPR based on the disclosed data and interviews.

## Group Management Optimization

### Transition to a holding company on June 1, 2021

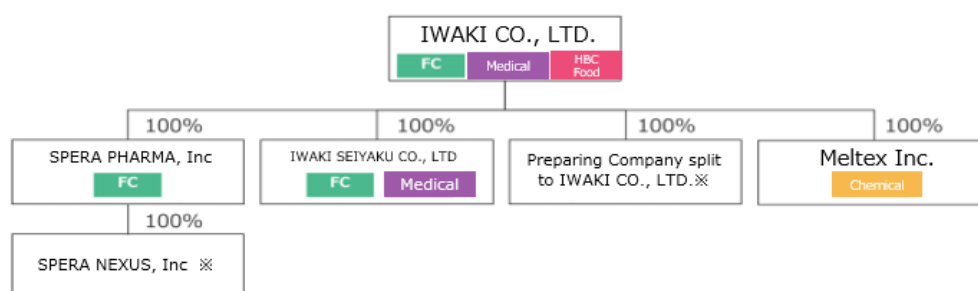
Iwaki will transition to a holding company structure on June 1, 2021, and at the same time change its corporate name to Astena Holdings. Through flexible group management such as dividing Iwaki & Co., Ltd., which has group management functions, the company aims to further improve corporate value by optimally allocating resources, speeding up decision-making, and clarifying investment strategies for each business division. One part of the headquarter functions will be relocated to a regional area from the perspective of regional revitalization. The location will be Suzu City, Ishikawa Prefecture. President Iwaki is currently working remotely, but from June he will be based there to lead the entire company.

Suzu City is a one-hour flight from Haneda Airport, and less than an hour drive from Noto Airport.

### Overview of new logo and reorganization

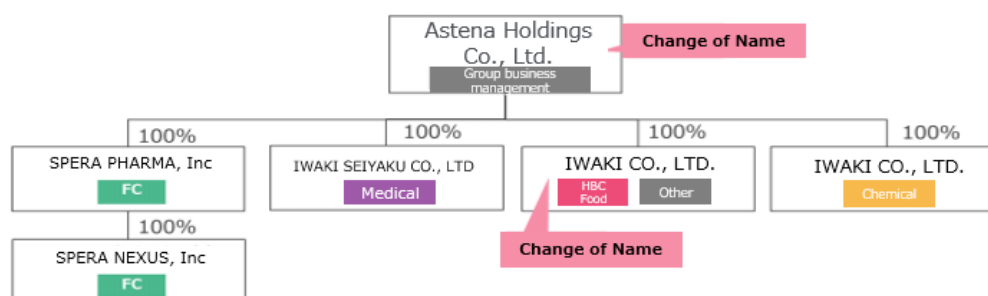


#### 1. Before Reorganization (until 05/31/2021)



※The company was established in July 2020 as a preparatory company and has not started operations.

#### 2. After Reorganization (From 06/01/2021)



Of the Iwaki pharmaceutical business before the reorganization, medical device sales business, animal tranquilizer gun sales business, reagent sales business, etc.

Source: Excerpt from Iwaki's notice regarding organizational restructuring within the group (conclusion of the Absorption-Type Company Split Agreement) and amendment of articles of incorporation (partial change of business purpose) due to transition to a stock company structure.



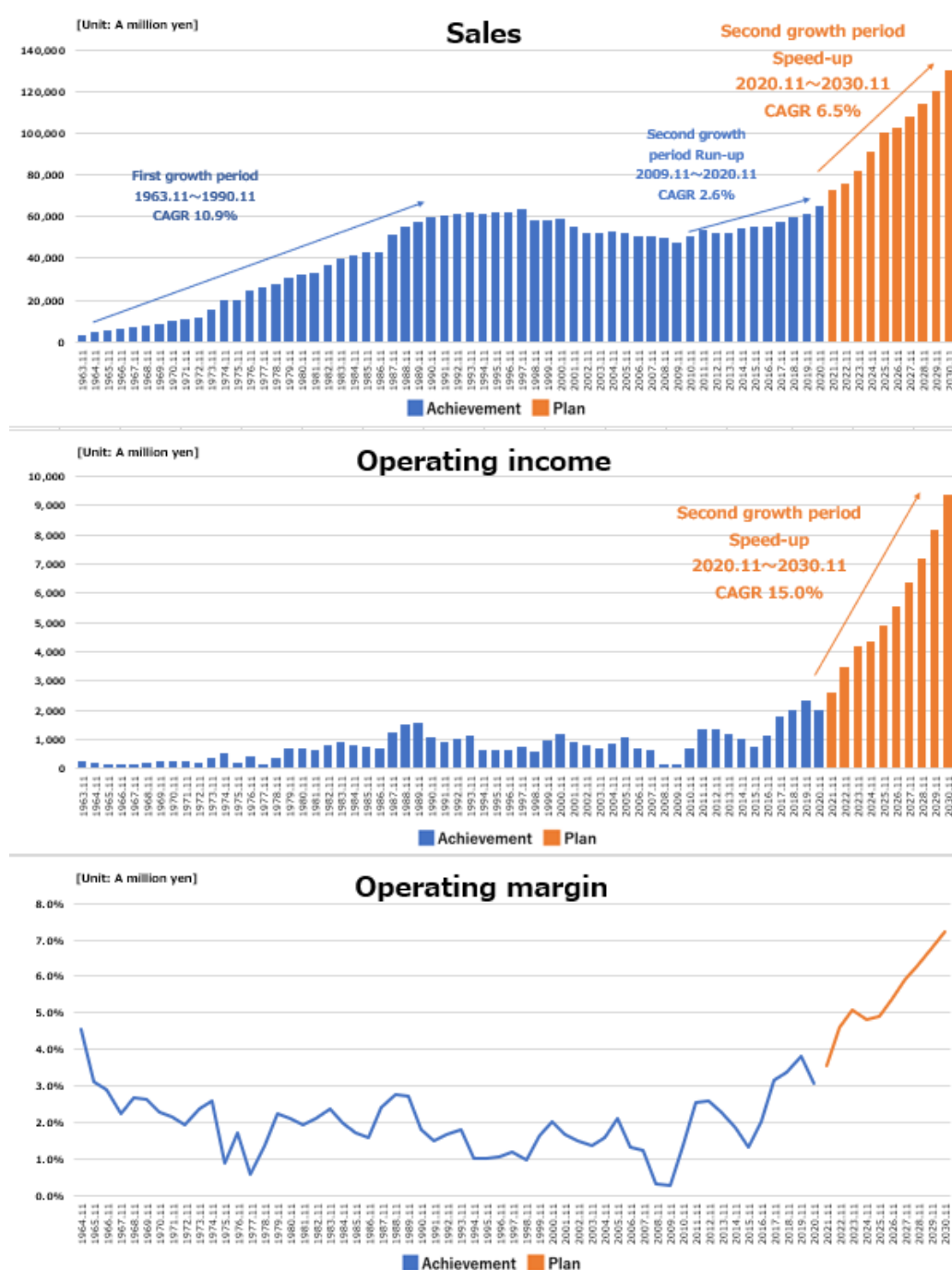
## Long-term financial trends

The second growth period, following the first growth period from IPO to 1990, is now accelerating after a run-up

## Toward acceleration of the second growth period after IPO

The following table shows Astena Holdings' long-term financial trend from the fiscal year ending November 1963, when the company went public. If we assume that the first growth period was until November 1990, the average annual rate was more than 10%. After that, it remained flat at 60–50 billion yen, but gradually expanded from around the fiscal year ending November 2009, and after the fiscal year ending November 2015, the company entered its second phase of growth with the launch of "Vision i-111" and a particularly high profit margin. The new vision "Astena 2030" is expected to accelerate the second growth period.

### Long-term financial trends since the IPO



Source: Created by JPR based on FactSet and data disclosed by Iwaki

## Capital efficiency trends

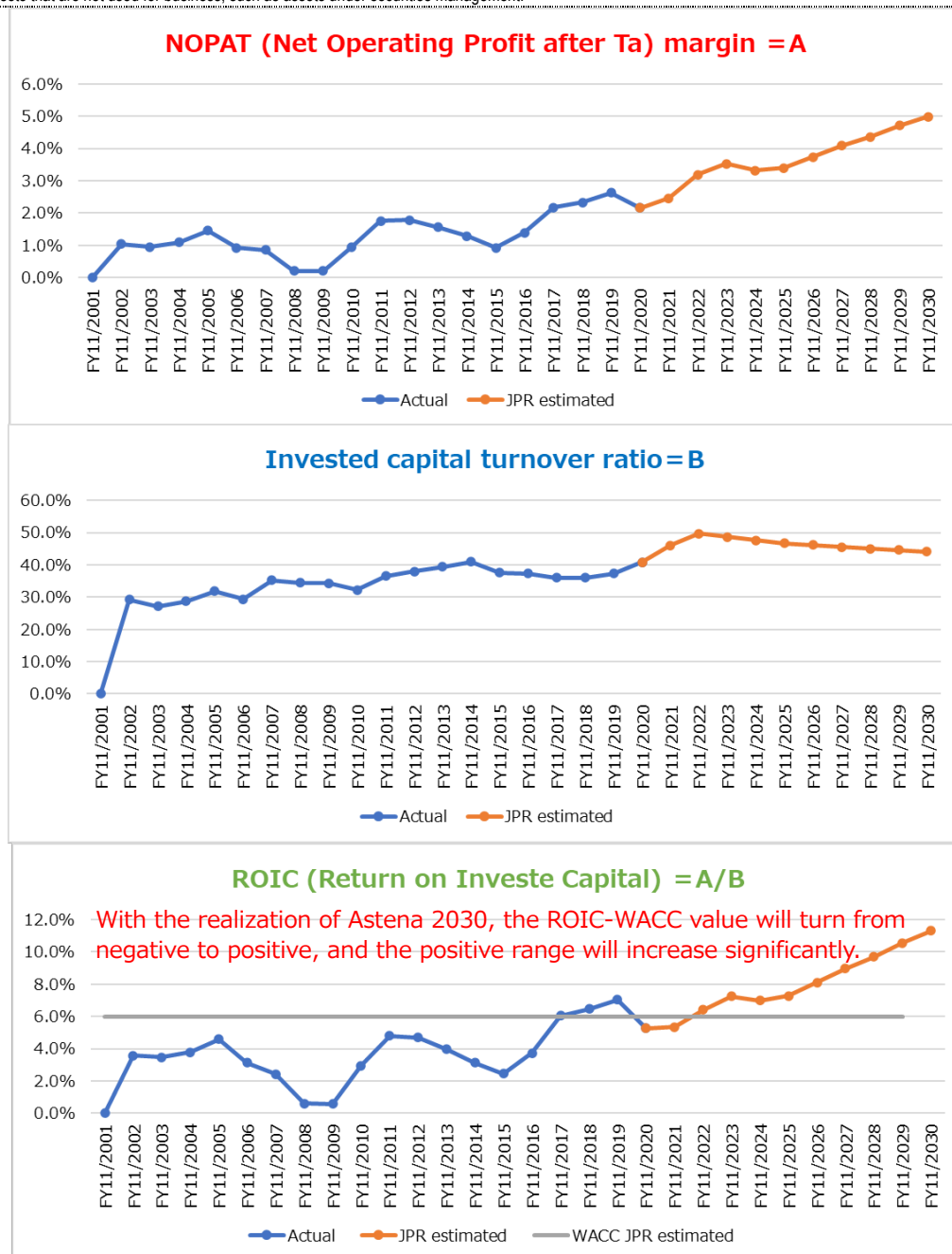
JPR currently expects ROIC to be below the WACC, but with Astena 2030, ROIC is expected to rise significantly and exceed the WACC by a wide margin

The widening of the ROIC-WACC gap is a theoretical increase driver of shareholder value

## Large increase in Return On Invested Capital = factors in theoretical increase in shareholder value

Return On Invested Capital (ROIC) is an important factor that increases shareholder value. ROIC is expected to increase significantly with Astena 2030. ROIC can be calculated by dividing the **after-tax operating income (operating income  $\times$  (1 - effective tax rate) = A) margin (NOPAT margin = A)** by the **ratio of invested capital to sales = B**, as shown in the figure below. As shown in the figure below, if A goes up and B goes down, ROIC goes up significantly. Shareholder value will increase when the difference between ROIC and the return (weighted average cost of capital = WACC), which generally satisfies shareholders and banks, becomes large and positive. JPR expects that the difference between ROIC and WACC, which is negative at the moment, will turn positive, and the positive range will increase significantly in the next 10 years.

\* Invested capital is defined as funds raised from shareholders, banks, etc., such as retained earnings and borrowings, excluding funds invested in assets that are not used for business, such as assets under securities management.



Source: Estimated and created by JPR based on FactSet and data disclosed by Iwaki

## 2. Business summary

### Fine chemicals Business

Sales account for 33% of consolidated sales, and segment profit accounts for more than half of operating profit. Responsible for the source of Iwaki's value creation

The results of the “policy assortment” are being seen in the enhancement of value creation capabilities

There is a clear scenario in which the “policy assortment” will continue to advance toward the future

Combined with various chemical synthesis capabilities, raw material expertise, and the formulation capabilities of the pharmaceutical business, as described below.

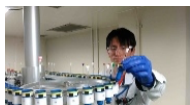




One-stop support

### The “policy assortment” progresses through M&As centered on manufacturing and synthesis technologies

#### Fine Chemicals Business, which accounts for about 30% of sales

It consists of two business units: drug discovery R&D support (CMC R&D business unit (BU), Spera Pharma, JITSUBO), and the Pharmaceutical Raw Material BU. The Pharmaceutical Raw Material BU comprises pharmaceutical raw material manufacturing (Iwaki Seiyaku, Shizuoka Factory) and a pharmaceutical raw material trading company (raw material chemicals department at Iwaki). For the fiscal year ending November 2020, sales were 21.4 billion yen and segment profit was 1.2 billion yen. Sales account for 33% of consolidated sales, and segment profit accounts for more than half of operating profit. This can be said to be the source of Iwaki's value creation. The results of the “policy assortment” are evident in the strengthening of value creation capabilities. It is clear that the company will continue to optimize the use of its management resources through M&As, as well as through capital investments using equity financing, which will lead to further progress in its “policy assortment.”

#### Overview of the Fine Chemicals Business (BU figures represent sales)

R&D	Raw material manufacturing	Distribution
<b>CMC R&amp;D BU</b>  <b>5 billion yen</b> Support for creating drugs (manufacturing method research contract)    SPERA PHARMA, Inc.	<b>Pharmaceutical raw materials BU</b>  <b>3.7 billion yen</b> Manufacturing of pharmaceutical raw materials: Manufacturing / contracted manufacturing of bulk drugs and chemical products    IWAKI SEIYAKU CO., LTD. Shizuoka Factory	<b>Pharmaceutical raw material trading company</b>  <b>12.8 billion yen</b> Pharmaceutical raw material trading company: Offers services to the group (Iwaki Seiyaku), about 300 companies in Japan, and about 40 companies overseas, and also it purchases and sells pharmaceuticals domestically and internationally. It proposes pharmaceutical-related raw materials.   <b>IWAKI &amp; CO., LTD.</b> Raw material chemicals department

November 2020  
**Sale amount**  
**21.4 billion yen**  
 (Sales distribution ratio: 33%)  
**Segment profit**  
**1.2 billion yen**

One-stop support from investigational drugs to medical drugs and over-the-counter drugs, and from raw materials to commercial formulations, by combining R&D support, chemical synthesis, raw material expertise, and the formulation capabilities of the pharmaceutical business, as described below

Source: Created by JPR based on data disclosed by Iwaki

It is a business closely related to the pharmaceutical wholesaling business, which is the company's main business, and it is possible to organically link the “wholesaling function” and “trading company function” to create synergies. Specifically, the company will use its “trading company function” to meticulously understand customer needs, and then use its R&D and manufacturing functions to manufacture the products in-house and sell them. It will find needs that cannot be discovered by companies specializing in wholesale or manufacturing, actually shape them as businesses, and promote a value-enhancement spiral-up through co-creation with customers. Its strength is that with one-stop support it can handle all dosage forms (tablets, medicines administered as drinks, injections, ointments, etc.) from investigational drugs to medical drugs and over-the-counter drugs, and from raw materials to final formulations by combining the R&D support capabilities of Takeda Pharmaceutical, diverse chemical synthesis capabilities, raw material expertise, and formulation capabilities of the pharmaceutical business, which will be described later.

Pharmaceutical manufacturers are expected to outsource CMC in the future in order to concentrate their management resources

Iwaki aims to establish the No. 1 position in Japan in the long term in the CMC field

Raw material manufacturing capability with many top market share items



Iwaki Seiyaku, Shizuoka Factory

Toward building a contract manufacturing system for both micro-molecule drugs and medium-molecule drugs

## CMC R&D BU

### Spera Pharma is the center

Sales for the fiscal year ending November 2020 were 5 billion yen. CMC refers to the Chemistry, Manufacturing, and Control of bulk drugs and formulations for the application documents required for drug approval review, and it is the process of examining synthetic methods, quality design, formulation and prescription methods, non-clinical bulk drug manufacturing, and investigational drug manufacturing in relation to drug discovery, and finally compiling this information to file a pharmaceutical application. Spera Pharma is a spin-out company of Takeda Pharmaceutical's CMC division, and has comprehensive capabilities to support the CMC of major global pharmaceutical manufacturers. The company will support the R&D for drug discovery conducted by major pharmaceutical manufacturers and drug discovery ventures, including Takeda Pharmaceutical. In drug discovery, the cost of discovering new substances that can be drug candidates is increasing year by year, so it is expected that CMC will be outsourced in the future to concentrate management resources, and Iwaki is aiming to become No.1 in this field in Japan.

## Pharmaceutical Raw Material BU—Pharmaceutical Raw Material Manufacturing (CDMO)

### Iwaki Seiyaku and JITSUBO will establish a contracted manufacturing system for micro-molecule and medium-molecule drugs

Carrying out manufacturing and contracted manufacturing of bulk drugs and chemical products. Sales for the fiscal year ending November 2020 were 3.7 billion yen. The company will promote the contract development and manufacturing (CDMO) of pharmaceutical raw materials for the manufacture of investigational drugs and for the manufacture of commercial drugs after commercialization in the pharmaceutical industry. The Shizuoka Factory of Iwaki Seiyaku and JITSUBO will be in charge. The Pharmaceuticals BU of the pharmaceutical business will be responsible for the CDMO of formulations.

The Shizuoka Factory of Iwaki Seiyaku has been manufacturing raw materials for micro-molecule drugs for many years. The company manufactures and sells bulk drugs and chemical products (fine chemical products) for micro-molecule drugs based on the diverse and advanced synthetic technologies that it has accumulated. The bulk drugs are in a position to compete for the top market share in Japan for acetaminophen, salicylamide, and etenzamide, which are the main antipyretic, analgesic, and anti-inflammatory agents used in cold remedies sold over the counter; the company also sells a wide range of other products to pharmaceutical companies, including vasoconstrictors, vasodilators, antitussives expectorants, antiallergic agents, and antibacterial agents. The company is the only manufacturer of phenylephrine hydrochloride in Japan, and has one of the largest market shares in the world. In addition, it is the first company in the world to succeed in the industrial production of pilocarpine hydrochloride, a natural medicine extracted from plants (therapeutic agent for glaucoma and xerostomia), through total synthesis. Also, it is the only manufacturer of calcium glycerophosphate, a calcium agent, in Japan, which is widely used in various fields as a pharmaceutical and food additive. The company was also the first in the world to succeed in the industrial production through total synthesis of pilocarpine hydrochloride (a therapeutic agent for glaucoma and xerostomia), which is naturally extracted from plants.

Such manufacturing equipment and know-how of micro-molecular pharmaceutical raw materials can be diverted to JITSUBO's manufacturing technology for medium-molecular pharmaceutical raw materials, and can be applied to manufacturing equipment for micro-molecular pharmaceutical raw materials.

## Characteristics of Iwaki's manufacturing of pharmaceutical raw materials

Global top level	Phenylephrine hydrochloride (used in oral medication and nasal sprays for rhinitis)
Domestic top level	Acetaminophen (used in analgesics), salicylamide (used in analgesics), etenzamide (used in antipyretics, analgesics, and anti-inflammatory agents)
Other characteristics	First company in the world to succeed in the industrial production of pilocarpine hydrochloride (a therapeutic agent for glaucoma and xerostomia), which is a natural medicine extracted from plants, by total synthesis. Also the only manufacturer in Japan to produce calcium glycerophosphate, a calcium agent widely used in various fields as a pharmaceutical and food additive.

Source: Created by JPR based on information from Iwaki's website



Supplying raw materials from about 300 domestic companies and imported raw materials from about 40 overseas companies to pharmaceutical manufacturers

Satisfying both the need of overseas pharmaceutical raw material manufacturers to keep their manufacturing methods secret, and the need of domestic pharmaceutical manufacturers to monitor quality



New analysis center "North Cube"

## Pharmaceutical Raw Material BU—Pharmaceutical Raw Material Trading Company

### Creating a system that can propose formulations

The Raw Materials and Chemicals Department of Iwaki is in charge of this. Sales for the fiscal year ending November 2020 were 12.8 billion yen, accounting for 18% of total consolidated sales. The company supplies pharmaceutical manufacturers with raw materials from about 300 domestic companies, including the pharmaceutical raw materials of Iwaki Seiyaku, as well as imported raw materials from about 40 overseas companies. The company is working to create a system that can offer not only bulk drugs, but also formulations. Special emphasis is being placed on generic raw materials. In terms of purchasing, Iwaki Seiyaku accounts for 30%, domestic 60%, and overseas 10%. Quality confirmation and assurance are important roles. The company is developing highly pharmacologically active bulk drugs, intermediates for new drugs, and raw material exports to the United States (for vasoconstrictors), and is considering the field of medium-molecule pharmaceuticals as a priority market.

### Strengthening the function of Astena Holdings as a pharmaceutical raw material trading company in the master file system

The company is strengthening its development and manufacturing activities through CMC and CDMO in the field of raw materials, and grasping the needs for manufacturing and sales of pharmaceutical formulations; in this context, the pharmaceutical raw materials business is also being expanded by strengthening the "manufacturer function" of the pharmaceutical raw materials trading company. Specifically, efforts are being made with regard to the raw material registration ledger (MF, master file) system. In order to conduct the domestic manufacturing and sales of generic drugs, it is necessary to apply with a great variety of information to the government. Among these, the API (Active Pharmaceutical Ingredient) manufacturing method is also required; however, as overseas manufacturers need to prevent the disclosure of their manufacturing methods to other companies, Iwaki as an independent party can act as the domestic manager, handle the application and MF registration, and strengthen the delivery of raw materials to domestic pharmaceutical companies. This will provide domestic managers with peace of mind in terms of monitoring the quality of raw materials from overseas manufacturers. A new analysis center, "North Cube," is being set up to handle this business.

### The new analysis center "North Cube" strengthens the company's functions as a pharmaceutical raw material trading company

The analysis center, named after Astena Holdings' sales office in Kita City, which was completed in August 2019, will also enable the company to conduct analysis and quality assurance of raw materials for highly pharmacologically active drugs, which is a market that is expected to continue to grow significantly in the anticancer field, as shown in the figure below. This analysis center will enhance the company's function as a trading company for pharmaceutical raw materials.

### Significance of the new analysis center "North Cube": Strengthening the field of highly pharmacologically active drugs

<b>Installation of containment equipment</b>	It is possible to handle highly potent pharmaceuticals (anticancer drug, high activity steroid ) that are expected to be in demand in the future. ⇒Be able to meet a wide range of manufacturing, and sales demands and expand business opportunities.
<b>Expansion of test space</b>	Complete installation space for analytical instruments that we would like to consider introducing in the future. ⇒Implementation of preparations for analysis that will be required in the future.
<b>Improvement of experimental environment</b>	Implementation of continuous GMP* operation. ⇒Acquiring business by appealing management system. <small>*Good Manufacturing Practice(Standards for manufacturing control and quality control of pharmaceuticals and quasi-drugs)</small>
<b>Strengthening the warehouse</b>	Expansion of storage space / strengthening of security and sanitary environment. ⇒Build trust by flexibly responding to customers and strengthening GDP* support <small>*Good Distribution Practice (Standards for appropriate distribution of pharmaceutical products)</small>

▼ Kita-ku , Tokyo  
Planned construction site






Source: Excerpt from the financial results briefing for the fiscal year ending November 2017

## Significance of CMC + CDMO

### Astena Holdings is the first company in Japan to provide integrated CMC services to major pharmaceutical manufacturers

CMOs (or CDMOs in the case of including development) to support raw material manufacturing and formulations and CROs to provide clinical support are widely used as forms of external support for drug discovery R&D, but Iwaki will be the first company in Japan to offer integrated CMC services to major pharmaceutical manufacturers.

#### Forms of support for R&D in drug discovery

Form of support	Outsourcing of investigational drug manufacturing	Outsourcing of clinical trials	Outsourcing of regulatory application
	CMO (CDMO) business	CRO business	CMC business
English name	Contract Manufacturing Organization or Contract Development Manufacturing Organization	Contract Research Organization	Chemistry, Manufacturing, and Control
Outsourcing Process	Manufacturing method development Raw material manufacturing Formulation manufacturing	Non-clinical trial Clinical trial	Synthesis method examination / quality design Formulation / prescription examination Non-clinical drug substance manufacturing Investigational drug manufacturing / regulatory application
Degree of spread	Widely used	Widely used	Iwaki is the first company in Japan that is capable of dealing with major pharmaceutical companies.
Initiatives in the Iwaki Group	Abundant achievements of Iwaki Seiyaku   	Iwaki Group has not yet entered the market	Comprehensive capabilities to support major pharmaceutical manufacturers

Source: Created by JPR based on various materials

### CMC+CDMO to support R&D and commercial manufacturing with a “policy assortment” set

Astena Holdings provides differentiated services by combining CMC and CDMO. In CMC, it is necessary to examine the synthesis methods and design the quality while keeping in mind the production of investigational new drugs in clinical trials, and there is a growing need to assume that investigational new drugs will continue to be produced in the same manufacturing facilities after commercialization. The ability that Astena Holdings has cultivated over many years for synthesizing a variety of raw materials and commercializing a variety of formulations in the Pharmaceuticals BU will be extremely important for expanding CMC.

As explained in the section on the Pharmaceutical Business BU, the Iwaki Seiyaku Sakura Factory, which was acquired from Torii Pharmaceutical Co., Ltd. last year as a business succession, will expand the contract manufacturing capacity of Iwaki, enhancing the comprehensive strength of CMC + CDMO.

#### Making capital investments through equity finance

### Strengthening the capability to manufacture raw materials for “highly pharmacologically active drugs” that can achieve high therapeutic effects with small amounts

With the funds planned to be raised through equity finance, Astena Holdings will make a large-scale capital investment in its Shizuoka Factory to strengthen its capacity to manufacture raw materials for “highly pharmacologically active drugs,” for which demand has been growing in recent years and which can achieve therapeutic effects in only small amounts. With regard to anticancer agents, there is a growing need for the development of high value-added “highly pharmacologically active drugs” that have fewer side effects and can exert therapeutic effects on target biomolecules with small amounts. However, raw materials that have great effects in small amounts run the risk of negative effects on the human body, and special facilities are needed to prevent leakage into the atmosphere. The company will enhance such facilities through equity-financed capital investment to further improve its capabilities as outsourcee.

A highly differentiated set of CMC & CDMO

Equity financing to expand manufacturing capacity for raw materials for “highly pharmacologically active drugs,” for which demand is increasing due to differentiation



## Significance of the investment in Iwaki Seiyaku Shizuoka Factory by equity finance

Current situation

- ▶ Handling the drug substance of over-the-counter cold medicine, so we are in position to compete for the top share in Japan.
- ▶ However, it does not have manufacturing capacity because it has stated that it will not produce highly pharmacologically ingredients in-house as a policy so far.
- ▶ In the market, there are very strong drug substance manufacturers that can respond to customer needs in a one-stop manner.

Capital investment for the purpose of adding highly pharmacologically ingredients manufacturing functions at Shizuoka-Plant of the IWAKI CO., LTD.

Aim by this capital investment

It is possible to expand business and to strengthen manufacturing capacity by working on highly pharmacologically ingredients manufacturing at the Shizuoka Factory, which is mainly responsible for active pharmaceutical ingredient manufacturing.

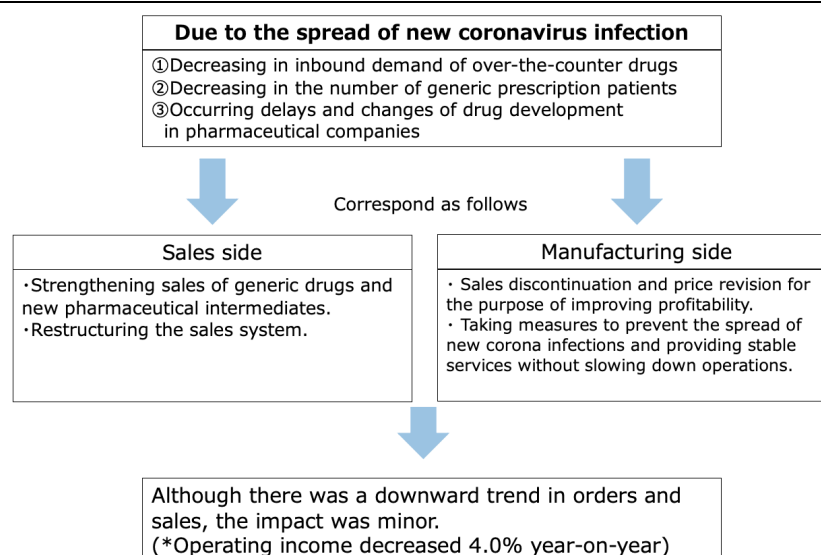
By handling everything from R & D functions to manufacturing functions, it is possible to provide a comprehensive service, so we can acquire and respond to seamless contracted.

Source: Supplementary materials on the issuance of the first series of stock acquisition rights (with a clause to revise the exercise price) by Iwaki and third-party allocation

## Responding flexibly to the impact of the spread of COVID-19

As shown below, both sales and operating income were strong, as the company was able to respond to the impact of the spread of COVID-19 with a high degree of immediacy and flexibility. In the fiscal year ending November 2020, there was a decrease in inbound demand for over-the-counter drugs and a decrease in the number of generic prescription patients due to the spread of COVID-19; however, the impact on business performance was minor.

### Sales and operating income were strong during the COVID-19 crisis due to the high degree of immediacy and flexibility



Created by JPR from the financial statements for the fiscal year ending November 2020

## Pharmaceutical business

The source of Iwaki's value creation in line with the FC business

Niche leader in terms of quality and quantity in the field of dermatological agents

Maintaining and strengthening the top position in the niche through M&As and capital investment through equity finance



Dermatological agents





No. 1 in the domestic generic ointment market

**Continue improving the quality and quantity of dermatological agents through a long history of technology and M&A capital investment**  
**Making progress in the policy assortment for niche-leader strategy and contract manufacturing (CDMO)**

### Pharmaceuticals Business, which accounts for 16% of sales

The Pharmaceuticals Business, along with the FC Business, is the source of value creation for Iwaki, and consists of two business units: the Pharmaceuticals BU and the Medical Devices BU. The Pharmaceuticals BU consists of Iwaki Seiyaku Kamata Factory and Iwaki Seiyaku Sakura Factory. The Medical Devices BU is handled by Iwaki's IMED Group. In the fiscal year ending November 2020, sales were 10.6 billion yen and segment profit was 900 million yen. In particular, in the field of dermatological agents (excluding moisturizers) in the Pharmaceuticals BU, the company is a niche leader in both quality and quantity, and its position will be further strengthened in the future by capital investments through M&A and equity finance.

### Overview of Pharmaceuticals Business (BU figures represent sales, unit: hundred million yen)

Product manufacturing	Wholesale	Total
<b>Pharmaceuticals BU</b> Generic manufacturer <b>103</b> Product manufacturing Generic drug manufacturing  <b>IWAKI SEIYAKU CO., LTD.</b> Contract manufacturing of various types of tablets   岩城製薬佐倉工場株式会社	<b>Medical Devices BU</b> Medical device wholesale <b>4</b> Selling respiratory management products mainly for newborns and children  <b>IWAKI &amp; CO., LTD.</b>	November 2020 <b>Sale amount</b> <b>10.6 billion yen</b> <b>(Sales distribution ratio: 16%)</b> <b>Segment profit</b> <b>900 million yen</b>

Source: Created by JPR based on data disclosed by Iwaki

### Pharmaceuticals BU

Iwaki Seiyaku Kamata Factory and Iwaki Seiyaku Sakura Factory are mainly responsible for this. Sales for the fiscal year ending November 2020 were 10.3 billion yen. The Pharmaceuticals Business is mainly engaged in the manufacture and sale of prescription drugs and over-the-counter drugs. The company manufactures high-quality, inexpensive generic drugs and boasts a high market share in solvents for topical use. In particular, the mainstay topical preparations of corticosteroid and external-use antifungal agents are available in four dosage forms: ointment, cream, lotion, and liquid, and have earned the trust of dermatologists by meeting their needs for efficacy, safety, and ease of use.

In addition, the company is engaged in contract manufacturing for pharmaceutical companies, taking advantage of its many years of research on dermatological agents and accumulated technologies for various dosage forms. It is capable of meeting all kinds of customer needs, from high-mix low-volume production to mass production, and from formulation design to manufacturing. The company has earned the trust of the pharmaceutical industry by designing its products in consideration of not only the chemical stability of the active ingredients, but also the physical stability, appearance, usability, and effectiveness of the formulation.

It is also focusing on developing new generic drugs. The company conducts R&D based on the principle of providing better and easier-to-use drugs to the medical community through the development and manufacture of high-quality, low-cost generic drugs. In the dermatological generic drug business, the aim is to become No. 1 in the ointment generic drug market in Japan.




### Many types of disinfectants were made available for COVID-19 infection prevention

### Increased demand for mouthwash due to the spread of COVID-19

There are many types of disinfectants in the lineup, and especially in the case of povidone-iodine preparations, four types of disinfectants and mouthwashes have been launched as the “Neojodin” series, boasting a high market share among generic drugs. Demand for products such as the povidone-iodine mouthwash “Neojodin mouthwash” increased with measures to prevent COVID-19 infections, and sales were strong at 125% year-on-year. In addition, the company handles products such as masks and disinfectants, which are in increasing demand due to countermeasures against infectious diseases, and sales are steadily increasing, although the scale of the business is small at 2.0% of sales.

#### Efficacy of the “Neojodin mouthwash”

	Efficacy and Effects
	<ol style="list-style-type: none"> <li>1. Sterilization / disinfection / cleaning of the oral cavity and throat</li> <li>2. Removal of bad breath</li> </ol>
	Product features
	A refreshing mouthwash that contains menthol in "povidone iodine" that is effective against a wide range of bacteria.

Source: Created by JPR based on information from the website of Iwaki Seiyaku Co.,Ltd.

### Handling of pharmaceuticals for beauty clinics (Doctor's Cosme)

Iwaki Seiyaku also sells Doctor's Cosme, which are cosmetics born from the aesthetic medical research of Shiseido. This business started in 2005. The products have passed a variety of tests and have been approved by the Ministry of Health, Labour and Welfare.

Some products contain “skin-whitening active ingredients” and have undergone clinical trials. They are mainly sold through medical institutions. These are marketed under the brand name NAVISION DR and have two sales channels: e-commerce and medical institutions, but they are mainly sold through medical institutions.

As shown in the figure below, the handling of Doctor's Cosme has various advantages for Shiseido, medical institutions, and consumers, and also has synergistic effects and various advantages for Iwaki, including the possibility of utilizing its strengths in the dermatology field, where it has strengths in dermatological agents.

Since the spread of COVID-19 has limited visits to beauty clinics, the company is working to improve convenience by building a closed e-commerce site for patients only in collaboration with the affected medical institutions.

#### Significance of the handling of Doctor's Cosme by Iwaki Seiyaku

Shiseido	Medical institutions	Consumers
It is possible to sell cosmetics to medical institutions that did not have a sales channel	It is possible to sell cosmetics with evidence of clinical trials	Benefits of experiencing and purchasing cosmetics recommended by doctors
Iwaki		
Leveraging the strengths of the dermatology field, where it is strong in dermatological agents Expanding the business from the dermatology field of “treatment” to the field of “aesthetics,” reaching the cosmetics market without relying on inbound sales, and developing a market that is not affected by NHI price revisions.		

Source: Created by JPR based on Iwaki's briefing for the fiscal year ended November 30, 2018



## Medical Devices BU

The business is operated by Astena Holdings' IMED Group. IMED is the abbreviation for "Innovative Medical Device." The aim is to provide innovative (novel, creative) medical devices and services. The company sells respiratory-related products and peripheral devices to medical institutions, mainly in the neonatal field, and also, based on information from clinical sites, it engages in marketing activities such as product discovery, planning, and development overseas. These activities are contributing to improving the health of newborns and children. The company also conducts product R&D based on its extensive knowledge and provides support to medical sites. The main product lineup includes nCPAP drivers <sup>\*a</sup> for newborns and air/oxygen blenders, as well as products jointly developed with overseas manufacturers and products designed in-house.

<sup>\*a</sup>: Equipment used in nCPAP (nasal continuous positive airway pressure) therapy for sleep apnea syndrome

### Devices handled by the Medical Devices BU



Newborn nCPAP driver



Masks for mechanical ventilators

Source: Excerpt from Medical Devices page at Iwaki's website

## Accumulation of pharmaceutical know-how through many years of experience

In the area of dermatological agents, where the company has a large market share, the barriers to entry are high because products come in a great variety of forms compared to solid medicines, and know-how in R&D and manufacturing is required. The company has accumulated know-how on medical drugs through its long years of drug manufacturing, especially research on dermatological agents and technology on various dosage forms, and has earned the trust of pharmaceutical companies. In addition, the understanding of customer needs and access to raw materials from its own pharmaceutical platform increase the value to the business.

Iwaki Seiyaku has been outsourcing manufacturing to Maeda Pharmaceutical since April last year in order to secure production capacity in response to the growing need for generic dermatological agents. The company has been making capital investments and expects to receive more orders in the future. Through collaboration with Iwaki, it will be possible to enhance the procurement capacity for pharmaceutical raw materials to provide a stable supply of price-competitive products, as well as improve the market presence and expand the business. Furthermore, by taking a stake in Maeda Pharmaceutical, which is a major manufacturer of topical steroids, the company will strengthen its contracted manufacturing of external-use medicines. The combined domestic market share of the two companies is expected to exceed 30%.

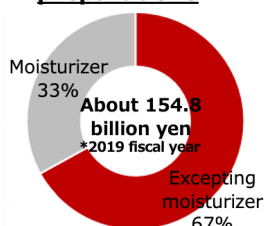
## Gaining a high share in the dermatological agent market, which has high barriers to entry

The domestic market for dermatological agents was estimated to be about 154.8 billion yen in 2019, which is a relatively small portion of the pharmaceutical market. As competition intensifies, companies are trying to improve their management efficiency while aiming for a stable supply. The number of companies that have entered the market is estimated to be about 80, but only about 1/4 of them are actually carrying out manufacturing. Compared to solid medicines, dermatological agents come in a variety of forms and require more know-how for R&D and manufacturing, so there is less risk of new companies entering the market. On the other hand, prescription drugs have been subject to repeated NHI price revisions to curb medical costs, and an increasing number of companies have seen their profitability deteriorate. In January 2020, the company took a stake in Maeda Pharmaceutical Co., Ltd., which has focused on external-use medicine research since its establishment in 1958. The Iwaki Group focuses on the manufacture of dermatological agents (ointments) other than moisturizers, and together with Maeda Pharmaceutical has a 30% share of the market for dermatological agents other than moisturizers. In the future, by expanding capacity, the company will expand the manufacturing and sales of its own new products and contract manufacturing, and maintain and expand its leading market share in the long term.

In the area of dermatological agents, where the company has a large market share, the barriers to entry are high because products come in a greater variety of forms than solid medicines, and know-how in R&D and manufacturing is required

## Iwaki's position in dermatological agent generic drugs

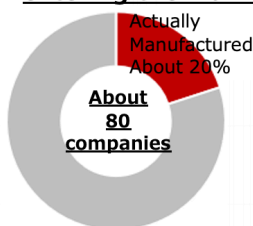
### Market of dermatologic preparations



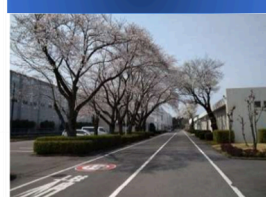
Kamata Factory of IWAKI CO., LTD.



### Number of companies entering the market



SAKURA Factory of IWAKI CO., LTD.



Maeda Pharmaceutical Co., LTD



\* Partially investee

Source: Excerpt from Iwaki's briefing for individual investors on October 13, 2020

## Establishing an efficient production system in response to drug price reductions

As mentioned above, drugs have been affected by repeated NHI price revisions. In order to maintain a stable supply, it is necessary to establish an efficient production system and to efficiently manufacture and sell low-cost high-quality drugs, including streamlining the production system through capital participation in Maeda Pharmaceutical.

In addition, as already explained, the company acquired the Sakura Factory of Torii Pharmaceutical to further strengthen its pharmaceutical manufacturing capacity. This move was made in light of the declining profitability of "long-term listed drugs" due to the impact of the drastic reform of the NHI drug pricing system.

Long-listed drugs are drugs whose patents have already expired or whose reexamination period has expired, and for which a generic version with the same efficacy has already been released. These are called "long-term listed drugs" because they have been listed in the NHI drug price standard for a long time.

The price of long-term listed drugs is reduced to reflect the actual market price (the average price of drugs actually traded in the market) at each NHI price revision every two years. The Ministry of Health, Labour and Welfare has been actively reducing the prices of long-term listed drugs as part of its efforts to promote the use of generic drugs (for long-term listed drugs, additional reductions are made in addition to the regular NHI price revisions), and some long-term listed drugs are priced no differently from generic drugs. In light of this situation, with regard to long-term listed drugs, there is a need to run an efficient manufacturing process to reduce costs.

Defensive investment:  
Measures to raise drug prices for long-term listed products

**Aggressive investment:  
Equity financing to capture increased demand for outsourcing of highly pharmacologically active drugs**

**The manufacturing of raw materials for highly pharmacologically active drugs requires facilities and know-how that meet strict safety controls.**

**Applying the global-level manufacturing know-how of Spera Pharma to guarantee safety, in the handling of raw materials for highly pharmacologically active drugs**

## Responding to the demand for outsourcing of highly pharmacologically active drugs

The expansion of the biopharmaceutical and high pharmacological activity drug markets has led to an increasing demand for outsourcing the formulation of these injectable drugs on a global level. Pharmaceutical raw materials (bulk drugs) that are highly pharmacologically active have significant therapeutic effects even in small amounts; conversely, however, there is a risk of health hazard if unintentionally absorbed into the body, so a manufacturing process that guarantees strict safety is indispensable, and it is also essential to accumulate manufacturing know-how for maintaining strict safety.

Against this backdrop, the company plans to use equity financing to invest in equipment at its Sakura Factory to produce injectable formulations of biopharmaceuticals and high pharmacological activity drugs, as described below. In addition, Spera Pharma already has a global level in safety for handling highly pharmacologically active raw materials, and this know-how will be applied to the Sakura Factory.

In the field of cancer / immune-system-related drugs and bioengineered formulations, domestic and overseas pharmaceutical companies have increasing needs for facilities that can handle anticancer drugs and other products with high pharmacological activity, from investigational drugs to commercial production. Since injectable drugs are necessary even in the experimental stage, the expansion of the large-scale injectable drug production facilities for biopharmaceuticals and highly pharmacologically active drugs at the Sakura Factory, in addition to those at Spera Pharma, is expected to capture the demand for CMC and CDMO for biopharmaceuticals and highly pharmacologically active drugs, which are expected to grow significantly in the future. The company will meet these needs with capital investment. Since there are many cases where injections are required for medium-molecule drugs, which have a higher molecular weight than micro-molecule drugs, the expansion of injectable formulation capabilities through this equity financing is significant in expanding CMC and CDMO for medium-molecule drugs.

### Significance of capital investment by equity finance in the Iwaki Seiyaku Sakura Factory

Current situation

- ▶ Due to the increasing demand for highly pharmacologically ingredients such as anti-cancer drugs, the supply system is squeezing in the entire market, so the demand from customers is expanding.
- ▶ On the other hand, SPERA PHARMA, Inc. acquired in March 2020 has limited room for new facility expansion.
- ▶ Another challenge is to expand the contractable area and strengthen profitability in the contract business.

Capital investment related to injection production lines, etc. in SAKURA Factory of IWAKI CO., LTD.

Aim by this capital investment

- ✓ It is possible to provide integrated services due to its distinctive positioning compared to competitors.
- ✓ Ensuring competitive advantage and flexibility in contracted projects by promoting the establishment of two bases with SPERA PHARMA, Inc. with re-selection equipment capable of handling high pharmaceuticals on a global level.

Source: supplementary materials on the issuance of the first series of stock acquisition rights (with a clause to revise the exercise price) by Iwaki and third-party allocation

Fine chemicals  
+  
Pharmaceuticals

## Building four business models

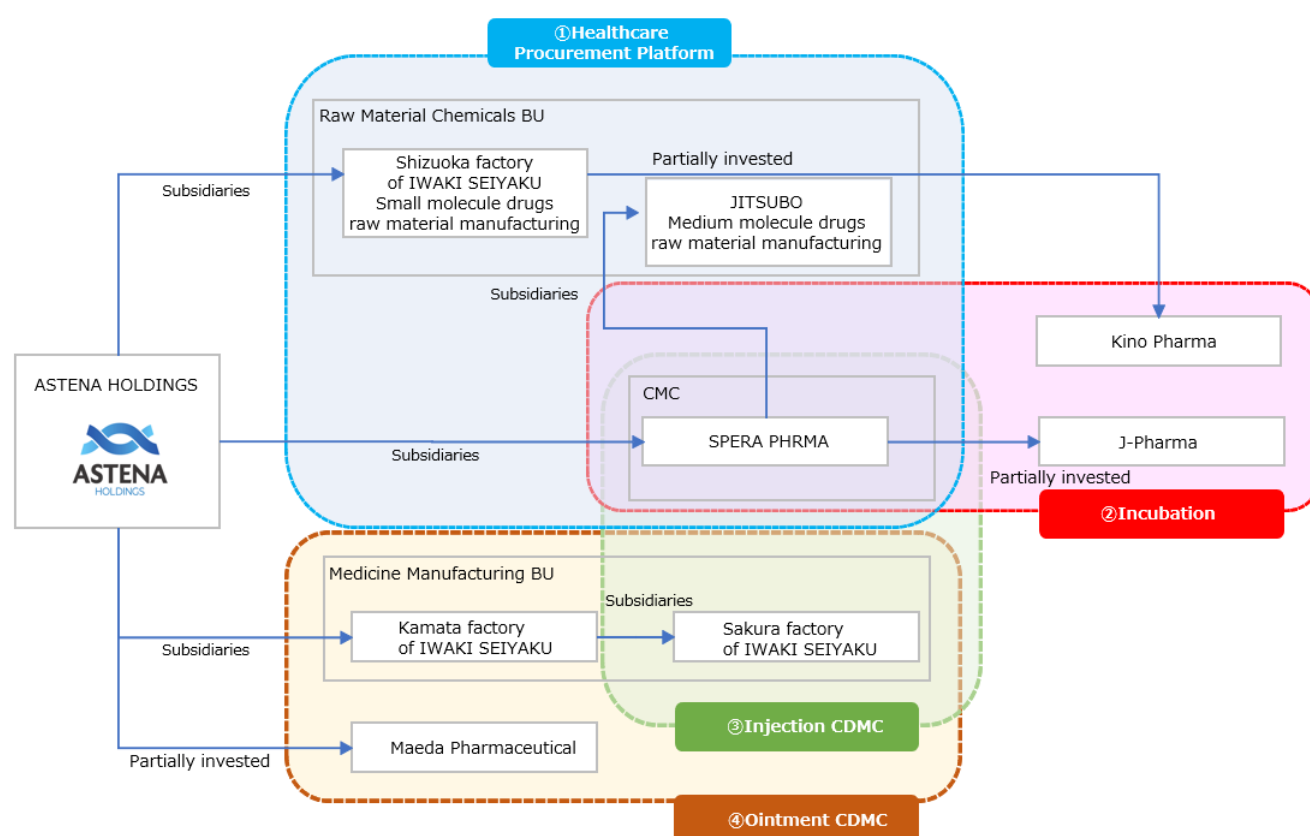
When fine chemicals and pharmaceuticals are combined, four (CMC Platform, Healthcare Procurement Platform, CDMO Platform, Niche Leader for Dermatological Agent Generic Drugs) of the seven business models outlined in Astena 2030 are relevant, as shown below, with two CDMOs: injection CDMO and ointment CDMO. In addition, ointment CDMO is also the basis for being the niche leader of dermatological agent generic drugs.

### Four business models in fine chemicals + pharmaceuticals

Business model	Contents
Procurement platform	Platform to support procurement of raw materials for CMC and micro-and medium-molecules Contract R&D of prescription drugs at the highest level in Japan
Incubation business	Increasing the probability of successful new drug development through the provision of CMC
Injection CDMO business	Contracted manufacturing of medical drugs (injections, skin preparations and investigational drugs). Ointment CDMO business is the basis for being the niche leader of the dermatological generic drug
Ointment CDMO business	

Source: Created by JPR based on data disclosed by Iwaki

### Relationship among the four business models and operating companies



Source: Created by JPR based on data disclosed by Iwaki

## Outlook for global market forecast of the medium-molecule pharmaceuticals field

If we assume that the company will also work on generics of medium-molecules that have cost advantages and existing environmental impact, we can expect growth of more than 8% in the long term.

Pharmaceuticals	Type	Market size 2020	Annual growth rate	Future market size
Medium-molecule drugs	Nucleic acid drugs	450 billion yen	17%	2.1 trillion yen (2030)
	Peptide medicines	3.2 trillion yen	8%	4.7 trillion yen (2025)
Macro-molecule pharmaceutical products	Antibody medicines	16 trillion yen	8%	23 trillion yen (2025)
	Protein medicines	6.4 trillion yen	4%	10 trillion yen (2030)
Micro-molecule pharmaceutical products	Micro-molecule drugs	47 trillion yen (2016)	Slight increase	About 55 trillion yen (2030)

Source: Survey on issues related to the industrialization of pharmaceuticals and necessary measures to solve these issues

Data from the Drug Development Council (submitted by Arthur D Little) December 23, 2020

Technically complementary relationship with PeptiDream

PeptiDream focuses more on the upstream of drug discovery in medium-molecule drugs, while Astena Holdings focuses on the middle to downstream of drug discovery, as well as commercial contract manufacturing

## Understanding by comparison with PeptiDream (TSE 4587)

There is similarity in two aspects: 1) the commercialization of advanced technologies from universities, and 2) a model that avoids drug discovery risk by utilizing technology licensing.

The following table attempts to compare PeptiDream Inc. (hereinafter referred to as "PeptiDream"), which is well known for its support for drug discovery of medium-molecules (peptides and nucleic acids), and Astena Holdings which owns JITSUBO. There is similarity in two aspects: 1) the commercialization of advanced technologies from universities, and 2) a model that avoids drug discovery risk by utilizing technology licensing. Regarding CMC and CDMO in the area of medium-molecule drugs, the current track record and evaluation suggest that the Iwaki Group may become complementary to PeptiDream in the long term if JITSUBO's technology can be deployed.

### Comparison of Iwaki Group and PeptiDream Group

Point of view	Astena Holdings	PeptiDream
Basic research	Support level through CMC	Providing a diverse and efficient supply of special peptide compounds using proprietary technology from the University of Tokyo
Peptide synthesis technology	The original technology of Tokyo University of Agriculture and Technology The process is simplified, the amount of harmful solvent used is small, and the time is shortened Micro-molecule synthesis technology and equipment are available	Basically, as a drug discovery technology, the company provides special peptides that are candidate compounds for development
CMC	Abundant achievements A division spun out from Takeda Pharmaceutical that became a subsidiary	Business structuring in progress
CDMO	Abundant achievements in micro-molecules JITSUBO technology can be diverted to any number of existing micro-molecule facilities It is possible to flexibly switch between micro-molecules and medium-molecules	Business structuring in progress
Global evaluation	Highly evaluated by Swiss-based Bachem (sales of approx. 50 billion yen in 2020), the world's largest peptide CMC/CDMO, for its cost advantage and low environmental load. It was licensed to this company. Meets strict European environmental regulations	The company is highly regarded for its basic research and has signed a number of licensing agreements, but the development of peptide molecule synthesis technology itself is not a business
Business risk	Basically, there is no drug discovery risk. Expected stable CF centered on contracting	Basically, the business is based on licensing income from drug discovery technologies related to specialty peptides Partly implemented in-house drug discovery. CF is stable
Group synergies	Can it be applied as a cosmetic ingredient in the future?	Not particularly

Source: Created by JPR based on data disclosed by Iwaki and PeptiDream



## HBC Food

Value creation that contributes to beauty, health, and food making

The customer base with particular strength is the senior market of over 60 years of age

## A “product assortment” of “safe and secure” products in the field of beauty and health

### There is still room for improvement in the “policy assortment”

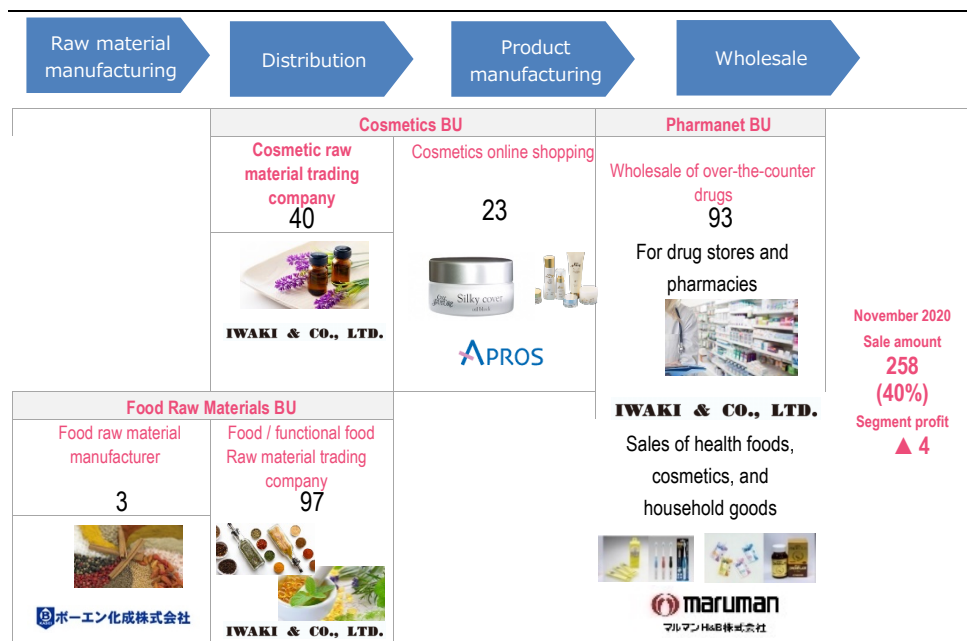
**HBC and Food Business accounts for 39% of net sales—Large-scale but issues of profitability**

The company sells over-the-counter drugs, food raw materials, functional food raw materials, and cosmetic ingredients to drugstores and pharmacies, and conducts online shopping sales and OEM of cosmetics. The company offers products and services designed to create value that contributes to beauty and health, as well as to the creation of “food.” It consists of three business units: the Foodstuff Raw Material BU, Cosmetics BU, and Pharmanet BU.

It is a founding business with a long history in its strong network of raw material manufacturers and small and medium-sized food, pharmaceutical, and cosmetics companies. It has the significance of an industrial infrastructure that supports the distribution and wholesale of raw materials and products for pharmaceuticals, functional foods, and cosmetics with the creditworthiness of Iwaki. The company has raw materials that serve as the basis for a wide range of cosmetics, top-class sales in specific fields, and products that have strength in the field of cosmetics online shopping for seniors.

Sales for the fiscal year ending November 2020 will be 25.8 billion yen, accounting for 39% of total consolidated sales. However, segment profit was minus 400 million yen because of a decline in inbound demand and a decrease in store sales with the spread of COVID-19.

#### Overview of HBC and Food Business (BU figures are sales, unit: hundred million yen)



November 2020  
Sale amount  
**258**  
(40%)  
Segment profit  
**▲ 4**

Source: Created by JPR using quotes from disclosed materials and the website of Iwaki

## The “product assortment” is sufficient, but “policy assortment” will be improved from now on

Among the four businesses, “product assortment” is adequate compared to Fine Chemicals, Pharmaceuticals, and Chemicals, but there is room for improvement in “policy assortment.” In Astena 2030, the HBC and Food BU is closely related to the two business models of procurement platform and activation of senior citizens, and the strategy is to aim for “policy assortment” and “niche leader”; however, the management resources required to achieve this have more room for improvement than Fine Chemicals, Pharmaceuticals, and Chemicals. Although the HBC and Food BU does not contribute much to shareholder value at this point, it has sufficient potential value, and if it becomes tangible in the future “policy assortment,” it has the potential to significantly increase shareholder value. It is expected that the company will develop a new and highly innovative business model that takes advantage of its extremely broad trading network and strong characteristics in the senior market, and that it will take advantage of further synergies with its fine chemicals and pharmaceutical businesses. If the “policy assortment” moves forward, it could contribute to a significant increase in shareholder value, but at this point it is difficult to incorporate it into the stock price valuation.

At this point, there is not much contribution to shareholder value

If “policy assortment” is advanced with regard to the procurement platform and activation of senior citizens, it may greatly contribute to the increase of shareholder value



Food raw materials



Functional food raw materials

A customer list of 1.1 million people, mainly seniors

## Food Raw Materials BU

The Food Raw Materials BU consists of food raw materials manufacturing (Bohen-Kasei) and food and functional food raw materials trading company (Food Raw Materials Division at Iwaki).

Sales for the fiscal year ending November 2020 were 300 million yen for food raw material manufacturing and 9.7 billion yen for the food/functional food raw material trading company. Regarding food raw material manufacturing, Bohen-Kasei manufactures and sells a wide range of food raw materials, from chicken, beef, pork, and bonito powders and pastes to fruit juice powders and vegetable extract powders, and also provides processing on consignment basis.

The food and functional food raw materials trading company is operated by Astena Holdings' Food Raw Materials Department. In the area of food raw materials, the company handles yeast extracts, protein hydrolysates, and other natural seasonings from major overseas manufacturers, as well as processed agricultural products such as tomato powder, dried potatoes, and fruit juice powder for processed food manufacturers. In the area of functional foods, the company sells many functional food raw materials, including its own patented raw materials such as "Kurozu Dried Extract" and "Yugao Bijin Powder," as well as its own planned products to health food manufacturers. In addition to efforts for safety, security, and stable supply, the company also proposes "value" by focusing on problem solving.

## Cosmetics BU

The Cosmetics BU consists of a cosmetics raw material trading company (Cosmetics Raw Materials Department at Astena Holdings) and cosmetics online shopping (Apros).

### Cosmetics Raw Materials Department at Iwaki

Sales for the fiscal year ending November 2020 will be 4 billion yen. In particular, the weight of the business of raw materials for application to the skin, for example, 1,3-butylene glycol, which is a base material for cosmetics, is significant.

The company selects all kinds of products from domestic and overseas raw material manufacturers and supplies them to many users, including major cosmetic manufacturers. Focusing on the sale of various cosmetic raw materials, the company develops related products, mainly on an OEM basis, and undertakes the commissioning and development of cosmetic raw materials. The company selects all kinds of products from domestic and overseas raw material manufacturers and supplies them to many users, including major cosmetic manufacturers.

As the market for percutaneous absorption or application-type cosmetics grows, it tends to grow along with it. The company is also engaged in the contract-based synthesis of various raw materials and contracted manufacturing of quasi-drugs (planning and development) and cosmetics (from intermediates to finished products).

### Cosmetics online shopping (Apros)

Sales for the fiscal year ending November 2020 were 2.3 billion yen. As a representative product, we can mention "Silky Cover Oil Block," which is part of the anti-aging cosmetics brand "Cell Future" developed based on an investigation of the causes of aging skin, and which contains ingredients that improve skin's elasticity and luster. According to a survey conducted by TPC Marketing Research Co., Ltd., "Silky Cover Oil Block" had the largest domestic market share in the online shopping and cosmetics foundation sector from 2016 to 2019. The company's strength is its list of 1.1 million customers, mainly seniors, and it is expected that there will be synergies in collaboration with functional foods and the fine chemicals and pharmaceutical business.

## Leading product of Apros

### Products Introduction



**Silky cover oil block**

Makeup base



**Facial cleansing balm**

Cleansing  
& face wash



**Foaming white pack**

Carbonated pack

Source: Excerpt from the website of Apros

## Putting forward the business model of activation of senior citizens

In the market of primarily drugstores, pharmacies, and dispensaries, a decrease in inbound demand and people going out due to COVID-19 had a mass negative impact

Direct marketing is expected to expand new sales channels and improve product development capabilities through improved customer analysis

In Astena 2030, as a business model for social impact strategy, the concept of "activation of senior citizens," or "activating all senior citizens" through the provision of cosmetics and functional foods, has been set out. In QOL or healthy life expectancy, it is assumed that the company is commercializing items in connection with each activity, such as putting on makeup to go outside, based on the premise of having many social contacts or walking. The business characteristics of APROS play an important role in the business model of activating senior citizens.

## Launch of Peptide Cosmetics Project

Utilizing JITSUBO's grouped peptide synthesis technology, Astena Holdings will start a project of "Developing cosmetics that give confidence to one's skin, support the social advancement of all people, and coexist with cleanliness and science (Clean Beauty & Cosmeceuticals, Cosmetics containing scientifically-founded active ingredients)." "Started the project of "Cosmetics containing ingredients)) Development". This project is part of the social impact strategy, and aims to commercialize it with the concept of "cosmetics that utilize the effects of peptides to keep the skin firm and shiny at all times." Specifically, Japanese domestic technology, cosmetics incorporating natural ingredients, skin-friendly cosmetics that anyone can use with peace of mind, cosmetics that are environmentally friendly and effective through innovation • "4R (Reduce, Reuse, Recycle, Refuse (or))" It is a cosmetic product that takes into consideration "Replace))" and supports senior activation not only in terms of cosmetics functionality but also in terms of raw material safety. It is also environmentally friendly and is expected to contribute to the SDGs. To promote this project, the New Business Promotion Office was set up on June 1, 2021.

## Pharmanet BU

### Strengthening sales channels through direct marketing in addition to store sales channels

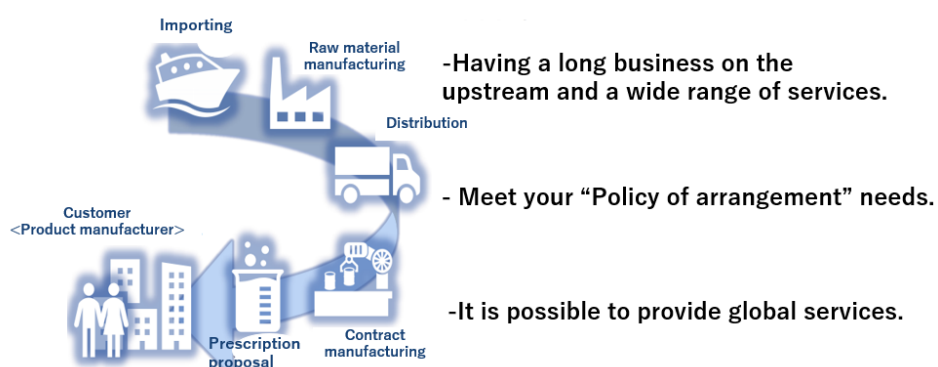
Sales for the fiscal year ending November 2020 were 9.3 billion yen. Pharmanet BU consists of Iwaki's Pharmanet Sales Department and Maruman H&B. In addition to selling over-the-counter drugs and health foods to drugstores, pharmacies and dispensaries, it also provides retail support, including proposals for store-brand products and support for product assortment and shelf allocation. In the market of mainly drugstores, pharmacies, and dispensaries, a decline in inbound demand and a decrease in people going out due to COVID-19 are having a negative impact. A positive effect is expected by making a wholly owned subsidiary of Maruman H&B, which has strengths in direct marketing that connects directly with consumers such as direct mail, complementing store-based sales channels. In particular, it is expected that sales of the wide range of products in the HBC and food business will be expanded to previously unreachable customer segments, and also that accurate marketing and product development capabilities will be improved by compiling a database of consumer responses.

Fine Chemicals  
+  
Pharmaceuticals  
+  
HBC and Food

## Healthcare Raw Material Procurement Platform

The collaboration of the three businesses will create a healthcare procurement platform, one of the seven business models of Astena 2030. It will cover all needs of medical drugs, cosmetics, and functional food manufacturing and sales companies, maximizing the value chain of CMC (R&D to develop raw materials and drugs), CDMO (raw material manufacturing, drug formulation), distribution, and wholesale. The digital transformation of the raw materials business will provide a platform for customers to solve problems in their development and procurement processes, at the same time increasing market value by providing products and services with enhanced originality. By investing in the direct marketing domain and building a domain-specific network, the company will not only import raw materials and sell them, but also provide all the functions necessary for manufacturing pharmaceuticals, cosmetics, and health foods. The aim is to build a platform that will "solve most manufacturing problems." The wholesale business of buying and selling raw materials will continue, and services will be added to sell raw materials.

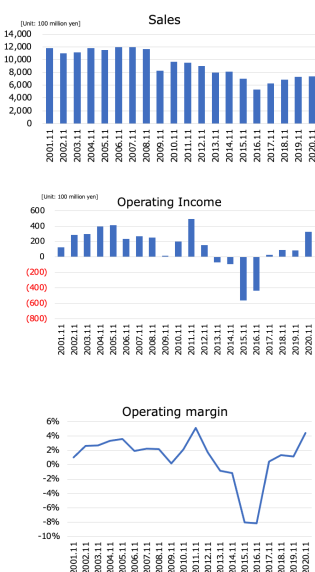
### Healthcare Procurement Platform



Source: Excerpt from financial results briefing of Iwaki for the fiscal year ending November 2019

## Chemicals

Overcoming the negative effects of the dissolution of the joint venture by launching new products



## Differentiating with high-end surface treatment chemicals—global niche leader

For the fiscal year ending November 2020, sales were 7.4 billion yen and segment profit was 300 million yen. The chemicals business started in 1951 when the company began handling chemicals as part of its wholesaling and trading business. After that, in 1960, the Japan Metal Finishing Company (currently Meltex Inc.) was established as a Japan-US joint venture, and today it is mainly engaged in the development, manufacture, and sale of chemicals, especially surface treatment chemicals. This business is operated by three companies: Meltex Inc. (hereinafter “Meltex”), Tokyo Kakoki Co., Ltd. (hereinafter “Tokyo Kakoki”), and Hongsu Electronic Equipment (Shanghai) Limited Company (hereinafter “Hongsu Electronic Equipment”). In the area of surface treatment chemicals, the company has strengths in high-end chemicals for printed circuit boards, electronic components, and semiconductors. Sales for the fiscal year ending November 2020 were 5 billion yen. In addition, it also sells manufacturing equipment (1.4 billion yen) and surface treatment peripheral products (600 million yen).

Overview of chemicals business; figures are sales for the fiscal year ending November 2020 [hundred million yen]

Manufacturing	Distribution
<b>Surface treatment chemicals</b> Electronic printed circuit board, semiconductor. For electronic components   <b>53</b>	<b>Specialty material</b> Used in various surface treatments Selling industrial chemicals   <b>6</b>
<b>Surface treatment equipment</b> Manufacturing and sales of printed circuit board manufacturing plants   <b>14</b>	

Sales for the fiscal year ending November 2020  
74  
(11%)  
Segment profit  
3

Source: Created by JPR based on disclosed materials and the website of Iwaki

Sales fell sharply in 2015 under the impact of the cancellation of licensing agreements with overseas companies. There was a deficit trend before the contract was canceled, but the degree of deficit significantly increased due to the contract cancellation. By introducing a number of new high-end products to overcome this problem, the company has been able to return to profitability three years after the cancellation of the contracts and recorded an operating profit margin of more than 4% in 2020, showing the high level of R&D capabilities related to chemical synthesis.

## Total solution for surface treatment, from the general field to electronics

Surface treatment technology is a technology for forming functional interfaces and films to add advanced new functions to base materials that are not available in bulk (part materials with a single structure). Meltex is involved in everything from the R&D of surface treatment chemicals to manufacturing and sales, and uses its advanced technological capabilities and knowledge to provide total solutions, including customization to meet needs and the provision of peripheral products.

In the early days of the company, Meltex dealt with all aspects of surface treatment, but today it offers specialized proposals for electronics. So far, the company has developed surface treatment chemicals that contribute to the miniaturization of smartphones, and signed a contract with MIT's first venture company to produce products that significantly reduce the amount of gold used in gold-plated items for connectors.



## Main products

### Chemicals

Please select the chemical you are looking for from the categories below.



#### For printed wiring boards

It is a chemical used in the manufacture of all kinds of electronic circuit boards such as rigid boards, flexible boards, and ceramic boards. We have a wide range of products such as electrolytic copper plating solution, copper sulfate plating brightener, electrolytic nickel-gold plating solution, and etching solution. Especially, copper sulfate plating brightener and etching solution are suitable for processing high-density printed wiring boards. As an indispensable chemical, it boasts a high market occupancy rate.



#### For electronic components

The need for electronic components is increasing due to the expansion of the electronic device market such as smartphones, automobiles, and AV devices. We have a lineup of plating chemicals for chip parts such as capacitors and resistors, and electronic parts such as connectors and lead frames. Above all, the neutral tin plating solution for chip parts is used in Japan and overseas and has been well received as a highly reliable plating chemical. In addition, we have prepared plating chemicals for various materials such as ITO plating used for touch panels and glass, and we will introduce the most suitable chemicals according to the application.



#### For semiconductors

Semiconductors are used in all fields, from smartphones to home appliances, credit cards, and electronic money. As equipment becomes smaller and lighter and consumes less power, semiconductor components are also required to have higher performance. For these fields, we have a variety of high-performance, high-quality chemicals required for semiconductor manufacturing processes, such as forming barrier metals on electrodes and removing metal seed layers.



#### For general use

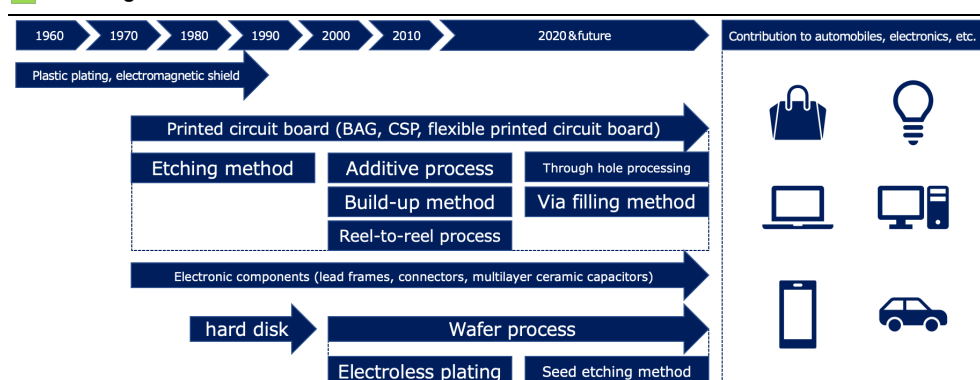
A plating chemical that gives aesthetics to metal and plastic materials and enhances corrosion resistance. It is used in all fields such as precision equipment such as cameras and watches, automobile parts such as bumpers and wheels, as well as various electrical products, furniture, and amusement equipment. We have a wide range of gold, silver, copper, tin, nickel, chrome plating, etc. to provide your favorite gloss and color tone.

Source: Excerpt from the website of Meltex

### Transition to high value-added plating

Meltex has been increasing its share of the manufacturing and sales of plating chemicals for higher value-added automotive parts and electronics in the manufacturing and sales of various types of plating chemicals for all types of products, including plastics and general products. This high value-added field is used not only to add anti-corrosion and heat resistance to the surface of components, but also to form fine circuits on printed circuit boards and to micro-fabricate wafer surfaces. Plating can be broadly classified into a wet process, in which the film is formed by a reaction in a chemical solution, and a dry process, in which the film is formed by blowing the plating onto the surface of the object in a vacuum or under gas pressure. Meltex provides chemicals for wet processes, the former, and has been providing world-class technology in this field by conducting R&D, manufacturing, and selling chemicals for complex surface treatment processes that are increasingly being researched.

### Changes in Meltex's focus areas



Source: Created by JPR

### Accumulation of technology through in-house development, not licensed products

Meltex has made cars and home appliances more competitive by processing the surface of metal products to add new properties and functions to various substrates, including chemicals that can reduce damage to copper wiring by a factor of 20 and use one-third the amount of gold. Since these are not licensed products but developed in-house, the company has accumulated technologies from R&D to manufacturing and sales for chemicals used in the wet process.

### Global demand system

Together with the production base in Thailand and the Kumagaya Factory in Japan, the company has a global demand response system that enables it to meet domestic and overseas demand. By transferring the manufacturing of products with a high percentage of overseas sales to overseas bases, it will be possible to reduce costs and improve efficiency. Sales of copper plating additives in South Korea and seed layer etching agents in Taiwan, China, and Europe have been strong, despite the impact of the spread of COVID-19 on sales activities.

### Accelerating surface treatment capacity by the manufacturing and sales of manufacturing plants

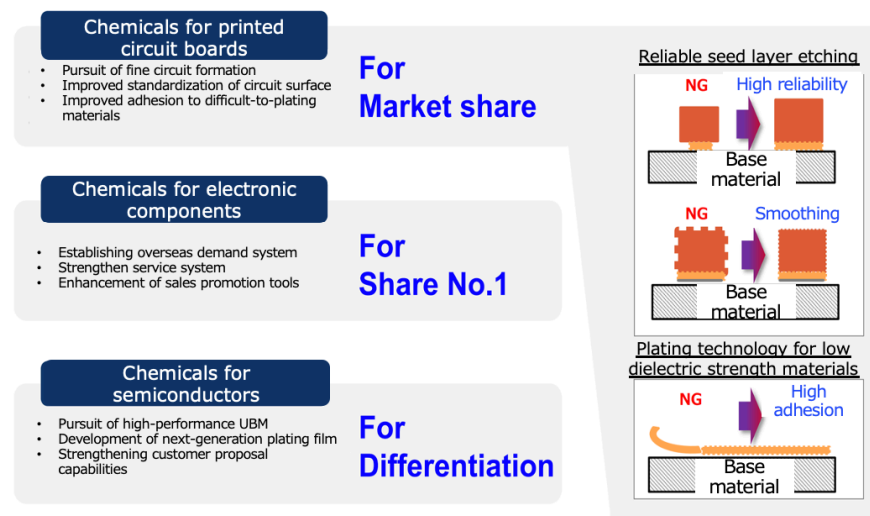
Since its establishment in 1966, Tokyo Kakoki has grown from developing etching machines to becoming a comprehensive manufacturer of surface treatment equipment. Since the start of the business alliance with Meltex in 2005, the company has been involved in the design, manufacture, and sale of surface treatment equipment for all flat panels, as well as after-sales service. As a result, a total solution is being achieved through the matching of chemicals and equipment for surface treatment. In addition, Tokyo Kakoki has bases in Shanghai and Malaysia.

### Strengths and strategies

One of the strengths of high-end chemicals for printed circuit boards, electronic components, and semiconductors is that they are ionically neutral. In electronic components, especially in capacitors, miniaturization is progressing, but as transmission speed increases, chemical resistance decreases, so chemicals that are close to neutral become an advantage. As refinement and miniaturization progress, the strength of neutrality will be more highly valued. As a result, the company has a high market share in high-end micro multilayer capacitors. Other strengths include low levels of CMR substances (substances known to have carcinogenic, mutagenic, and reproductive toxicity) and compliance with strict EU regulations. Plating chemicals are often designated as hazardous materials, but Meltex products are safe.

Other strategies are summarized in the figure below. Since there is great competition in the field of printed circuit boards, the company will promote high reliability, smoothness, and high adhesion in fine circuit formation, etc., and increase its market share in high value-added fields where there is little competition. For electronic components, the strengths already explained will be enhanced, establishing the No. 1 share in the field of high value-added capacitors.

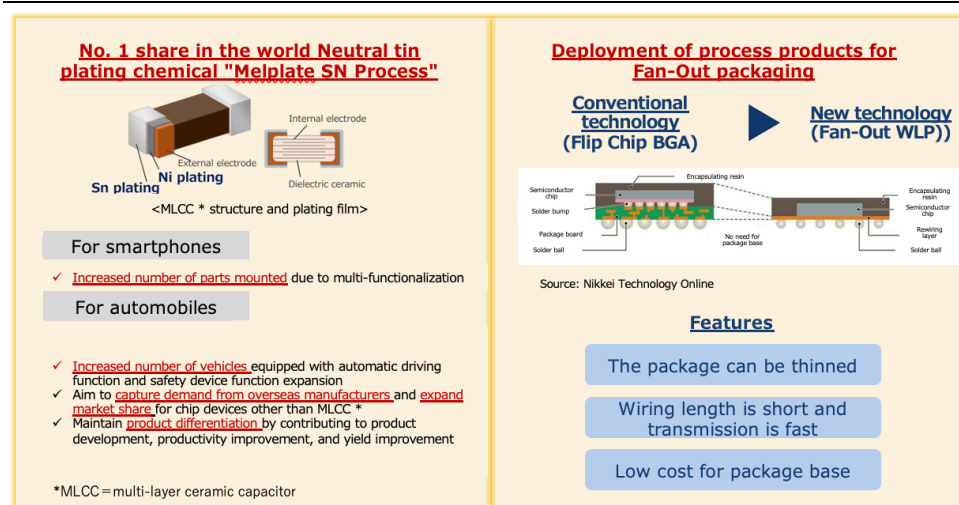
## Strategies for printed circuit board chemicals, chemicals for electronic components, and chemicals for semiconductors



Source: Financial results briefing materials of Iwaki for the fiscal year ending November 2019

Other products that contribute to high added value include neutral tin-plating chemicals and new high value-added products for semiconductors, such as the following. As the trend of miniaturization expands with 5G, the demand for these products is expected to grow as fast as 5G.

## Technologies and chemicals to be enhanced



Source: Excerpt from the materials for the financial results briefing for the fiscal year ending November 2019.

One product that is expected to see high growth in semiconductors, especially power semiconductors, is a related product used in the process called UBM. UBM is the "Under Bump Metal" processing method, which is a process for making electrodes used when forming "solder bumps" on semiconductors. In the process used for larger semiconductors, so-called power semiconductors, it has the effect of preventing corrosion of the electrode portion. By preventing corrosion of the electrode portion, this method improves the reliability of the product, and it is used in the manufacture of many semiconductors in Japan and overseas. It is currently used by more than 10 companies in Japan and overseas, and has the largest share of the UBM construction method in Japan. As the market for power semiconductors grows, this area will also grow. Very high gross profit margin.

## Recent trends in the chemicals business

Although economic activities were restarted in some countries and regions, the market for surface treatment chemicals was affected by COVID-19, and continued to be surrounded by a sense of stagnation due to the fear of second and third waves. In addition, the shortage of marine transportation vessels and containers at the time of exports had a significant impact on the supply chain. Although there are regions such as China, Taiwan, and South Korea where the impact has been relatively minor, the global economic downturn has had a significant impact on the industry, especially in the first half of the year, resulting in a significant decrease in chemicals for the automotive industry and delays in newly adopted evaluation tests. However, from the second half of the year, there was a recovery trend, and chemicals for electronic components and semiconductors remained strong due to the 5th generation (5G) of high-speed, high-capacity communications and the support of infrastructure demand for telecommuting.

In the printed circuit board industry, servers, personal computers, and tablets are performing well against the backdrop of a rapid increase in data communication volume associated with telecommuting, home study, and other areas. In addition, the automobile industry, which was expected to increase production of in-vehicle infrastructure due to the shift to electrical components, temporarily saw a decrease in production volume, but production is now recovering. Smartphone sales, which are driving the printed circuit board industry, continue to be sluggish worldwide.

## “Unstoppable Trend”

The Sustainable Development Goals (SDGs) were adopted at the UN Summit in 2014. With the growing interest in sustainability and environmental protection, it is desirable to develop surface treatment technologies that contribute to sustainable development.

The market for surface treatment chemicals related to printed circuit boards is in a difficult environment due to the shrinking of the smartphone market, trade friction between the U.S. and China, and the expected inactivity of the 5G market. On the other hand, sales of passive components remained strong in line with the shift to electrical in-vehicle components. Power ICs, connectors, solar, passives, etc., are all growing, and economic growth in Asia is remarkable. The recovery in the electronics and semiconductor sectors is also expected to be driven by increased demand for technology.

## Sustainable Development Goals

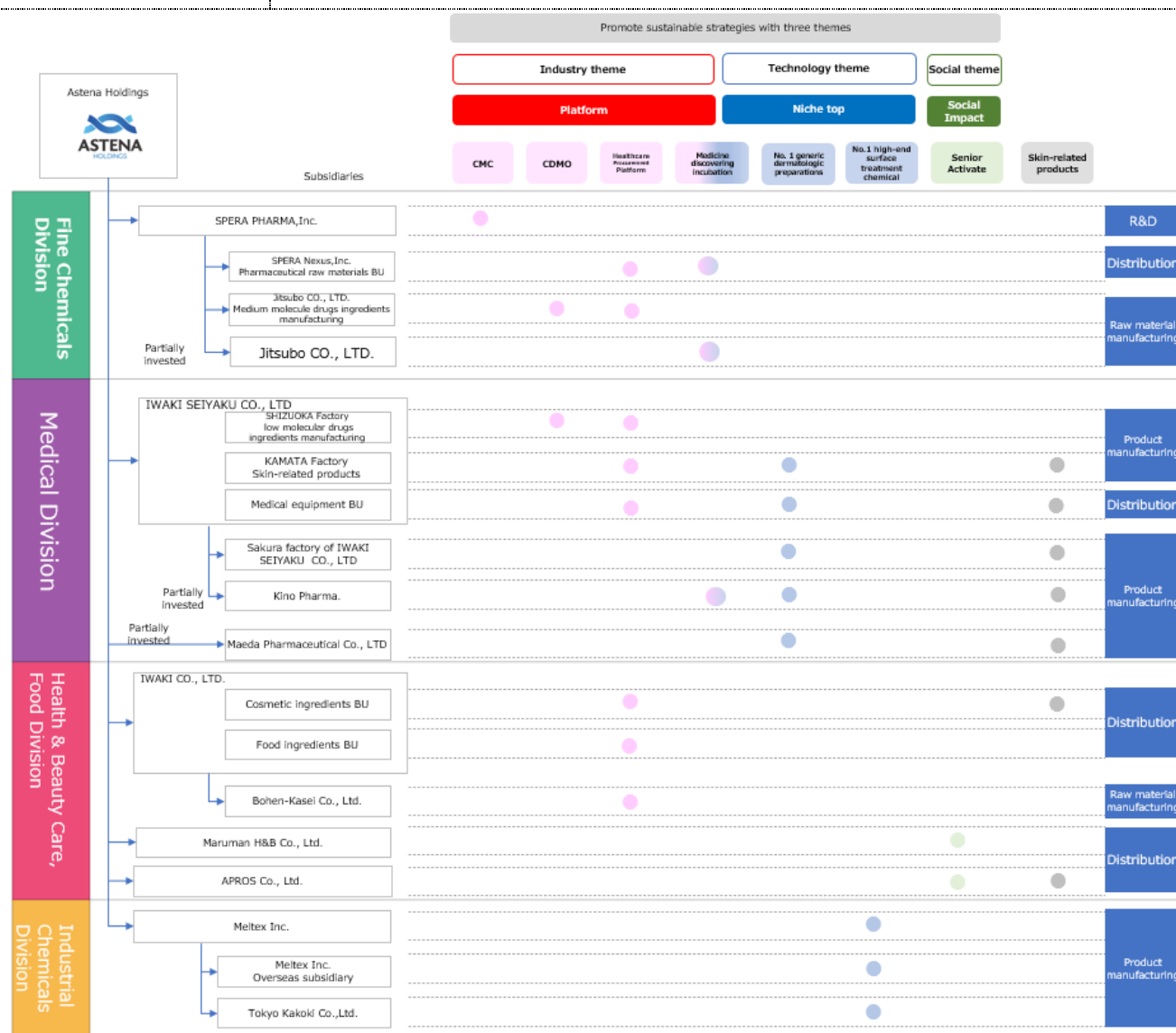
The SDGs in the field of surface treatment require a reduction in the use of heavy metals, which are harmful to human health and have a negative impact on the environment. For electronic components, it is recommended that lead-free “solders” be used instead of lead-containing “solders” as a chemical to connect the components. Recently, “electroless tin plating” and “tin alloy plating” have been attracting particular attention. Tin is a metal that has excellent adhesion to solders and does not affect the human body. Therefore, the demand for this product is expected to grow in the future from the viewpoint of safety.

### 3. Strategic Direction—Seven Business Models

#### The relationship between the business and the seven business models

#### Relationship between the seven business models and each business/value chain

Since Iwaki has expanded into highly relevant businesses that can demonstrate its uniqueness, each business is closely linked. As shown in the following figure, the Astena 2030 business model will also be developed through the collaboration of each business. In particular, there is close collaboration among FC, pharmaceuticals, and HBC/food businesses. Chemicals are an independent business model, although there is some sharing in terms developing synthesis capabilities. However, since there is a common foundation in terms of chemical synthesis, there is a possibility that synergies will emerge in the future through R&D collaboration with universities.



Source: JPR



## Evaluation of the 7 business models

The following table evaluates the trends in the seven business models based on the content of the business overviews we have seen so far. JPR attempted to subjectively evaluate the results, putting 5 for “can be evaluated highly” and 1 for “difficult to evaluate.” The CMC and CDMO platforms can be given the highest evaluation at this time. Further “policy assortment” is expected for health care procurement and activation of senior citizens.

### Evaluation of the seven business models for the new medium- to long-term vision: “Astena 2030—Diversify for Tomorrow”

Seven business models		Evaluation points
(1)	CMC platform	It includes both micro- and medium-molecules, is highly differentiated, and has already acquired the necessary management resources. Another strength of the company is that it works closely with CDMO. High growth can be expected as the flow of CMC outsourcing from pharmaceutical manufacturers will enter full swing in the near future. ROIC is also expected to be very high by analogy with comparable companies.
(2)	Health care Procurement platform	It would be an interesting and differentiated business model if the company further develops a value chain that links upstream suppliers and downstream manufacturers in a comprehensive manner, from R&D of pharmaceuticals, functional foods, and cosmetics to raw material manufacturing and procurement, distribution, product manufacturing, and wholesaling, and achieve optimal matching through data collaboration and AI. The key is a management structure for pursuing optimal synergies manually by having a holding company and the introduction of AI, big data management, and digital transformation to promote this. The key is synergy with R&D capabilities. Since there are many small and medium-sized companies in the network where Iwaki has strength, it is presumed that there is great potential for improvement through digital transformation. However, concrete measures are yet to be taken.
(3)	Drug discovery incubation platform	Differentiation based on CMC's strengths is highly valued. However, since it is a completely new business model, evaluation will depend on the accumulation of achievements in the future.
(4)	CDMO platform	It includes both micro- and medium-molecules, and also focuses on biopharmaceuticals and high pharmacological activity, where high growth is expected. It is extremely differentiated and has acquired the necessary management resources. ROIC can be expected to improve due to the merit of scale.
(5)	Generic dermatological agent Pharmaceutical niche leader	The important point is the synergy with R&D capabilities that take advantage of Iwaki's strengths. The promotion of digital transformation is also a key. It is expected that concrete measures will be clarified in the future. ROIC can be expected to improve due to the merit of scale.
(6)	Niche leader of high-end surface treatment chemicals	As 5G and other technologies require increasingly high added value, miniaturization, and process efficiency, the business model is to provide high-end surface treatment chemicals that meet those needs and contribute to increasing the high added value of semiconductors, PCBs and electronic parts, and the production needs of electronics manufacturers. The R&D capability to grasp customer problems in a short period of time and create new niche-leading products is highly appreciated. A system has been established to create a total solution for new products and continuously raise the value creation spiral with client companies. It also complies with strict safety standards and can be evaluated in terms of SDGs.
(7)	Activation of senior citizens	It is necessary to envision a new model that extends to the lifestyles of customers, but is this something that is yet to materialize? By working with the healthcare procurement platform, it is possible to build sufficient differentiation. The business model that is being promoted in Suzu City, Ishikawa Prefecture, which combines agriculture and healthcare, is attracting attention. However, it is difficult to evaluate it in terms of shareholder value at this time.

Seven business models		Growth potential	Profitability	Stability	Uniqueness	Resource acquisition status	Comprehensive
(1)	CMC platform	5	5	3	5	5	4.6
		High growth expectations	Very expensive	Impact of drug discovery trends	Very	Acquired	
(2)	Healthcare Procurement Platform	3	3	4	3	3	3.2
		Stable growth	Standard	Stable if successful	To some extent	There is a foundation	
(3)	Drug discovery incubation platform	5	5	3	4	3	4.0
		High growth expectations	Very expensive High PER is expected	Overall standard stability	There are quite a few	The results are yet to come	
(4)	CDMO platform	4	4	5	5	5	4.6
		High growth expected, but less than CMC	High	Very stable	Very	Acquired	
(5)	Niche leader of dermatological agent generic drugs	3	4	3	5	5	4.0
		Market size is limited	High	Very stable but with risk of NHI price revision	Very	Acquired	
(6)	Niche leader of high-end surface treatment chemicals	4	4	3	4	4	3.8
		Synchronized with semiconductor growth rate	High	Influenced by semiconductor cycle	Existence of competing products	Almost acquired	
(7)	Activation of senior citizens	3	3	4	3	2	3.0
		Stable growth expected if successful	Standard	If it succeeds, it will be stable, but this is not yet certain	There is a certain degree of realization in progress	From now on	

Source: JPR

## 4. Current performance trends

### Consolidated and Segment Information

Achieved record-high sales despite difficult business environment

Minimizing the impact of the spread of COVID-19

### Fiscal year November 2020—Sales increase / Slight decrease

#### Consolidated business results

The implementation of measures to promote the three-year medium-term management plan of the medium- to long-term vision for the fiscal year ending November 2025 yielded the following results: Sales for the fiscal year ending November 2020 were 65,341 million yen (up 6.0% year on year), operating income was 2,035 million yen (down 4.1% year on year), ordinary income was 1,968 million yen (down 15.1% year on year), and net income attributable to shareholders of the parent company was 1,983 million yen (up 29.4% year on year).

#### Consolidated and segment performance

[Unit: million yen]

		Nov-19	Nov-20	YoY
Consolidated	Sales	61,647	65,341	6.0%
	Operating Income	2,121	2,035	-4.1%
	Ordinary Income	2,318	1,968	-15.1%
	Net Income	1,533	1,983	29.4%
Fine Chemicals Division	Sales	16,272	21,456	31.9%
	Segment Income	1,254	1,204	-4.0%
Medical Division	Sales	8,218	10,648	29.6%
	Segment Income	839	998	19.0%
Health & Beauty Care, Food Division	Sales	28,375	25,812	-9.0%
	Segment Income	-44	-491	-
Industrial Chemicals Division	Sales	7,339	7,400	0.8%
	Segment Income	86	328	283.4%

Source: Created by JPR based on the financial results briefing of Iwaki for the fiscal year ending November 2020

#### Fine Chemical Business

Net sales were 21,456 million yen (up 31.9% year-on-year) and operating income was 1,203 million yen (down 4.0% year-on-year).

#### Pharmaceutical raw material market

In spite of the difficult situation caused by the spread of COVID-19, the company focused on strengthening sales of generic bulk drugs and new pharmaceutical intermediates, proposed overseas commercial products, developed new raw materials, and promoted the discontinuation of manufacturing and sales and price revisions to improve profitability, considering the medium-molecular pharmaceutical field as a priority market. On the other hand, sales of electronics and advanced materials remained in a severe situation. As a result, although sales were strong, profits remained in a difficult situation.

#### Pharmaceuticals CDMO market

Due to restrictions on visits to medical institutions and difficulties in securing subjects, drug development was delayed or changed and the development system was revised; however, efforts were made to improve the sales force by rebuilding the sales structure and to expand services such as the development of new technologies. As a result, the impact of the spread of COVID-19 was minimal.

The performance of Iwaki Seiyaku Sakura Factory Co., Ltd. contributed

E-commerce for beauty clinics is growing

Demand for products related to COVID-19 is increasing

Negative effect due to decrease in inbound and domestic demand

## Pharmaceutical Business

Net sales were 10,647 million yen (up 29.6% year on year), and operating income was 998 million yen (up 18.8% year on year).

### Prescription drugs market

In the midst of an increasingly severe business environment due to the NHI price revisions, the impact of restrictions on medical consultations due to the spread of COVID-19, and the peaking of effects of the government's measures to promote the use of generic drugs in the generic drug market, the company worked to provide appropriate information to dispensing pharmacies and medical institutions, focusing on dermatological agents and male hair-loss treatments, under a stable supply system; however, due to the need to prevent the spread of COVID-19, the number of places visited was limited to a few general practitioners. On the other hand, Iwaki Seiyaku Sakura Factory Co., Ltd., which is mainly engaged in contracted manufacturing and was acquired from Torii Pharmaceutical Co., Ltd., contributed to a significant increase in business profits.

### Aesthetic medicine field

Sales of cosmetics for beauty clinics were weak due to a decline in visits to medical institutions, but the company focused on expanding e-commerce for beauty clinic customers.

### Over-the-counter drug field

Demand for products related to COVID-19 continues to grow. Sales of new related-products for external use, such as mouthwashes, vitamin C powder, and tablets as measures to prevent COVID-19, increased.

## HBC and Food Business

Net sales were 25,811 million yen (down 9.0% year on year) and operating loss was 490 million yen (the operating loss in the same period of the previous year was 44 million yen).

### Cosmetic raw material market

Due to the spread of COVID-19, inbound and domestic demand declined, and demand from major manufacturers and other customers was reduced as well. The online-shopping cosmetics industry was also sluggish. The company focused on sales of its main raw materials, including its own hyaluronic acid products.

### Online-shopping cosmetics field

In addition to sales promotion activities for existing products, the company aggressively developed its business by launching several new products, but inbound demand and domestic demand declined due to the spread of COVID-19. Sales were sluggish due to the impact of restrictions on going out and the use of masks.

### Wholesale field consisting of mainly over-the-counter drugs

In the market of mainly drugstores, pharmacies, and dispensaries, the situation was very severe due to the decline in demand caused by the spread of COVID-19, in addition to the decreases in inbound demand and in sales at stores in the Tokyo metropolitan area due to the shift to telecommuting. Sales of infectious disease control products, such as disinfectants, were strong, but sales of cosmetics and cold remedies were sluggish.

### Food raw materials and functional food raw materials market

Although the number of foreign visitors coming to Japan decreased due to the spread of COVID-19, and the increase in the home-stay rate led to a decrease in demand for restaurants and offices, the demand for takeout and "at-home comfort" expanded, and the demand for healthy foods also expanded. The increasing demand for "at-home comfort" contributed to the maintenance of good performance.

## Chemicals Business

Net sales were 7,425 million yen (up 1.2% year on year), and operating income was 328 million yen (up 283.4% year on year).

### Surface treatment chemical market

The global spread of COVID-19 created a sense of stagnation. In Japan, the company continued to expand sales of chemicals for forming fine wiring, chemicals for forming semiconductor electrodes, and plating chemicals for passive parts while utilizing ICT, and in regions such as China, Taiwan, and South Korea, where the impact is relatively minor, it aggressively conducted sales activities focusing on similar main products. Sales of chemicals for the automotive industry declined significantly, mainly in the first half of the year, but began to recover in the second half of the year, while sales of chemicals for electronic components and semiconductors were strong due to the 5th generation (5G) of high-speed, high-capacity communications and underlying infrastructure demand for telecommuting. Profits remained strong, partly due to the streamlining of activity costs.

### Surface treatment equipment market

Against the backdrop of a rapid increase in data traffic associated with telecommuting and home learning worldwide, sales of servers, personal computers, and tablets remained strong, while the automobile industry saw a temporary decline in production, but production is now recovering. However, sales of smartphones, which had led the industry, continue to be sluggish worldwide due to the spread of COVID-19. The company worked on profit improvement activities, improvement of work efficiency, shortening of delivery time, development of new equipment, etc.

Profits were revised upward by 30% in the first half

Upward revision is expected for the full year

Pharmaceuticals will continue to drive business performance, with the progress of policy assortment and the large effect of M&As

Pharmaceutical segment profit almost tripled year-on-year

Sales of fine chemicals increased substantially, but profits declined due to the impact of a worldwide decline in the number of people catching colds due to measures against COVID-19

## Forecast for the first quarter of the fiscal year ending November 2021

### Consolidated

For the first quarter, net sales were 16,975 million yen (up 16.5% year on year), operating income was 663 million yen (up 139.0% year on year), ordinary income was 705 million yen (up 139.0% year on year), and net income attributable to shareholders of the parent company was 398 million yen (up 102.8% year on year).

Net sales were not revised upward, but operating income, ordinary income, and net income for the second quarter were revised upward by 30.0%, 31.9% and 29.6%, respectively, and profits were revised upward to 1.43 billion yen (up 62.8% year on year), 1.49 billion yen (up 66.3% year on year), and 920 million yen (up 55.3% year on year). Although the figures for the full year have not been revised upward, sales were 73 billion yen (up 11.7% year on year), operating income was 2.6 billion yen (up 27.8% year on year), ordinary income was 2.7 billion yen (up 37.2% year on year), and net profit was 2 billion yen (up 0.8% year on year).

If the forecast for the second quarter is simply doubled, the operating income will be revised upward by about 10% for the full year.

### Consolidated results and upward revisions

	[Unit : 100 Million Yen]	FY11/2020				FY11/2021		YoY		FY11/2021, Prospective			
		Actual	Actual	Actual	Actual	Actual	Actual	Modified plan	Plan	Modified plan (A)		Plan (B)	
		1Q	2Q	3Q	4Q	1Q	1Q	2Q	4Q	2Q	2Q	2Q	4Q
		2020.2	2020.5	2020.8	2020.11	2021.2	2021.2	2021.5	2021.11	2021.5	2021.5	Range A/B	2021.11
Consolidated	Sales	14,572	30,832	47,565	65,341	16,975	16.5%	17.7%	11.7%	36,300	36,300		73,000
	Operating profit	277	878	1,464	2,035	664	139.6%	62.9%	27.8%	1,430	1,100	130.0%	2,600
	Ordinary profit	2,318	295	895	1,479	706	-69.5%	405.1%	82.6%	1,490	1,130	131.9%	2,700
	Net profit	197	592	1,571	1,984	399	102.8%	55.3%	0.8%	920	710	129.6%	2,000

Source: Created from the financial results of Iwaki for the first quarter of the fiscal year ending November 2021

### Segment performance

[Unit : 100 Million Yen]		FY11/2020				FY11/2021	
		Actual	Actual	Actual	Actual	Actual	YoY
		1Q	2Q	3Q	4Q	1Q	
		2020.2	2020.5	2020.8	2020.11	2021.2	
Fine Chemical	Sales	3,835	9,855	15,338	21,456	5,317	38.6%
Medicine	Sales	2,054	4,252	7,414	10,647	3,174	54.5%
Health & Care Beauty Food	Sales	6,869	13,173	19,488	25,811	6,588	-4.1%
Chemicals	Sales	1,812	3,551	5,323	7,425	1,896	4.6%
Fine Chemical	Segment profit	212	554	908	1,203	203	-4.1%
Medicine	Segment profit	161	372	748	998	625	288.5%
Health & Care Beauty Food	Segment profit	▲ 118	▲ 179	▲ 401	▲ 490	▲ 236	-
Chemicals	Segment profit	24	135	213	328	81	237.0%

Source: Created from the financial results of Iwaki for the first quarter of the fiscal year ending November 2021

### Fine Chemical Business

Net sales were 5,316 million yen (up 38.6% year on year), and operating income was 203 million yen (down 4.1% year on year). The company worked on strengthening sales capabilities by acquiring new commercial products, mainly generics, and expanding sales of chemical products, as well as strengthening solutions for customers by strengthening cooperation among the sales, development, and manufacturing functions within the CDMO field group, which focused on acquiring new contracts for intermediates and investigational drugs. In addition to the positive factors such as the adoption of new generic products and the strong performance of raw materials related to gastrointestinal drugs, the CDMO field contributed to the results. On the other hand, both domestically and overseas, over-the-counter bulk drugs, such as cold remedies, were sluggish, and domestic generic raw materials were weaker than usual.



The effect of Iwaki Seiyaku Sakura Factory Co., Ltd. continues to contribute significantly

## Pharmaceutical Business

Net sales were 3,174 million yen (up 54.5% year on year), and operating income was 625 million yen (up 288.1% year on year). The company continues to benefit greatly from Iwaki Seiyaku Sakura Factory Co., Ltd. In addition, while visits to medical institutions, such as dermatologists, were limited under COVID-19 restrictions, the company worked to provide appropriate information to dispensing pharmacies and medical institutions, including the introduction of digital transformation tools, focusing on major dermatological agents and male hair-loss treatments. The company focused on expanding e-commerce for beauty clinic customers. As for prescription drugs, sales of dermatological agents such as mainstay corticosteroids and atopic therapeutic agents increased, but sales of cold-related products remained sluggish. In over-the-counter drugs, sales of mouthwashes and vitamin C powder were strong, partly due to the spread of COVID-19, but sales of cosmetics for beauty clinics were weak, partly due to restrained patient consultations.

HBC and food products continue to be largely affected by the spread of COVID-19, and overall sales are weak

## HBC and Food Business

Net sales were 6,588 million yen (down 4.1% year on year), and operating loss was 235 million yen (the operating loss was 118 million yen in the same period of the previous year). The company focused on expanding its own products, developing new in-house raw materials and products, expanding transactions with existing customers, and developing new customers. As a result, the food business and Maruman H&B Co., Ltd., which became a newly consolidated subsidiary in December 2020, performed well, and sales of raw materials for in-house cosmetics products increased year on year, which was a bright spot, but overall sales were weak due to the significant impact of the spread of COVID-19.

Sales of chemical products increased by 2.3 times compared with the same period of the previous fiscal year, significantly exceeding the growth in sales, due to the contribution of high value-added products

## Chemicals Business

Net sales were 1,896 million yen (up 4.6% year on year), and operating income was 80 million yen (up 232.2% year on year). In the field of surface treatment chemicals, despite the spread of COVID-19, the company focused on sales of its main products for fine wiring formation, semiconductor electrode formation, and passive components both in Japan and overseas by actively communicating with customers through the use of ICT. In the surface treatment equipment field, under the slogan of "shortening delivery time will change the company," the company returned to its roots as an equipment manufacturer under a new structure that began in February 2021, and started activities specializing in manufacturing policies. As a result, the surface treatment chemicals field performed well as the related market was revitalized by the expansion of the 5G market and the increase in telecommuting, boosting sales of the main products. In the field of surface treatment equipment, both sales and profits remained steady as frictions between the U.S. and China and the Japan-Korea issues affected sales during the period.

## 5. ESG and shareholder return policy

### Company-wide initiatives and social impact projects

Working on new businesses with SDGs

### Company-wide initiatives

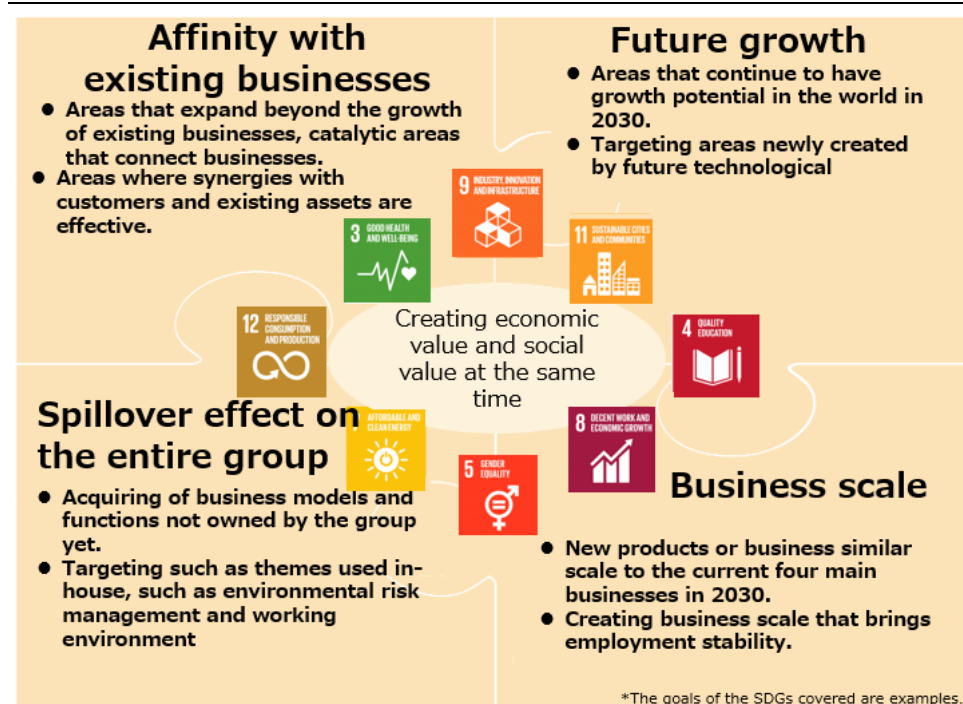
#### Establishing the ESG Promotion Department

Iwaki's core values are SH (safety and health), E (environment), and EG (respect for ethics and goodwill). In particular, the aim is to create a good company and develop human resources with "G = Goodwill." Up to now, the company has been focusing on CSR activities, with emphasis on improvement and promotion of 1) employee education, 2) welfare programs, 3) support for the child-rearing and the generation that needs caregiving, 4) participation of senior citizens, 5) employment of people with disabilities, 6) telework, and 7) the 3Rs (Reduce, Reuse, and Recycle). Efforts were carried out to promote the employment of people with disabilities, such as the recycling of paper, which is consumed in large quantities, for use in business cards. In creating a system for telework (working outside the company office), innovations were incorporated to facilitate a smooth return to work after childcare. The ESG Promotion Department was established in December 2020 to further strengthen those efforts, and at the same time, the Social Impact Strategy will be implemented as a sustainable strategy with a social theme, as discussed below.

#### Sustainable strategy with a social theme: Social Impact Strategy

Regarding the SDGs, the focus is to grasp future sustainable needs, create products (tangible goods) and services (intangible goods) that can grow together with society, and launch a fifth core business following the current four main businesses. The company will create new businesses that will grow together with society from four perspectives, based on the sustainable needs of the future (SDGs). As part of the launch of a senior citizens activation business in a social impact strategy, the company is operating a farm in Suzu City, Ishikawa Prefecture, to produce raw materials for health foods and cosmetics and to sell products using them in order to create a regional brand.

#### Image of sustainable strategy with the theme of society



Source: Excerpt from financial results briefing of Iwaki for the fiscal year ending November 2020

Further strengthening management capabilities to lead the new holding company structure

Head office in Tokyo and two locations in Suzu City, Ishikawa Prefecture  
Also working on regional revitalization

Stock compensation for directors is linked to EBITDA and ROE

Employees also benefit from increased shareholder value

Aiming for a payout ratio of 30%

## Corporate governance

### Board of directors

Astena HD will have nine directors (excluding the managing executive officer, who will concurrently serve as the general manager of the business unit). The executive side will consist of President Iwaki, CHRO Omori (human resources), CSO Hatazawa (strategy), and CFO Atsumi and Chairman Iwaki, and the outside directors will be Mr. Ochi (from an operating company), Mr. Kawano (from a financial institution), Mr. Ninomiya (from a pharmaceutical company), and Mr. Nakagawa (to be newly appointed, a scholar in the human resources field).

Mr. Taizo Ochi comes from an operating company and has extensive experience in IR. Mr. Tsuyoshi Kawano comes from a financial institution and has worked as a director of an operating company. Mr. Yoshiyasu Ninomiya comes from a pharmaceutical company and has experience managing foreign pharmaceutical companies. It can be said that management capabilities have been further strengthened to drive the new holding company structure. There will be two choices for the location of the head office, Tokyo and Suzu City. The relocation will be carried out in 2023.

### Stock compensation system for directors

The stock compensation system for directors was previously based on net sales, gross profit margin, and ROIC, but these will be changed to 1) net sales, 2) EBITDA margin, and 3) ROE. Although ROIC will be used on an operating company basis, it will not have a direct connection with stock compensation, because it was judged that as M&As will continue to occur as the holding company assumes leadership, it would be better to consider returns from the same perspective as investors.

There are two systems for stock compensation to directors. One is the BIP trust (executive compensation board incentive plan). This is an attempt to issue shares and provide benefits in the form of cash value based on the level of performance that was achieved. The other is the RS compensation system (stock compensation system with transfer restrictions). The aim to increase stock value in the medium to long term with stock compensation with a transfer restriction of 5 to 10 years. Both of these measures are intended to increase incentives for performance improvement and to share value with shareholders.

For employees, an Employee Stock Ownership Plan (ESOP) trust was launched in April 2017 to increase incentives for medium-term corporate value improvement and to promote sharing of results.

## Policy on shareholder return

The company's basic dividend policy is to maintain a dividend on equity (DOE) ratio of at least 1.5% and a payout ratio of approximately 30%, which is both stable and linked to business performance, in order to enhance the return of profits to shareholders while striving to achieve business growth and increase corporate value and taking into consideration capital policies that take shareholder value into account. The basic policy is to pay dividends of surplus twice a year, an interim dividend and a year-end dividend.

Funding is carried out in a way that prevents value degradation for existing shareholders

## Devising methods for raising funds

Iwaki is raising funds through the granting of stock acquisition rights to SMBC Nikko Securities Inc. (hereinafter referred to as "SMBC Nikko Securities"), which will result in a dilution of up to 20%, as disclosed on November 30, 2020. It has provisions that take into account the interests of existing shareholders (clauses on target price, and designating the suspension of the exercise of rights).

First, by imposing restrictions on the exercise of rights based on the target price (target price clause), the plan is that, in principle, only when the stock price (closing price) is above the target price ((1) 630 yen or (2) 700 yen), SMBC Nikko Securities will be able to use the stock acquisition rights for the next two trading days. Even if the stock price of Iwaki exceeds the target price, if the company requests the suspension of the exercise of rights, SMBC Nikko Securities will no longer be able to use the stock acquisition rights, and the company will be able to control the timing of the exercise of the rights, etc., to a certain degree (clause on designating the suspension of the exercise of rights). In addition, since the number of potential shares is fixed, the upper limit of the number of the company's common shares that will be delivered as a result of the exercise of stock acquisition rights is fixed regardless of the stock price trend, and the upper limit of the dilution ratio is fixed in advance.

Second, there is an exercise price adjustment clause, and since the exercise price can be adjusted, it is possible to enjoy the benefits when the stock price rises, as well as to plan the exercise for when the stock price falls.

Third, there is an exercise request clause, and Iwaki can request SMBC Nikko Securities to use the stock acquisition rights for all of the individual exercise requests during the exercise request period. This makes it possible to capture business opportunities at the right time without losing sight of the need to prioritize the procurement of funds.

## 6. Value creation analysis with GCC™

### Value design

### Consistent value design

Attempt to systematize the way the values are designed in the form of A. What the company aims for, B. What it has been up to now, C. The future, and D. Transition strategies. It can be appreciated that the design is consistent.

### Visualization of “value design” \*

#### A. What the company aims for

- |   |  |
|---|--|
| <p>■ <b>Management Philosophy</b></p> <ul style="list-style-type: none"> <li>Based on the principles of “honesty,” “contribution,” and “credibility,” the aim is to be a “company that always gives top priority to business partners.” The company will also contribute to the expansion of shareholders’ profits by coexisting and prospering with its business partners through the products and services it provides. As a result, it will continue to fulfill its responsibilities to society and all other stakeholders.</li> </ul> | <p>■ <b>Management policy</b></p> <ul style="list-style-type: none"> <li>To become the industry’s “first choice,” establish a foundation for sustainable growth through ESG management, and embody the “Astena spirit” of taking the initiative in business</li> </ul> |
| <p>■ <b>Characteristics of the strategy</b></p> <ul style="list-style-type: none"> <li>With sustainability at the center of its management strategy, the company is developing businesses aimed at establishing sustainability for each of the three basic strategies of “platformer strategy,” “niche-leader strategy,” and “social impact strategy.”</li> </ul>   |  |

#### B. Until now

(Until the fiscal year ending November 2020)

**Having manufacturing, wholesaling, and trading company functions / Tokyo Tower management through product assortment and policy assortment**

- **Resources**
- Accumulation of credibility that has been sustainable for 107 years / domestic and overseas business relations with 5,500 companies / domestic and overseas networks with raw material manufacturers / human resources with expertise in pharmaceutical raw materials, manufacturing equipment for formulations, and manufacturing / safety, environmental compliance, and quality capabilities
- **Intellectual property**
- Micro-molecular organic chemical synthesis technology and raw material manufacturing know-how / Manufacturing know-how of various pharmaceuticals, especially skin preparations
  - Synthesis know-how and optimal production equipment for high-end surface treatment chemicals
- **Business model**
- Ability to make proposals and solve problems through an optimal and differentiated value chain centered on the manufacture and wholesale of raw materials in the fields of pharmaceuticals, foods, functional foods, cosmetics, and chemicals / stable cash flow / sustainability and stability through diversification
- **The role played by intellectual property**
- Differentiation, high added value, “Iwaki spirit”
  - Criteria for diversification and business alliances / M&As
- **Values**
- **Customer segments**
- Manufacturers, retailers, and consumers in the fields of medical drugs, food/functional food, and cosmetics
  - Electronics component manufacturers (printed circuit boards, passive electronic components, semiconductors)
- **Value provided**
- Trading and wholesaling functions of raw materials and products unique to Iwaki from the customer’s perspective, related manufacturing process methods, provision of raw materials and contract manufacturing, and other peripheral services / Ability to make proposals to solve problems.
- **What has been obtained from the provider?**
- Stable business relationships / spiral upward in value through development tips for pharmaceuticals, foods, functional foods, cosmetics, and chemicals

- **External environment so far**
- Improving profitability by designated basic drugs
  - High added value such as SG
  - Price reduction pressure due to NHI price revisions

- **Current issues**
- “Policy assortment” in HBC and food products
  - Manufacturing scale
  - Ability to respond to digital transformation / responding to high pharmacological activity
  - Return on Invested Capital (ROIC) under Weighted Average Cost of Capital (WACC)

#### C. From now on

(Appearance for the fiscal year ending November 2030)

**Value creation through sustainable strategies and advanced innovation in industry, technology, and society**

- **Resources**
- In addition to the resources cultivated “until now,” the company has comprehensive capabilities from research to wholesale and retail through cutting-edge pharmaceutical technology (medium-molecule technology) and CMC business / ability to handle high pharmacological activity / abundant capacity for manufacturing dermatological agents and injections / direct marketing capabilities / digital transformation capabilities / ability to pursue synergies, control group-wide investments, and control expected earnings through the holding company.
- **Intellectual property**
- In addition to the intellectual property cultivated “until now,” the company has know-how in medium-molecule chemical synthesis technology and raw material manufacturing / final product development know-how / digital transformation know-how / know-how in operating a platform to achieve high value-added products that optimally match raw material manufacturers and consumers
- **Business model**
- Platform business: CMC, Healthcare Procurement, Drug Discovery Incubation, CDMO
  - Niche Leader Business: Dermatological Agent Generic Drugs / High-End Surface Treatment Drugs
  - Social Impact Business: Activation of Senior Citizens, Local Development + Healthcare
- **The role played by intellectual property**
- In addition to the role played “until now,” the company will play a role in strengthening its ability to propose “intangible goods” (services and experiences) that go further in terms of providing value to customers and the SDGs.
- **Values**
- **Customer segments**
- The importance of the end consumer will be increased among those who have been customers “until now.” This will also include various stakeholders including local governments related to regional revitalization.
- **Value that will be provided**
- In addition to the value that has been provided “until now,” the ability to propose more in-depth “intangible goods (services and experiences)” regarding the provision of value to customers through the platform, and matching through digital transformation.
- **What will be obtained from the provider?**
- In addition to what has been obtained “until now,” the spiral of improvement in the ability to provide value will be enhanced by hints for setting issues that will lead to the strengthening of proposals.

- **Future external environment**
- Unbundling of the pharmaceutical industry / medium-molecule drug discovery needs / interest in the SDGs / digital transformation needs in wholesale / BCP
  - Price reduction pressure due to NHI price revisions

- **Challenges for transition**
- In-house product development capability for “policy assortment”
  - Human resources needed to improve the ability to respond to digital transformation
  - Pursuing synergies between stable businesses and advanced businesses
  - Long-term ROIC improvement

#### D. Transition strategy

##### ■ Need for management resources to move to C.

- Optimal integration of CMC and CDMO and its application to HBC and food products
- In-house product development capabilities that take advantage of CMC
- Further strengthening research capabilities
- Ability to understand the needs of end consumers
- The need to further strengthen BCP (Business Continuity Plan)
- Value chain to expand the policy assortment of HBC and food products
- ROIC management ability

##### ■ Solution to acquire the necessary management resources to move to C.

- Optimal management in pursuit of group synergies through a holding company structure
- Further strengthening of R&D capabilities through in-house product development capabilities, drug discovery incubation, and collaboration with universities based on CMC R&D support capability, JITSUBO’s medium-molecule synthesis technology capability, and Maruman H&B’s direct marketing capability
- BCP support through two head offices, Tokyo and Ishikawa
- M&As to expand the policy assortment of HBC and food products
- Strengthening the ROIC management/control system by the holding company

Source: Created by JPR based on various materials disclosed by Iwaki. Some parts also reflect JPR’s own subjective viewpoint.

Created by applying the framework of the “Management Design Sheet,” which is “a tool for designing management by accurately evaluating the role that intellectual property plays in the value creation mechanism of a company” created by the Intellectual Property Strategy Promotion Office of the Cabinet Office. This sheet is useful for visualizing the story of creating shareholder value. See the following URLs for details. [https://www.kantei.go.jp/jp/singi/titeki2/keiei\\_design/index.html](https://www.kantei.go.jp/jp/singi/titeki2/keiei_design/index.html), [https://www.kantei.go.jp/jp/singi/titeki2/keiei\\_design/siryou01.pdf](https://www.kantei.go.jp/jp/singi/titeki2/keiei_design/siryou01.pdf)



## GCC™ analysis

## A. What the company aims for, C. Shareholder value creation system to be realized in the future

The contents of all pages of the value design are organized into the three elements of Growth (sales growth), Connection (improvement of connections between people and businesses = higher return on capital), and Confidence (improvement of trust = lower business risk and lower capital costs), and the non-financial information was organized by using the framework of GCC Management™ (for details, please refer to the Appendix), which organizes the linkage with the quantitative model and develops it into a shareholder value analysis model. All three elements are expected to improve significantly over the long term compared to the current situation, and the ability to create shareholder value is also expected to improve significantly. ROIC (Return on Invested Capital) is currently below WACC, but JPR predicts that it will improve significantly in the future, becoming almost the double of WACC.

### The story of shareholder value improvement as organized by GCC™

What the Company Aims for	GCC Management™ Framework	Logic for Improving Corporate Value Business Strategy and Revenue Structure for Profitable Products and Services				Prospects for Shareholder Value	
<b>Mission</b> <ul style="list-style-type: none"><li>Based on the principles of "honesty," "contribution," and "credibility," the aim is to be a "company that always gives top priority to business partners."</li><li>The company will contribute to the expansion of shareholders' profits by coexisting and prospering with our business partners through the products and services it provides.</li><li>It will continue to fulfill its responsibilities to society and all other stakeholders.</li></ul>	<b>Growth</b> <ul style="list-style-type: none"><li>In the field of high-end surface treatment for pharmaceuticals, foods, functional foods, and electronics based on micro- and medium-molecular chemical synthesis technology and formulation technology.</li></ul>	Sales growth	<b>Customer segments</b> <ul style="list-style-type: none"><li>Manufacturers, retailers, and consumers in the fields of medical drugs, food/functional food, and cosmetics</li><li>Electronics component manufacturers (printed circuit boards, passive electronic components, semiconductors)</li><li>Diverse stakeholders, including local governments, involved in regional development</li></ul>	<b>Relationship with customers</b> <ul style="list-style-type: none"><li>Operating directly and making value propositions</li><li>Once a relationship is established, it is maintained for the long term.</li></ul>	<b>Revenue flow</b> <ul style="list-style-type: none"><li>Stable wholesale sales</li><li>Stable income from CMC and CDMO contracts</li><li>Manufacture and sale of in-house raw materials and products</li><li>In chemicals, sales of manufacturing machinery and consumables</li><li>Economic stability overall</li><li>Capital gains from drug discovery venture investment</li></ul>	<b>Sustainable growth</b> <ul style="list-style-type: none"><li>Astena 2030's target of 130 billion yen by November 2030 is fully achievable.</li></ul>	
<b>Vision</b> <ul style="list-style-type: none"><li>With sustainability at the center of its management strategy, the company is developing businesses aimed at establishing sustainability for each of the three basic strategies of "platformer strategy," "niche-leader strategy," and "social impact strategy."</li><li>To become the industry's "first choice," establish a foundation for sustainable growth through ESG management, and embody the "Astena spirit" of taking the initiative in business</li></ul>	<b>Connection</b> <ul style="list-style-type: none"><li>Strengthening value chain connections in all pharmaceuticals, foods, functional foods, and cosmetics</li><li>Evolving into a platform that connects diverse value chains and promotes optimal matching by introducing higher value-added services</li><li>Furthermore, regional revitalization to strengthen ties with local governments</li></ul>		Improving profitability and asset efficiency	<b>Key resource</b> <ul style="list-style-type: none"><li>Micro- and medium-molecular organic chemical synthesis technology and raw material manufacturing know-how</li><li>Manufacturing know-how of various dosage forms of medical drugs (dermatological agents)</li><li>Synthesis know-how and optimal production equipment for high-end surface treatment chemicals</li></ul>	<b>Key activity</b> <ul style="list-style-type: none"><li>Optimal and differentiated value chain based on research and development of raw materials, procurement of raw materials, manufacturing and wholesaling, and the ability to propose and solve problems through a platform based on high value-added services.</li><li>Strengthening differentiated businesses specializing in niche leaders</li><li>In-house product development based on direct marketing capabilities</li><li>Further strengthening R&amp;D capabilities through drug discovery incubation and collaboration with universities</li></ul>	<b>Cost / capital structure</b> <ul style="list-style-type: none"><li>Increasing profit margin by improving added value</li><li>Return on Invested Capital (ROIC) to largely double from the current level</li><li>With goodwill amortization</li><li>Long-term trend of improvement in capital efficiency as upfront investments become profitable</li></ul>	<b>Expansion of excess profit</b> <p>JPR forecasts ROIC to grow from 5.4% in the fiscal year of November 2021 to 11.5% in the fiscal year of November 2030</p>
<b>Capabilities</b> <ul style="list-style-type: none"><li>Proposal and problem-solving capabilities through an optimal and differentiated value chain centered on the manufacture and wholesale of raw materials in the fields of pharmaceuticals, foods, functional foods, cosmetics, and chemicals</li></ul>	<b>Confidence</b> <ul style="list-style-type: none"><li>Further refinement of stable business through trust and diversification accumulated over 107 years</li><li>In the field of innovation, the risk is low because of the focus on contracting.</li><li>Increasing public trust through SDG initiatives</li></ul>			Reduced business risk	<b>Business risk</b> <ul style="list-style-type: none"><li>Toward becoming a more stable company by pursuing a strategy that emphasizes sustainability</li></ul>	<b>ESG</b> <ul style="list-style-type: none"><li>Business strategy focusing on SDGs</li><li>Optimal management in pursuit of group synergies through a stock company structure</li></ul>	<b>Cost of capital</b> <ul style="list-style-type: none"><li>Currently, the weighted average cost of capital (WACC) is estimated to be around 6%.</li></ul>
					<b>Financial risk</b> <ul style="list-style-type: none"><li>Flexible use of debt on a stable cash flow base</li></ul>		

Source: Created by JPR based on materials disclosed by Iwaki and interviews

## Estimated corporate value

Based on the contents of all pages, a financial model was created using the GCCTM analytical framework, and shareholder value was estimated. The assumptions for the income statement and the balance sheet are as follows. Zero growth was conservatively assumed from the fiscal year ending November 2030 onward.

### Forecast of income statement and balance sheet

[Unit : A million yen]		2020.11	2021.11	2022.11	2023.11	2024.11	2025.11	2026.11	2027.11	2028.11	2029.11	2030.11
Consolidated	Sales	65,341	73,000	76,000	82,000	91,000	100,000	103,000	108,000	114,000	120,000	130,000
	Operating margin	3.1%	3.6%	4.6%	5.1%	4.8%	4.9%	5.4%	5.9%	6.3%	6.8%	7.2%
	Operating income	2,035	2,600	3,496	4,182	4,368	4,900	5,562	6,372	7,182	8,160	9,360
	Ordinary income	1,968	2,700	3,392	4,075	4,250	4,776	5,453	6,275	7,097	8,093	9,300
	Income before income tax	2,589	2,700	3,392	4,075	4,250	4,776	5,453	6,275	7,097	8,093	9,300
	Corporate income tax	606	832	1,045	1,255	1,309	1,471	1,680	1,933	2,186	2,493	2,865
	Net income	1,983	2,000	2,347	2,820	2,941	3,305	3,774	4,342	4,911	5,600	6,436
	Dividends per share	16	17	18	19	20	21	22	23	24	25	26
	Dividends	556	705	746	788	829	870	912	953	995	1,036	1,078
	Internal reserves	1,427	1,295	1,601	2,032	2,112	2,435	2,862	3,389	3,916	4,564	5,358
	Percentage-of-year invested capital net sales ratio	40.9%	46.0%	49.7%	48.6%	47.5%	46.6%	46.1%	45.6%	45.0%	44.5%	44.0%
	Year-end invested capital	26,699	33,597	37,748	39,869	43,254	46,640	47,497	49,196	51,317	53,438	57,246
	NOPAT	1,408	1,799	2,419	2,894	3,023	3,391	3,849	4,409	4,970	5,647	6,477
	NOPAT margin	2.2%	2.5%	3.2%	3.5%	3.3%	3.4%	3.7%	4.1%	4.4%	4.7%	5.0%
	ROIC	5.3%	5.36%	6.41%	7.26%	6.99%	7.27%	8.10%	8.96%	9.68%	10.57%	11.31%
	WACC	6.00%	6.00%	6.00%	6.00%	6.00%	6.00%	6.00%	6.00%	6.00%	6.00%	6.00%
	ROIC-WACC	6.00%	-0.64%	0.41%	1.26%	0.99%	1.27%	2.10%	2.96%	3.68%	4.57%	5.31%
	ROE	9.2%	7.3%	8.2%	9.3%	9.1%	9.6%	10.3%	11.0%	11.4%	11.9%	12.5%
	Fine Chemicals Division	21,466	23,983	25,363	26,823	28,367	30,000	31,777	33,659	35,652	37,764	40,000
	Operating income	1,204	1,483	1,667	1,874	2,108	2,370	2,577	2,801	3,046	3,311	3,600
Medical Division	Sales	10,648	11,896	13,006	14,221	15,548	17,000	18,028	19,118	20,274	21,500	22,800
	Operating income	998	1,271	1,384	1,506	1,640	1,785	1,976	2,186	2,420	2,678	2,964
Health & Beauty Care, Food Division	Sales	25,812	28,838	30,482	32,220	34,058	36,000	37,643	39,361	41,157	43,036	45,000
	Operating income	-491	-491	-323	-155	12	180	269	403	603	902	1,350
Industrial Chemicals Division	Sales	7,400	8,267	8,670	9,093	9,535	10,000	10,539	11,107	11,705	12,335	13,000
	Operating income	328	337	372	411	453	500	605	733	887	1,074	1,300
Consolidated	Surplus cash and deposits		0	0	0	0	0	0	0	0	192	4,756
	Cash and deposits	7,568	7,879	8,501	9,434	10,367	10,678	11,196	11,818	12,440	13,477	13,477
	Trade receivable	15,026	15,643	16,878	18,731	20,583	21,201	22,230	23,465	24,700	26,758	26,758
	Inventory	8,369	8,713	9,401	10,433	11,465	11,809	12,382	13,070	13,758	14,904	14,904
	Short-term investment securit	0	0	0	0	0	0	0	0	0	0	0
	Other current assets	913	951	1,026	1,138	1,251	1,289	1,351	1,426	1,501	1,626	1,626
	Property, plant and equipment (other than land)	6,213	10,158	10,960	12,163	13,366	13,767	14,435	15,237	16,039	17,375	17,375
	Land	3,923	3,923	3,923	3,923	3,923	3,923	3,923	3,923	3,923	3,923	3,923
	Goodwill	6,120	5,712	5,304	4,896	4,488	4,080	3,672	3,264	2,856	2,448	2,448
	Investment and lending	3,694	3,694	3,694	3,694	3,694	3,694	3,694	3,694	3,694	3,694	3,694
	Other fixed assets	2,493	2,493	2,493	2,493	2,493	2,493	2,493	2,493	2,493	2,493	2,493
	Total assets	54,319	59,166	62,180	66,905	71,630	72,932	75,376	78,390	81,404	86,891	91,455
	Short term interest bearing debt	5,972	4,458	4,783	5,817	6,420	4,914	3,761	2,520	752	0	0
	Current liabilities other than interest-bearing debt	16,954	17,651	19,045	21,135	23,225	23,922	25,083	26,477	27,870	30,193	30,193
	Long term interest bearing debt	5,966	5,966	5,966	5,966	5,966	5,966	5,966	5,966	5,966	5,966	5,966
	Other fixed liabilities	3,776	3,776	3,776	3,776	3,776	3,776	3,776	3,776	3,776	3,776	3,776
	Minority interest	0	0	0	0	0	0	0	0	0	0	0
	Amount of capital	7,027	11,263	11,263	11,263	11,263	11,263	11,263	11,263	11,263	11,263	11,263
	Foreign currency translation adjustment	73	73	73	73	73	73	73	73	73	73	73
	Hedge gains and losses	0	0	0	0	0	0	0	0	0	0	0
	Revaluation of land	0	0	0	0	0	0	0	0	0	0	0
	Earned reserve	14,551	15,978	17,273	18,874	20,906	23,018	25,453	28,315	31,704	35,620	40,184
	Shareholders' equity											
	Capital liabilities	54,319	59,166	62,180	66,905	71,630	72,932	75,376	78,390	81,404	86,891	91,455

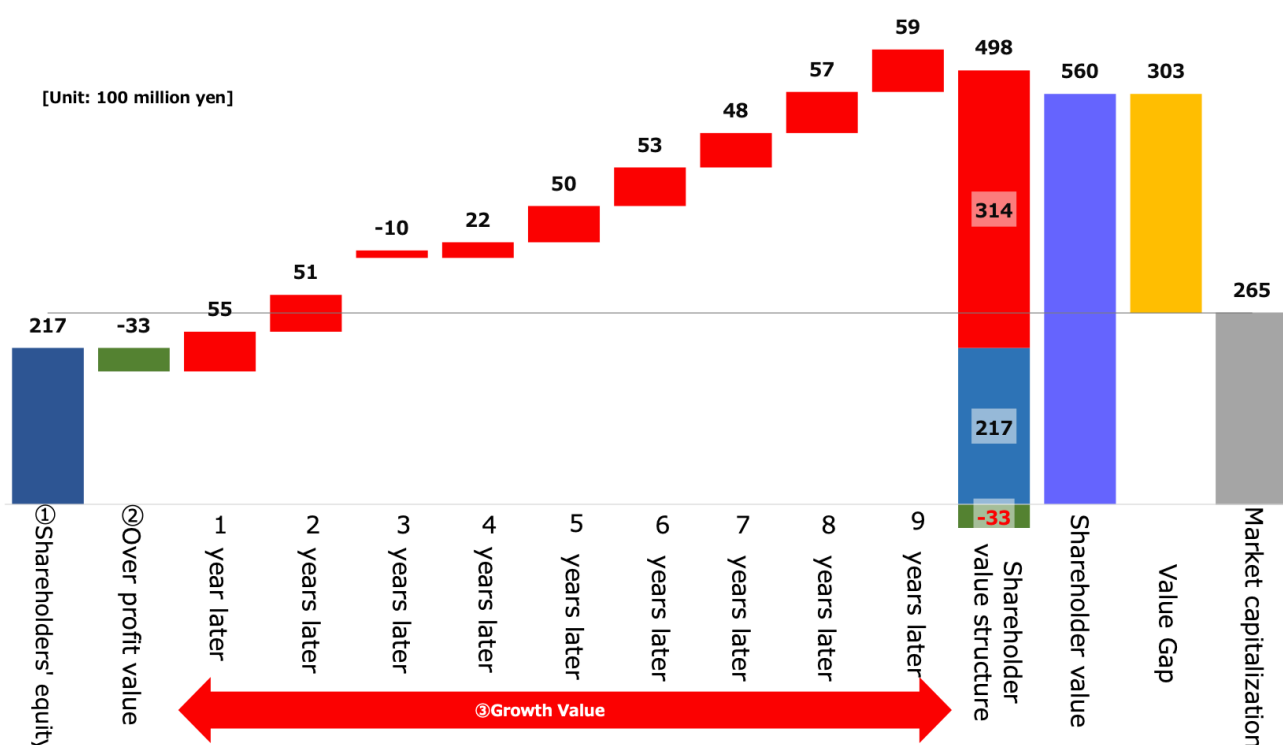
Source: Created by JPR based on materials disclosed by Iwaki and company interviews

**Even after full dilution, the potential stock price is calculated to be 1.84 times the current price.**

The financial model on the next page estimates shareholder value based on the above assumptions. The shareholder value was estimated to be 56 billion yen. (1) Number of issued shares at the end of March: 35,399,187 shares, (2) increase in the number of shares due to stock acquisition rights from April 1<sup>st</sup> to 20<sup>th</sup>: 1,950,300 shares, (3) 40,290 shares of treasury stock at the end of March, and (4) potential increase of 3,310,200 shares due to unexercised stock acquisition rights; based on this, (1)+(2)-(3)+(4) = 40,619,418 shares; when exceeding 56 billion yen, the price per share is 1,379 yen. Compared to the closing price of 748 yen on April 26, **the potential share price is calculated to be 1.78 times the current price even after full dilution.**

# **Estimation of shareholder value in GCC™ analysis**

[Unit: 100 million yen]		Present term 2021.11	1 year later 2022.11	2 years later 2023.11	3 years later 2024.11	4 years later 2025.11	5 years later 2026.11	6 years later 2027.11	7 years later 2028.11	8 years later 2029.11	9 years later 2030.11
<b>Basic financial indicator</b>	Sales	730	760	820	910	1,000	1,030	1,080	1,140	1,200	1,300
	Operating income	26.0	32.4	39.0	47.8	58.0	68.0	71.3	75.2	79.2	85.8
	Operating margin	3.6%	4.3%	4.8%	5.3%	5.8%	6.6%	6.6%	6.6%	6.6%	6.6%
<b>4 Driver</b>	Sales growth rate	11.7%	4.1%	7.9%	11.0%	9.9%	3.0%	4.9%	5.6%	5.3%	8.3%
	NOPAT margin	2.5%	2.9%	3.3%	3.6%	4.0%	4.6%	4.6%	4.6%	4.6%	4.6%
	Invested capital turnover ratio	46.0%	47.0%	48.0%	49.0%	50.0%	51.0%	52.0%	53.0%	54.0%	55.0%
	Percentage-of-year invested capital net sales ratio	47.0%	48.0%	49.0%	50.0%	51.0%	52.0%	53.0%	54.0%	55.0%	56.0%
	WACC	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%
<b>Creativity of corporate value</b>	ROIC = NOPAT margin ÷ invested capital net sales ratio	5.4%	6.3%	6.9%	7.4%	8.0%	8.9%	8.8%	8.6%	8.4%	8.3%
	ROIC / WACC (value created with the original hand of 1 yen)	¥0.9	¥1.0	¥1.1	¥1.2	¥1.3	¥1.5	¥1.5	¥1.4	¥1.4	¥1.4
<b>DCF</b>	NOPAT	17.98	22.42	26.98	33.07	40.13	47.00	49.28	52.02	54.76	59.32
	Invested capital (former hand)	336	357	394	446	500	526	562	604	648	715
	Year-end invested capital	357	394	446	500	526	562	604	648	715	728
	Increment	21	36	52	54	25	36	43	44	67	13
	Cumulative value		58	110	164	190	226	268	312	379	392
	NOPAT - Increase in invested capital = FCF	-3	-14	-25	-21	15	11	7	8	-12	46
	Discount rate to present value	94%	89%	84%	79%	75%	70%	67%	63%	59%	56%
	Present value of FCF (PV)	-3	-12	-21	-17	11	8	4	5	-7	26
	Cumulative value ①	534									
	Non-business asset value ②	31									
	Corporate value = ① + ②	565									
<b>EVA</b>	NOPAT	18	22	27	33	40	47	49	52	55	59
	Invested capital × WACC	20	21	24	27	30	32	34	36	39	43
	EVA	-2	1	3	6	10	15	16	16	16	16
	EVA = NOPAT - invested capital × WACC	-2	1	3	6	10	15	16	16	16	16
	Value created in each year	-36	53	40	49	64	89	2	3	2	9
	Discount Rate	100%	94%	89%	84%	79%	75%	70%	67%	63%	59%
	Present value of EVA	-36	58	51	-10	22	50	53	48	57	59
	Invested capital ① Origin	336									
	Over profit value (Permanent value of EVA of this term) ②	-36									
	Growth value (Present value of increase in EVA) ③	387									
	Non-business asset value ④	31									
	Corporate value = ① + ② + ③ + ④	718									
	Interest-bearing debt, etc.	-158									
	Shareholder value	560									



Source: Estimated by JPR based on FactSet, Nikkei Needs, etc., market capitalization based on the closing price on April 23, 2021

## 7. Comparative similar company analysis

### Analysis by EBITDA multiple

### Comparison with a wide range of similar public companies

The shareholder value for Iwaki was estimated using the comparable peer company method. Iwaki is involved in a wide range of value chains in each of its businesses. Therefore, with regard to similar companies, we made a broad list of public companies related to each business. Fine chemicals and medical care are treated as one business because they are highly similar. The list of similar companies was made based on the following industries with high relevance according to the industry classification of Nikkei Needs. However, some were reclassified based on company hearings.

### Industry classification of each business

Iwaki's business	Nikkei Needs industry classification	Number of companies
Fine chemicals and pharmaceuticals	Bio-drug discovery / prescription drugs / chemicals and industrial drugs / medical reagents and test reagents / over-the-counter drugs / bulk drugs and intermediates / drug wholesaling / generic drugs	107
HBC / Food	Online shopping sales (food, health products and cosmetics) / commercial hair cosmetics / cosmetics and skin care / healthy and functional foods / online shopping sales (food, health products, and cosmetics) / seasonings and food additives / food wholesale (general)	69
Chemicals	Chemicals and industrial chemicals / chemical fibers (synthetic and semi-synthetic fibers, etc.) / inorganic basic chemicals / synthetic chemistry / organic basic chemicals / chemicals and chemicals wholesale / chemical machinery	50

Source: Classified based on data from FactSet and Nikkei Needs

The analysis was conducted using the EBITDA multiple, which is the ratio of corporate value (market capitalization + interest - bearing debt) to EBITDA (operating income before depreciation and amortization), which is considered to be the indicator most linked to corporate value as a cash flow and is also linked to the compensation of Iwaki's directors. The corporate value was calculated from FactSet data on the basis of the stock price on April 23, 2021. For reference, PER, EBIT (operating profit) multiples, PSR (price-sales ratio), and PBR were also compared. The comparison procedure is as follows.

Steps (2) and (3) below are estimated with reference to similar companies of HBC and food products.

### Corporate value comparison procedure of Iwaki

Steps	Contents										
(1)	<p>The following is calculated for each of the businesses of Iwaki for the fiscal year ending November 2020 (the previous fiscal year) and the fiscal year ending November 2021 (the current fiscal year). For the current fiscal year, consolidated net sales, operating income, and net income are the company's planned figures. All other values were estimated by JPR.</p> <table> <tr> <td>A. Net profit</td><td>Consolidated net income is prorated by segment income ratio</td></tr> <tr> <td>B. EBITDA</td><td>Total of segment profit + segment depreciation</td></tr> <tr> <td>C. Operating income (EBIT)</td><td>Using segment profit</td></tr> <tr> <td>D. Sales</td><td>Using segment external sales</td></tr> <tr> <td>E. Shareholders' equity</td><td>Consolidated shareholders' equity is prorated by segment income ratio</td></tr> </table>	A. Net profit	Consolidated net income is prorated by segment income ratio	B. EBITDA	Total of segment profit + segment depreciation	C. Operating income (EBIT)	Using segment profit	D. Sales	Using segment external sales	E. Shareholders' equity	Consolidated shareholders' equity is prorated by segment income ratio
A. Net profit	Consolidated net income is prorated by segment income ratio										
B. EBITDA	Total of segment profit + segment depreciation										
C. Operating income (EBIT)	Using segment profit										
D. Sales	Using segment external sales										
E. Shareholders' equity	Consolidated shareholders' equity is prorated by segment income ratio										
(2)	<p>For the similar public companies, the following was calculated based on the data available at the time of analysis. Corporate value is estimated based on the previous quarter's actual balance of interest - bearing debt + market capitalization</p> <table> <tr> <td>a. PER</td><td>Previous fiscal year: Market capitalization ÷ Current profit for the previous fiscal year Current fiscal year: Market capitalization ÷ Company's planned net income for the current fiscal year</td></tr> <tr> <td>b. EBITDA magnification</td><td>Previous fiscal year: Corporate value ÷ Settlement of the previous year EBITDA Current fiscal year: Corporate value ÷ Company's planned operating income for the current fiscal year + Depreciation expense for the previous fiscal year</td></tr> <tr> <td>c. EBIT magnification</td><td>Previous fiscal year: Corporate value ÷ Operating income for the previous year Current fiscal year: Corporate value ÷ Company's planned operating income for the current fiscal year</td></tr> <tr> <td>d. PSR</td><td>Previous fiscal year: Corporate value ÷ Settlement of the previous year EBITDA Current fiscal year: Corporate value ÷ Company's planned operating income for the current fiscal year + Depreciation expense for the previous fiscal year</td></tr> <tr> <td>e. PBR</td><td>Market capitalization ÷ Latest results of shareholders' equity at the end of the quarter</td></tr> </table>	a. PER	Previous fiscal year: Market capitalization ÷ Current profit for the previous fiscal year Current fiscal year: Market capitalization ÷ Company's planned net income for the current fiscal year	b. EBITDA magnification	Previous fiscal year: Corporate value ÷ Settlement of the previous year EBITDA Current fiscal year: Corporate value ÷ Company's planned operating income for the current fiscal year + Depreciation expense for the previous fiscal year	c. EBIT magnification	Previous fiscal year: Corporate value ÷ Operating income for the previous year Current fiscal year: Corporate value ÷ Company's planned operating income for the current fiscal year	d. PSR	Previous fiscal year: Corporate value ÷ Settlement of the previous year EBITDA Current fiscal year: Corporate value ÷ Company's planned operating income for the current fiscal year + Depreciation expense for the previous fiscal year	e. PBR	Market capitalization ÷ Latest results of shareholders' equity at the end of the quarter
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c. EBIT magnification	Previous fiscal year: Corporate value ÷ Operating income for the previous year Current fiscal year: Corporate value ÷ Company's planned operating income for the current fiscal year										
d. PSR	Previous fiscal year: Corporate value ÷ Settlement of the previous year EBITDA Current fiscal year: Corporate value ÷ Company's planned operating income for the current fiscal year + Depreciation expense for the previous fiscal year										
e. PBR	Market capitalization ÷ Latest results of shareholders' equity at the end of the quarter										
(3)	The top 25%, 50%, and bottom 25% are calculated for each industry as a percentage of the total										
(4)	Shareholder value and corporate value are calculated from (3) and (1). When calculating corporate value, shareholder value was estimated by subtracting Iwaki's interest-bearing debt as of the end of February 2021.										

Source: JPR

Upside from closing price  
of 712 yen on May 28:  
1.55 to 3.01 times

## Trial calculation result

The results of the trial calculation are as follows. In conclusion, the shareholder value was 41.6 to 79.3 billion yen.

Diluted base stock price range: 1,094 to 2,085 yen, PER range: 23.4 to 45.6 times, upside of the closing price of 712 yen on May 28, 2021: 1.54 to 2.92 times.

## Shareholder value estimate for Iwaki

### Step (1)

[Unit : Million Yen]			Net profit	EBITDA	EBIT	Sales	Shareholder equity
Fine Chemical/Medicine	FY11/2020	Actual	2,158	3,202	2,202	32,114	11,016
	FY11/2021	Prospective	1,819	4,031	2,754	35,878	11,016
Chemicals	FY11/2020	Actual	322	598	328	7,400	2,538
	FY11/2021	Prospective	223	681	337	8,267	2,538

### Steps (2) and (3)

[Unit : Times] ○=Iwaki evaluated higher, ●=Iwaki evaluated lower			PER	EBITDAx	EBITx	PSR	PBR	Sales growth rate	Operating margin
Iwaki, consolidated basis	FY11/2020	Actual	13.67	7.96	13.32	0.41	1.21		
	FY11/2021	Prospective	13.55	6.19	10.43	0.37	-	100.0%	11.7%
Fine Chemical/Medicine, comparable company	FY11/2020	Actual	Upper25%	37.7	17.68 ●	32.32 ●	13.17 ●	4.04 ●	
			Middle	20.2	10.45 ●	14.53 ●	2.15 ●	1.91 ●	
			Lower25%	15.2	6.38 ○	9.60 ○	0.96 ●	0.98 ○	
	FY11/2021	Prospective	Upper25%	38.9	19.59 ●	30.25 ●	6.93 ●	-	9.6% ○
			Middle	23.4	10.57 ●	14.70 ●	1.90 ●	-	3.8% ○
			Lower25%	14.3	6.94 ●	10.66 ●	0.94 ●	-	-3.2% ○
Health & Beauty Care Food, comparable company	FY11/2020	Actual	Upper25%	50.2	18.57 ●	33.24 ●	1.95 ●	3.74 ●	
			Middle	25.3	9.69 ●	15.50 ●	0.73 ●	1.44 ●	
			Lower25%	15.2	6.97 ○	9.89 ○	0.37 ○	0.79 ○	
	FY11/2021	Prospective	Upper25%	49.3	23.70 ●	31.72 ●	2.03 ●	-	7.8% ○
			Middle	26.5	12.28 ●	15.45 ●	0.75 ●	-	3.1% ○
			Lower25%	13.5	7.21 ●	10.01 ○	0.36 ○	-	-5.6% ○
Chemicals, comparable company	FY11/2020	Actual	Upper25%	21.7	11.42 ●	15.62 ●	1.03 ●	1.14 ○	
			Middle	14.2	6.76 ○	10.67 ○	0.77 ●	0.87 ○	
			Lower25%	10.8	5.35 ○	7.09 ○	0.26 ○	0.58 ○	
	FY11/2021	Prospective	Upper25%	16.7	9.01 ●	15.46 ●	0.94 ●	-	11.7% ○
			Middle	13.2	6.72 ●	10.07 ○	0.76 ●	-	4.6% ○
			Lower25%	10.6	5.21 ○	7.64 ○	0.26 ○	-	-1.3% ○

### Step (4)

[Unit : Million Yen]				Net profit	EBITDA	EBIT	Sales	Shareholder equity
Fine Chemical/Medicine, c	FY11/2020	Actual	Upper25%	81,265	56,610	71,164	423,000	44,555
			Middle	43,567	33,474	31,989	68,953	21,050
			Lower25%	32,862	20,415	21,149	30,751	10,755
	FY11/2021	Prospective	Upper25%	70,828	78,965	83,307	248,530	-
			Middle	42,619	42,615	40,470	68,200	-
			Lower25%	26,051	27,958	29,356	33,885	-
Chemicals, comparable cc	FY11/2020	Actual	Upper25%	6,981	6,824	5,130	7,614	12,520
			Middle	4,570	4,040	3,503	5,684	9,581
			Lower25%	3,469	3,200	2,328	1,937	6,394
	FY11/2021	Prospective	Upper25%	5,362	5,384	5,077	6,973	-
			Middle	4,251	4,015	3,305	5,624	-
			Lower25%	3,427	3,114	2,508	1,928	-
Iwaki, consolidated basis	FY11/2020	Actual	Upper25%	88,247	58,448	71,309	425,629	57,075
			Middle	48,136	32,529	30,506	69,652	30,631
			Lower25%	36,331	18,630	18,492	27,703	17,149
	FY11/2021	Prospective	Upper25%	76,190	79,364	83,399	250,518	
			Middle	46,870	41,645	38,790	68,839	
			Lower25%	29,478	26,087	26,879	30,828	

Conclusion: Iwaki's shareholder value was estimated based on the EBITDA multiple of 41.6 to 79.3 billion yen, which is the value obtained by multiplying EBITDA based on the current fiscal year's plan by the middle to top 25% of EBITDA multiples of comparative similar companies and subtracting interest-bearing debt.

Diluted base stock price range: 1,094 to 2,085 yen

PER range: 23.4 to 45.6 times

Upside from May 28, 2021 closing price of 712 yen: 1.54 to 2.92 times



## Appendix

### GCC management™

## What is an analytical framework of the GCC management™?

**Integrating financial and non-financial information that captures the hearts and minds of all stakeholders**

The GCC management® is an analytical framework developed by J-Phoenix Research in order to evaluate the sustainability of shareholder value by integrating non-financial information and financial information with a focus on the happiness of all stakeholders. The happiness of investors is measured by a framework of three elements of corporate value, while the happiness of employees is measured by the five-tier model of human needs, created by the prominent American psychologist Abraham Maslow. People typically feel happy when their five needs are satisfied. A company with a built-in framework to raise its employees' happiness can be determined to be more sustainable than a company with the same shareholder value but without such a framework.

The concepts that associate the five levels of needs with the three factors of corporate value are Growth (in sales), Connection (of people and businesses, leading to improve Return on Invested Capital), and Confidence. JPR has defined "Excess return generated from a strategy that incorporates the enhancement of happiness of all employees under the GCC concept" as Happiness Value Added®.

The enhancement of happiness is "why such a company exists," the raison d'être of the company, while the viewpoint of corporate value is "how the enhancement of happiness is associated with its value." The use of this framework makes it easy to explain the concept of creating corporate value to its employees. Moreover, this facilitates the disclosure of non-financial information, which is required for complying with the Stewardship Code. It also facilitates (1) the integration of financial and non-financial information, (2) management in consideration of ROIC and capital costs (addressing corporate governance), and (3) systemization and visualization in coping with ESG and SDGs.

\*ESG is an acronym for Environment, Social, and Governance. The idea that ESG's three perspectives are necessary for the long-term growth of a company is spreading worldwide. The SDGs were adopted at the United Nations Summit in September 2015 and are the goals set by 193 UN member states to achieve in the 15 years from 2016 to 2030. Since both are emphasized by long-term investors, it is expected that long-term investors' equity investment will increase for listed companies that are highly evaluated from these two perspectives.

### Analysis of corporate value creation by GCC Management™ that attracts stakeholders



#### The following elements are also built-in

- (1) integration of financial and non-financial information,
- (2) management in consideration of ROIC and capital costs (addressing corporate governance), and
- (3) systemization and visualization in coping with ESG and SDGs

#### Systematization of Happiness added value™

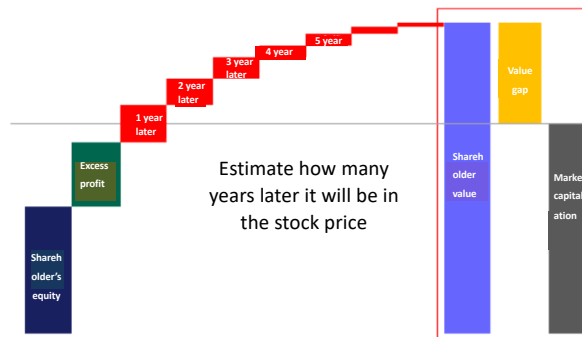
Source: JPR

## Corporate value estimated by use of ROIC and excess return

### Excess return analysis framework

Excess profit or economic value added is widely used worldwide as an indicator to estimate corporate value, evidenced by its adoption by Kao Corporation, a Grand Prix winner of the Tokyo Stock Exchange Fifth Corporate Value Improvement Award (FY2016). In the calculation of excess return, corporate value can be broken down into four elements: invested capital, excess return value, growth value, and non-business assets. This facilitates a better understanding of the structure that creates corporate value. A company might be overvalued when its market cap is higher than its theoretical corporate value, and undervalued when the market cap is lower. The contribution of each year's corporate value can be visualized in the following figure, in which shareholders' equity is simply represented as a sum of invested capital and non-business asset, subtracting interest-bearing debts. The figure below allows us to estimate how many years of growth might be incorporated in the stock price.

#### Breakdown of corporate value using excess return



Source: JPR

Estimated excess return is profit that exceeds investors' return expectations against invested capital. Its present value is "excess return value," while a potentially growing portion of excess return is "growth value." Moreover, assets that are not used in business are added as non-business asset value in estimating a theoretical corporate value. Theoretically, the estimated corporate value using excess return should be the same as the value estimated by using the discount cash flow (DCF) model. This report calculates excess return by using the following figures in a simplified manner.

- Excess return = NOPAT – Invested capital X WACC
- Net Operating Profit After Tax (NOPAT) = Operating profit X (1 - Effective tax rate)
- Invested capital = Total assets – Non-business assets – Current liabilities excluding Interest-bearing debt
- Non-business assets = Cash and deposits that exceed 10% of sales + Short-term investment securities + Investment securities + Deferred gains or losses on hedges + Land revaluation difference + Foreign currency translation adjustments
- Weighted average cost of capital (WACC) = After-tax interest rate of interest-bearing debt X  $(D/(E+D))$  + Cost of shareholders' equity X  $(E/(D+E))$
- Cost of shareholders' equity =  $0.5\% + 5\% \times \beta$
- $\beta$  = Slope of a linear regression line of five-year daily returns of TOPIX and the stock price of the target company
- E = Market cap at the time of calculation
- D = Short-term interest-bearing debt + Long-term liabilities + Minority interests in the latest financial statements at the time of calculation

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